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JANUARY  
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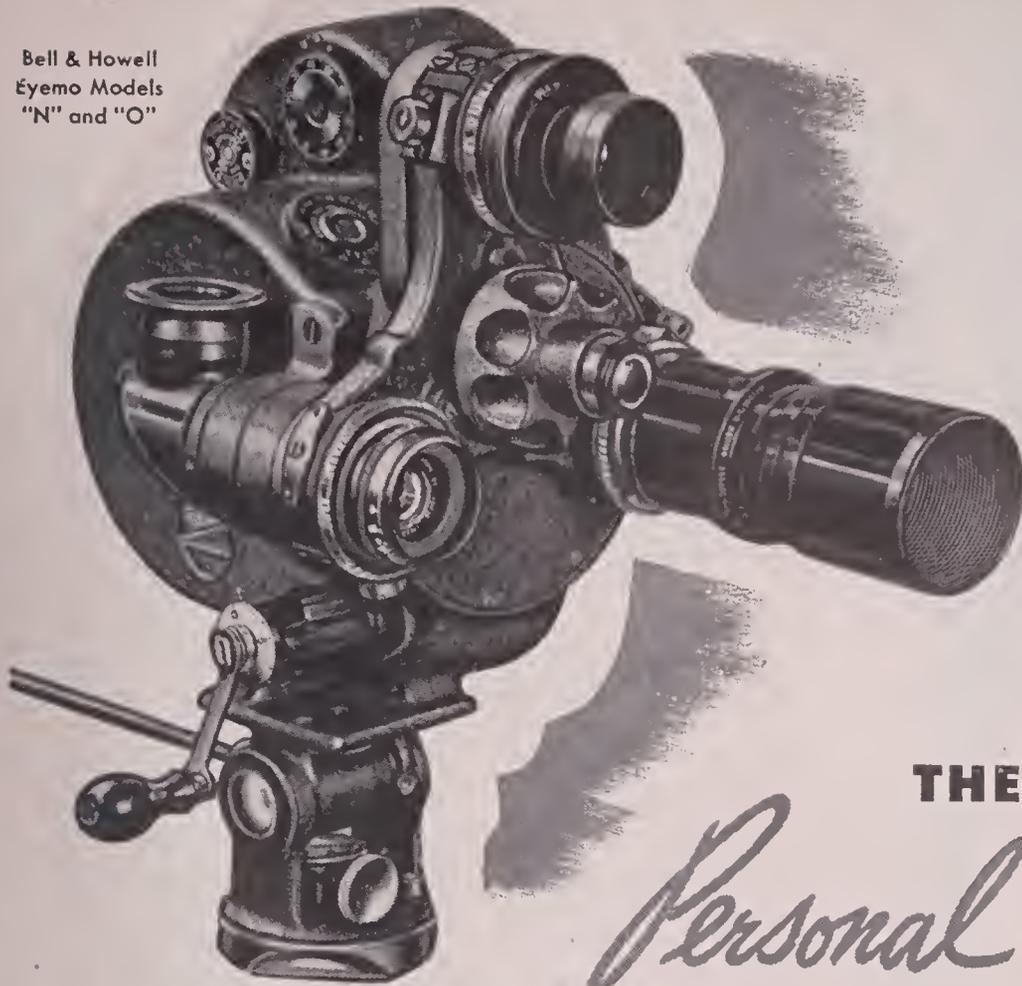


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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

JANUARY, 1947

NO. 1

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ON THE FRONT COVER—The stars of Paramount's "Blaze of Noon" receive final instructions from director John Farrow (seated on camera boom wearing top coat) for a closeup scene. Director of Photography William Mellor, A.S.C., is seated beside the camera checking action. Sonny Tufts, William Holden, Sterling Hayden, William Bendix, Anne Baxter, Howard Da Silva and Johnny Sands are grouped around the plane.



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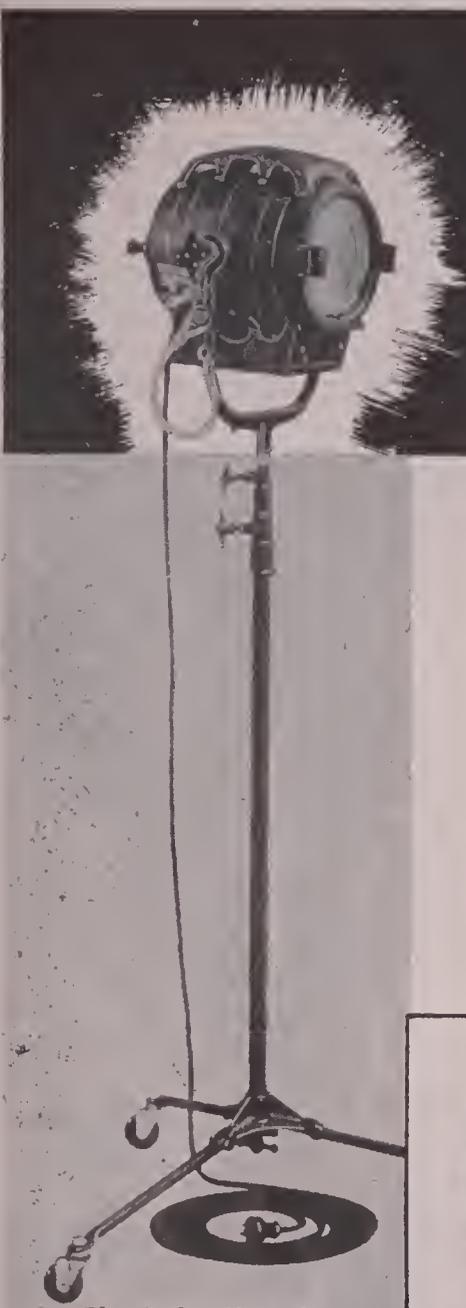
Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

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**T**HE high-speed Fastax motion picture camera, which played a unique role in making the photographic record of the atom bomb tests, is rapidly becoming an important tool in American industry.

During the war, Fastax cameras were used extensively in the development of war equipment. Short duration phenomena such as the explosive effect of ammunition, jet propulsion, and the jamming action of machine guns were seen by engineers for the first time by means of the Fastax. War manufacturers, observing frailties in materials and parts moving at lightning speed under the shock of simulated battle conditions, quickly recognized the possibilities of applying high speed motion picture photography to peace time production problems. As a result, hundreds of Fastax cameras are today at work in dozens of major industries making "super slow motion" studies of the high speed action of fuse blow-outs, relays and switches, governors, gears, clutches, pistons, propellers, watch and clock movements, flow of metals, and the fatigue of materials. Yet the surface of potential applications has only been scratched.

Design engineers are making wide use of the Fastax. Models are photographed during various stages of development and faults are detected and corrected as the work progresses.

The first Fastax camera to be designed employed 16mm film and took up to 4,000 pictures a second. The second used 8mm film and operated at up to twice the speed—8,000 pictures per second! When a wider angle was desired for ballistic studies a third Fastax was designed for 35mm half-frame wide-angle pictures. This camera gives 3,500 pictures a second and has an angle view of 40 degrees or a width of field of 71 feet when the camera is 100 feet from the subject. The Fastax looks much like a conventional motion picture camera. The rotary shutter, however, is missing and in its place, between the lens and the film plane, is a glass prism—four-sided for 16mm and 35mm film or eight-sided for 8mm film, with opposing faces parallel. An exposure slit is provided ahead of and behind the prism. The prism rotates while taking pictures and acts both to provide synchronous relationship between the images and the fast moving film and to perform the function of a shutter. The light rays picked up by the lens pass through the prism and are focused on the surface of the film on the driving sprocket. As the prism rotates the image moves with film across the exposure slit. As soon as the prism has rotated to the point where the light rays might strike two adjoining prism faces, the prism housing performs the function of a barrel shutter, blocking the light from the film and so forming the frame line.

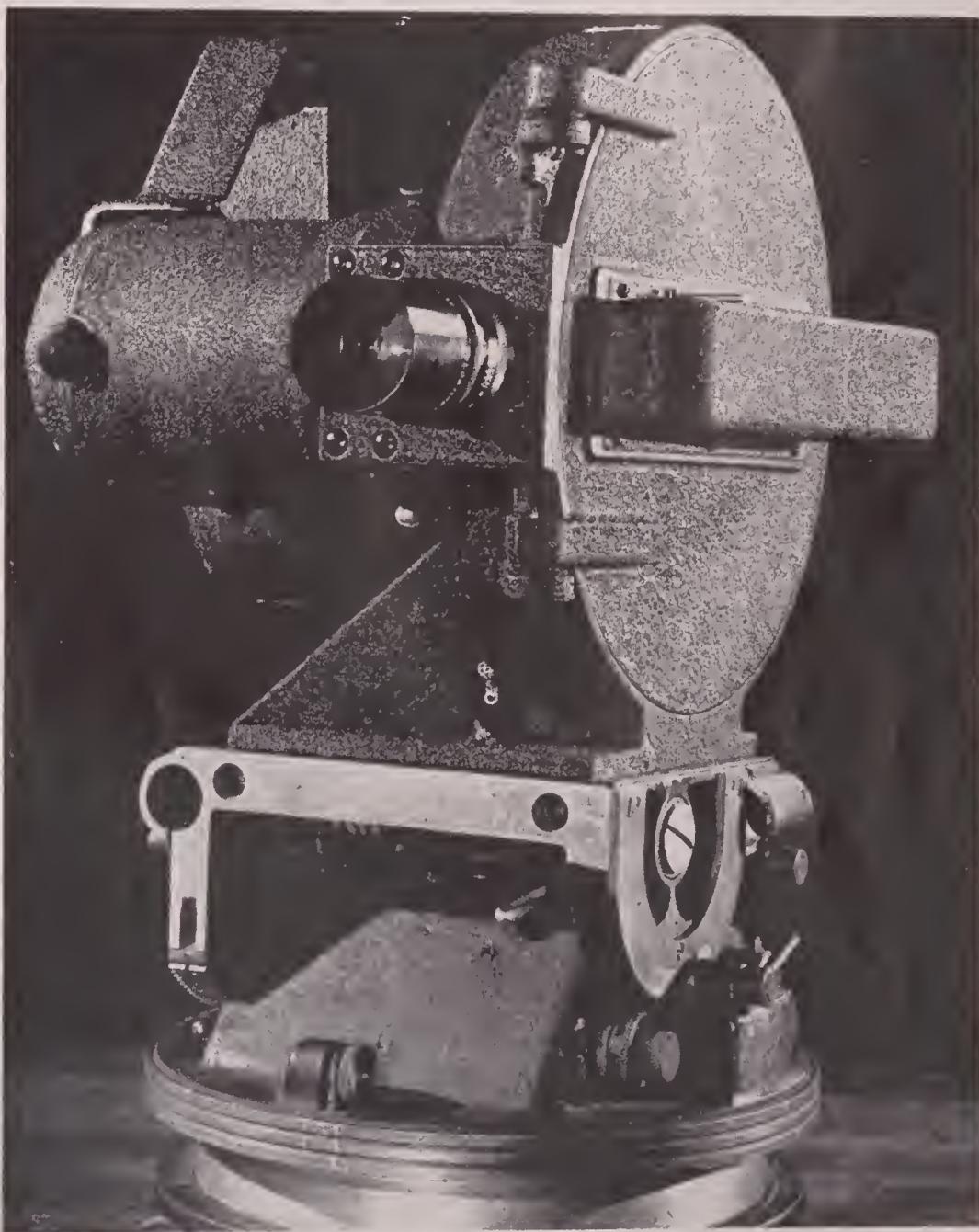
#### View Finder Attached to Door

In the 8mm and 16mm cameras the view finder is attached to the door. A

(Continued on Page 22)

# FASTAX HIGH SPEED CAMERA

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FASTAX HIGH SPEED CAMERA

Weighing forty pounds, the new camera fits on any standard flat-top tripod such as those used in commercial motion picture production. The lens is a standard 2-inch cine lens.

# STAGING MUSICAL ROUTINES FOR THE CAMERA

By HERB A. LIGHTMAN

TO the average movie-goer, comfortably seated in the loges of his local theatre enjoying one of our current crop of color-musical extravaganzas, the lively spectacle that unfolds before his eyes may seem like a smooth, effortless thing that, somehow, casually found its way onto gorgeous Technicolor.

Actually, the amount of work which goes into blending this mixture of music, movement and celluloid, is enough to make the average stevedore content to go back to "towing that line and moving that bale." It is a real chore.

The men who have charge of staging these musical routines for the camera are known, modestly enough, as "dance directors," although the term falls far short of describing their actual duties. True, they compose dance steps and create choreography for every kind of terpsichore from Virginial reels to Russian ballet, but in addition, most of them also stage song specialities, band numbers, and comedy skits with music—sequences which could scarcely be called *dance* routines.

## Technical Know-how Needed

Time was, when a dance director would coach a chorus of cuties in a series of high kicks, herd them onto a sound stage, turn them over to the cameraman, and (washing his hands of the

whole thing) say: "Take 'em away, Bud—they're all yours."

But since then the picture has changed. Today the dance director is a serious technician who thinks in terms of *camera* and plans his routines with a careful eye for cinematic values. He is concerned, not only with *pirouettes* and *entrechats*, but with *camera angles* and *outs*. His job begins long before the cameras turn on the sound stage, and it ends only after the picture has been finally edited and is ready for release.

Jack Donohue, M-G-M dance director responsible for the musical numbers in such films as "Bathing Beauty," "Easy to Wed," and "It Happened in Brooklyn," points out that the task of the dance director is artistic as well as mechanical. "Putting a musical number onto film is an exacting procedure," he explains. "You are given certain basic elements with which to work: a camera, film, lights and actors. The effectiveness of the result depends upon how much imagination is used in blending these elements."

When Donohue, a veteran director of stage musicals, was first brought to Hollywood years ago to design dance numbers for the screen, he found that the task required a thorough knowledge of camera mechanics. He was no longer obliged merely to fit a musical spectacle within a proscenium arch, but to present it selectively for the exacting eye

of the motion picture lens. He acquired his knowledge of camera by observation, by asking questions of expert technicians, and by actually experimenting with the medium itself.

## Study and Paper Work

Ever since those early days, Donohue has continued to be a serious student of cinema technique, studying every motion picture he could possibly see, and building an extensive file of cinematic ideas, all neatly catalogued for ready reference. These ideas he clips from newspapers, magazines, and cartoon books. They include compositional patterns (sub-divided into long shots, medium, and close-ups) as well as ideas for costumes, dialogue, and bits of "business."

He points out, however, that when working on a feature, the basic idea for a musical number comes from the lyric of the song, which, in turn, is (or should be) motivated by the situations of the story.

In planning the numbers for a film, he first reads the script thoroughly, absorbing its atmosphere and visualizing the characters and locale. He then listens to the music and lyrics of the songs, noting how they fit into the story pattern. With this background well established actual planning of the production numbers begins. It is at this point that



Left—Preparing to shoot a song number staged around a swimming pool, the dance director rides the camera boom. Right—The cameraman checks his set-up before filming a song and dance number in Technicolor. Such sequences require precise timing and smooth camera movement.

the first conference with the Director of Cinematography is held.

In the course of this conference, general camera approaches to the various routines are discussed, and each number is then broken down on a chart showing in detail how specific phases are to be treated cinematically. In this planning, they are careful to work for variety, so that each number is given a different treatment from the one that preceded it.

When actual rehearsals of the dances are well underway, the dance director uses a pocket view-finder to line up the various shots, and four or five days before shooting begins, he meets once more with the cinematographer for a final check of the shots planned. At this time, the cinematographer suggests ways of executing specific shots, methods of cutting from one shot to another, and devices useful in building a smooth continuity pattern.

During the remaining three or four days before shooting, the dance director perfects his choreography, smooths out the action patterns, and makes any changes that must be made for the camera, so that when the first day of actual production arrives, he and the cameraman are perfectly in accord and able to stage the routines for their best possible effect.

#### Working on the Set

This planning routine varies with individual dance directors, as does procedure during actual shooting. Explaining his own method of working on the set, Donohue points out that no one man can possibly check all phases of a number by himself. During filming, he personally watches the movements of the camera and the principals. His assistant watches the immediate background to the principals, and the assistant director watches the general background. He cues the *boom* himself, since he knows the music thoroughly, and can anticipate the various movements. After the

*take*, he checks with the assistants and the camera operator to see that everything was recorded as planned.

From the standpoint of camera mechanics, there are a number of techniques that apply specifically to the filming of musical sequences. Basically, the camera must move on the *beat* of the music—and this is a faculty the operator develops by listening to the musical numbers over and over again until he can *feel* the rhythm. In the filming of band numbers it is often necessary to *whip* the lens from one instrument to another, synchronizing the camera movement with the rhythm of the song. This type of number is one of the most difficult to film in a smooth and original manner. "After all," Donohue explains, "It would seem that there is only so much that can be done with a bunch of musicians statically placed. But the pace and tempo are achieved by dynamic use of camera movement and lively cutting from one shot to another. Staging this sort of thing is a stimulating challenge."

Certain technical taboos also exist in the filming of musical numbers. The camera operator, for instance, must be careful not to *pan* his camera across a striped background, since this results in a kind of "picket fence" effect. Similarly, he cannot follow a player in close-up with too long a focal length lens, since the background tends to blur in a manner that is distracting. In shooting a set which contains high perpendicular columns, he must not use too wide an angle of lens, because the distortion will cause the columns to look as if they are falling over, or bending at the top.

#### Knowing Where to Cut

Perhaps one of the most difficult phases of designing musical routines for the camera is planning where to cut from one scene to another. The object in making a cut is to change point of view so smoothly that the audience will not be conscious of any sort of jump in pace or action.

For this reason, it is not wise to cut while the camera is in motion. Similarly, in cutting from a long or medium shot to a close-up of a single player, it is best to first maneuver that player into a relatively isolated position, so that in close-up there will be no distracting background movement.

Basically, there are three types of movement in a musical number. First, a pattern in which the player moves and the camera remains stationary. Secondly, one in which the camera moves and the player remains static. And, thirdly, a pattern in which the camera and the player move at the same time. The third type of pattern is usually the smoothest, since the movement of the player detracts from the obvious movement of the camera. For this reason, a player is often given a bit of action just so the camera, following him, will be able to make a smooth change of angle.

Harry Stradling, A.S.C., who has filmed some of M-G-M's most ambitious color musicals, maintains that successful handling of this type of film is mostly a matter of having the camera in the right place at the right time. "You know that the camera boom is to start at a certain point and end up at another point," he explains, "but making sure that it does so on a certain beat of the music can be a very ticklish proposition. In lighting the set for such a number, you have to realize that you are lighting for a fluid camera."

Stradling's operator, Sam Levitt, a veteran of such films as "Bathing Beauty," "Anchors Away," and "Holiday in Mexico," recalls some of the unusual routines he has been called upon to wrestle with. In "Bathing Beauty," for instance, there was a water ballet in which the camera continually followed players into, out of, and under the water all in a single shot. For this sequence, Levitt, clad in a diving suit, had to synchronize the specially water-

(Continued on Page 32)



Left—Jack Donohue, M-G-M dance director coaches actor Van Johnson and his partner in a dance routine for "Romance of Rosy Ridge". Right—Before the "take", Donohue goes into a last-minute technical huddle with camera-operator Sam Levitt and Director of Cinematography Harry Stradling, A.S.C.

# DEVELOPMENT OF THE CINEMATOGRAPHIC ART

By JOSEPH V. NOBLE

**I**N a little more than half a century the motion picture has progressed from the status of a catchpenny side show to the realm of big business. At the present day motion pictures is the fifth largest industry in the United States. The phenomenal growth of this industry may be attributed to many causes, among them the universal appeal of the medium, and excellent merchandising. However, the artistry which creates the moving images certainly must also receive due credit.

This artistry did not come into being overnight with the birth of the industry, but was the result of a long and rather round-about development. The purpose of this article is to trace this development of the cameraman's art, to point out the situations which hindered the progress, and then perhaps to indicate the course for the future.

To the pioneers and inventors of the motion picture, it was sufficient that the

pictures moved. Edison, who with Dickson produced the first motion pictures in 1889, had intended to invent a device which would supplement with sight the already perfected sound device, the phonograph. Latham, Armat, Paul Meies, and Lumier perfected and modified Edison's basic work by placing emphasis on the projection of the moving images rather than on direct viewing. However, it is to be noted that all of these pioneers performed their own camera work, and that their aim was simply to record an image. To the audiences, spellbound by the novelty, the "galloping tintypes" were interesting primarily in that they moved. It is worth noting that the public failed to recognize the potentialities of the medium and were attracted only to the obvious new element, movement. In a similar manner the public in 1839 had noted in Daguerre's invention of photography that the process had the ability to record detail instantaneously,

even to the "last blade of grass" a superficial point, and had overlooked its unique ability to reproduce a true permanent record of the scene or event.

In the decade following Edison's first demonstration motion pictures were widely exhibited. The films were produced by the Edison Company and others, and the prints were sold. All photographic work was done by the producing companies, for no motion picture cameras were offered for sale. In fact, cameras were closely guarded secrets as rival companies constantly attempted to steal or copy the mechanisms. Consequently, the camera work was done by some trusted member of the firm who could both guard and repair the camera. Obviously under these conditions the art of cinematography was non-existent.

A further handicap at this time was the conception that the camera was simply a recording machine, a device to produce "living pictures" in imitation of stage plays. Consequently, the camera was set up at eye level at a distance great enough to encompass the entire acting area, and the complete presentation was filmed from this position. As a further precaution, it was customary for the cameraman to mark on the floor with chalk the side limits of his shot in order that the actors might not step outside of the picture. A third line was usually drawn on the floor some distance in front of the camera. The actors were not supposed to cross this boundary or else they would be out of focus. Such was the iron clad cinematography of the turn of the century.

One of the largest television companies now in operation has seriously suggested this chalk line plan as a method of entirely dispensing with cameramen for its shows. History does repeat itself.

In 1900, Meies departed from the current practice of shooting all the action in one scene, and introduced film stories told in a series of "artificially arranged scenes." He still retained the technique of confining the action within the scene



Earliest Special Effects. "La Danseuse Microscopique," Circa 1902, France.



Photographed stage play, "Queen Elizabeth," 1912, France.



Expressionism. "The Cabinet of Doctor Caligari," 1919, Germany.



Intercutting "Birth of a Nation," 1915, United States.

as if it were a stage presentation, or as he named them "motion tableaux." Melies by profession was a magician, and he looked upon the camera as an instrument with which he could produce illusions. He is largely responsible for the development of double exposures, masks, stop motions, reverse shooting, slow and fast motion, animation, fades, and dissolves. His films "Cinderella" and "The Trip to the Moon" are excellent examples of the earliest use of special effect cinematography.

The development of the closeup and medium shots freed the camera from the theatricalized tradition. The closeup had been accomplished as early as 1893 by Edison and was used frequently. However, it was not until Porter's production in 1902 of "The Life of an American Fireman" that the closeup became an integrated shot in the development of a narrative. With this film the motion picture began to break away from the theatre technique, and to develop a new art form. Griffith and Bitzer in 1915 made outstanding use of this technique with the production of

"The Birth of a Nation," and continued the development of intercutting closeups with longer shots of the action. Eisenstein and Tisse, still later in 1925, were influenced by Griffith's juxtaposition of shots and brought this method of shooting and editing to its greatest perfection in "The Battleship Potemkin."

The technical resources at the cameraman's command during the first decade of the twentieth century were primitive and inadequate. This was a result of compromises in quality in order to reduce operating costs, and the lack of standards and free interchange of ideas in equipment design. Secrecy has always been exercised in the motion picture industry probably stemming from the early patent battles for monopoly control. The lack of standards hindered the interchangeability of films and equipment and further retarded development by increasing costs. It was not until the establishment of the Society of Motion Picture Engineers in 1916 that real progress was made in this respect. Further progress, encompassing a broader field, occurred in 1920 when the Amer-

ican Society of Cinematographers began the publishing of "The American Cinematographer," a magazine "devoted to the cameramen."

In the 1890's Edison's camera had been driven by an electric motor at a rate of forty frames per second. The financial interests considered this a great waste of film, and as a result pictures were hand cranked at the rate of sixteen frames per second. The public nicknamed the pictures "the flickers," for good reason, but still continued to pay their money at the box-office.

Cameramen were now recruited from a new source. The producers looked at the situation from a practical viewpoint, ignored art, and promoted enterprising laboratory workers to the role of cameramen. This at least helped guarantee well exposed negatives. Cameras were also getting heavier with the addition of irises, four way mats, etc. It was at this time that the description of a good cameraman was phrased as "a man with a strong back and a weak mind."

When a cameraman attempted to  
(Continued on Page 26)



Pictorial imitation, "Die Nibelungen," 1923, Germany.



Documentary, "The Wave," 1935, Mexico.

**W**INTON HOCH, A.S.C. (it rhymes with coke) is that *rara avis*, a man who combines the advanced technical ability of the scientist with the imagination, the skill and the consummate artistry that goes to make a Director of Cinematography. And while his production credits do not as yet rank him in the public mind with some of the other camera aces, it is not because he lacks any of the qualities that go to make up a great production cameraman but rather because he is the victim of his own technical virtuosity.

A graduate physicist of the California Institute of Technology, an Associate of the Research Council of the Academy of Motion Picture Arts and Sciences, a member of the Society of Motion Picture Engineers whose authoritative papers—including that on Technicolor Motion Picture Photography, a classic in its field which has been published by the S.M.P.E. in, "Techniques of Motion Picture Production"—are accepted with respectful deference by the technical intelligentsia of the industry, Winton Hoch is one of those members of the American Society of Cinematographers who have helped to make the name of that organization synonymous with the highest achievements and the most distinguished talent in the world of motion picture photography.

This writer regrets the limitations of his own technical understanding which makes it impossible for him to do justice to, or adequately acknowledge the technical contributions and accomplishments of the subject of this month's brief biography. But for those with an appreciation for such things the following summary will be sufficient guide to the professional stature of Winton Hoch.

In 1931 he was employed by Technicolor Corporation, who still retain his services, as a research physicist to work on and assist in the perfecting of the 3-color camera. In the field of camera equipment design, he created and obtained a patent for the Universal finder that is now standard equipment on all Technicolor cameras; worked on the design and calibration of an optical printer modification, and the manufacture and testing of camera filters; worked on development of methods for the surfacing, cementing and mounting of camera prisms; and because of his virtuosity was called upon to devise procedures for the testing and calibration of lenses, the testing of dyes, the testing of lighting units, and the testing and cross comparison of new emulsions and film types.

He had a major part in establishing the standards and tolerances for the incandescent and arclight correcting filters that are now used for Technicolor photography; and he adapted, designed, tested and built the optical relay system that is now so extensively used in background projection; the type of unit that is standard equipment at Selznick, Paramount, Disney, R.K.O., the Army Air Forces Hal Roach Unit, and the Navy Photographic Science Laboratory, Washington, D. C.

The story of each one of these ac-



## ACES of the CAMERA

WINTON HOCH, A. S. C.

By W. G. C. BOSCO

complishments, of science applied with patience and imagination to push the known further into the unknown, is worthy of a chapter in the history of the technical development of the motion picture. The record as a whole reflects a formidable contribution to the industry, and is attested by the motion picture

screens of the world. The Academy of Motion picture Arts and Sciences took cognizance of this record of accomplishment, and in 1939 honored him with an Award for Technical Achievement.

Win began to cut his eye-teeth as an operating first cameraman on a series

(Continued on Page 31)



If you think *twice* about Negative Films  
...you'll think **EASTMAN** *both* times..

J. E. BRULATOUR, INC.

*Fort Lee... Chicago... Hollywood*

# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 7. Standard Interior Lighting

By CHARLES LORING

### Basic Lighting Terms

In a discussion of lighting, a few basic terms should be defined so that there will be no misunderstanding of the expressions used.

The term most frequently used is *key light*. This refers to the strongest light in the scene and, as we have pointed out, it is dependent upon the main visible source of illumination. The direction of the *key light* should always remain the same throughout the sequence.

*Fill light*, refers to the illumination used to fill in the shadows created by the key light. It's intensity varies according to the degree of dramatic effect desired, but it is always of weaker intensity than the key light.

The term *front lighting* should be self-explanatory, since it refers to a key light placed directly in front of the subject. This type of lighting is rather undramatic in close-up, and it is better to use a less symmetrical pattern.

*Back lighting* refers to a light placed at the rear and above the subject, pointing downward. It is effective in creating separation between subject and background.

*Side lighting* (or *cross lighting*) has the key light aimed at the side of the subject's face, and it is very effective in lighting for character of dramatic effect, since it brings out the lines and contours of the face quite poignantly.

*Top lighting* is achieved by a light placed directly over the head of the subject, pointing downward. It is a very extreme kind of lighting when used without the proper fill.

*Rim lighting* refers to a light placed directly in back of the subject, but lower than a back light, so that the subject is outlined with a rim of light. This pattern is sometimes very effective when used with other units as fill.

There are variations on these basic patterns, each of which has its own special effect. But the patterns described above are standard set-ups with which the cinematographer begins.

### Lighting Close-ups

In lighting a close-up, it is necessary to bring out the roundness of the subject's head, and to keep his hair and clothes from blending into the background. This effect is achieved partly by the use of backgrounds with suitable contrast, partly by modeled lighting for

depth, as opposed to the flat effect of straightforward lighting.

In using top-light or back-light for separation, however, care must be taken that these lights are not too bright. Otherwise, the hair will have an artificial, burned-up appearance.

A good standard pattern of lighting for close-ups is as follows: The key light is placed a bit to one side of the camera, so that it falls on the face in what is known as "three quarter front light." The key light is pointed down toward the subject at about a 35 degree angle, being careful that the nose shadow doesn't extend too far down onto the lower lip.

To balance the key illumination, we use a diffused fill light placed at the subject's eye level. This fills in the otherwise harsh shadows about the eyes, nose, and neck. If a back-light is used for separation, it should fall on the shadow side of the head.

In lighting a *two-shot* of a man and a woman together, use a diffused fill light on the woman in order to soften and enhance her appearance. But the man should be lit with very little fill and perhaps a cross-light to enhance his masculinity.

Sometimes, instead of using back-light for separation, it is more realistic and effective to light the background behind the shadow side of the face, so that the contour will be effectively silhouetted. Also, a background of interesting shadows, if properly motivated, provide an attractive setting for the face in close-up.

### Lighting the Set

The two most frequently used styles of general set lighting are *high key* and *low key*. We shall discuss low key quite thoroughly in the next installment of "The Cinema Workshop." At this point, however, just a word about high key. This is a style of illumination which is used to good effect in action pictures and sophisticated comedies, when a lively pace is called for. It is characterized by strong key light and a more intensified fill, so that contrast is cut down and brightness dominates. We do not mean to imply that high key lighting is flat. On the contrary, it has depth and modeling, but the contrast is not as extreme as it is in more dramatic types of set lighting.

(Continued on Page 29)

WHEN we shoot exterior sequences, photographic light is provided by the sun, and our task is simply to control the light in an effective manner. But when we move indoors to shoot interior sequences, we are suddenly confronted with the problem of *lighting*, and we must work with units of artificial illumination.

Aside from providing enough light to expose the emulsion, the function of interior lighting is to bring out the form and detail of the subject matter to best advantage. For this reason, lighting should be keyed to the mood of the action, to the locale, and to the established source of light. This latter point is very important, since an audience will sense whether or not the main or *key* light is coming from the right direction. If, for instance, the long shot of a room should show sunlight streaming in a large window, one would naturally expect the brightest light falling on the subject to be coming from the direction of that window.

### Units of Interior Lighting

For the home movie-maker, lighting units may consist simply of ordinary flood bulbs mounted in cardboard or metal reflectors of the "dishpan" variety. But for the advanced amateur or semi-professional moviemaker, there are available more advanced units, each with its own special use in lighting.

First of all, there are *floodlights*, composed of bulbs of 1, 2, or 4 brightness, which are screwed into large concave reflectors surfaced either in white or aluminum. These are useful for general set illumination and for boosting the overall key of a set-up. Used exclusively, they provide a rather harsh quality of light.

Next, there is the *broad*, a professional type of diffused floodlight composed of a bulb mounted in a rectangular metal housing with glass diffusion slide in front. This is an extremely soft type of light, very useful to fill shadows in close-up, or to provide an overall glow in low-key sequences.

*Spotlights* fall into several categories according to size, the largest being the *senior*, then the *junior*, then *keglight*, and finally the tiny "Dinky Inky." All of these lights have adjustable beams that can be narrowed down to a small, concentrated spot, or broadened out to a flood effect.

*Strip-lights*, as the name implies, are composed of a number of bulbs mounted side by side in a metal trough type of reflector. They are useful in illuminating backdrops or artificial backgrounds.

*Arc lights*, which burn carbon, fall into a special category. They produce a harsh, brilliant light that effectively simulates sunlight or moonlight. Arc lights are generally used only by professional film producers.

No matter what kind of lighting units the producer has available, it is up to him to make the best possible use of his equipment. Here again, the effect depends not so much upon the kind of equipment as how it is used.

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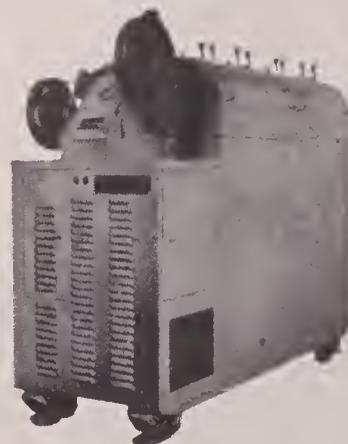
Always dependable "high quality" film processing in a laboratory equipped with

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Standard equipment may be adapted to meet your special processing requirement

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Model 11—16mm  
Daylight processing of 16mm positive, negative or reversal film up to 25 feet per minute. Available for immediate delivery.



*Write for descriptive folder*

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# BUILD THIS PORTABLE BACK GROUND SUPPORT AND LIGHT STAND

By JAMES R. OSWALD

Long having felt the need for some sort of apparatus that would lend itself readily as a background support for indoor portraiture, and at the same time not prove too cumbersome for home use, for which it was intended, the unit outlined in this article was devised. In addition to providing a means of instantly interchanging backgrounds in a matter of seconds, those who have marvelled at the spectacular overhead lighting effects of the professionals, and who have longed to duplicate Hollywood without constructing intricate catwalks around their ceilings, will appreciate the convenience of suspending a battery of flood or spot lights from the adjustable overhead cross-beam.

Sturdily, yet lightly constructed for easy handling, the unit was built from six wooden clothes props, measuring  $\frac{3}{4} \times 1\frac{1}{4}$  inches x 8 feet in length, and procured from a local lumber yard at 25c apiece. Regular 1 x 2 inch green sash stock would have filled the bill very nicely, but the clothes props, having rounded edges, presented a more finished appearance, with a minimum amount of work. Consisting, basically, of two

stands, each identical, and a cross-beam, which they support, the unit may be assembled or dismantled in a jiffy. Constructed on the "Erector Set" principle, both of the 8 foot vertical beams, and the horizontal cross-beam, measuring approximately 7 feet across, are drilled at 1 foot intervals with  $\frac{1}{2}$  inch holes, for maximum adjustability. In setting up,  $\frac{3}{8}$  inch carriage bolts, 2 $\frac{1}{2}$  inches in length, hold the cross-beam securely in place at any desired level, and with any

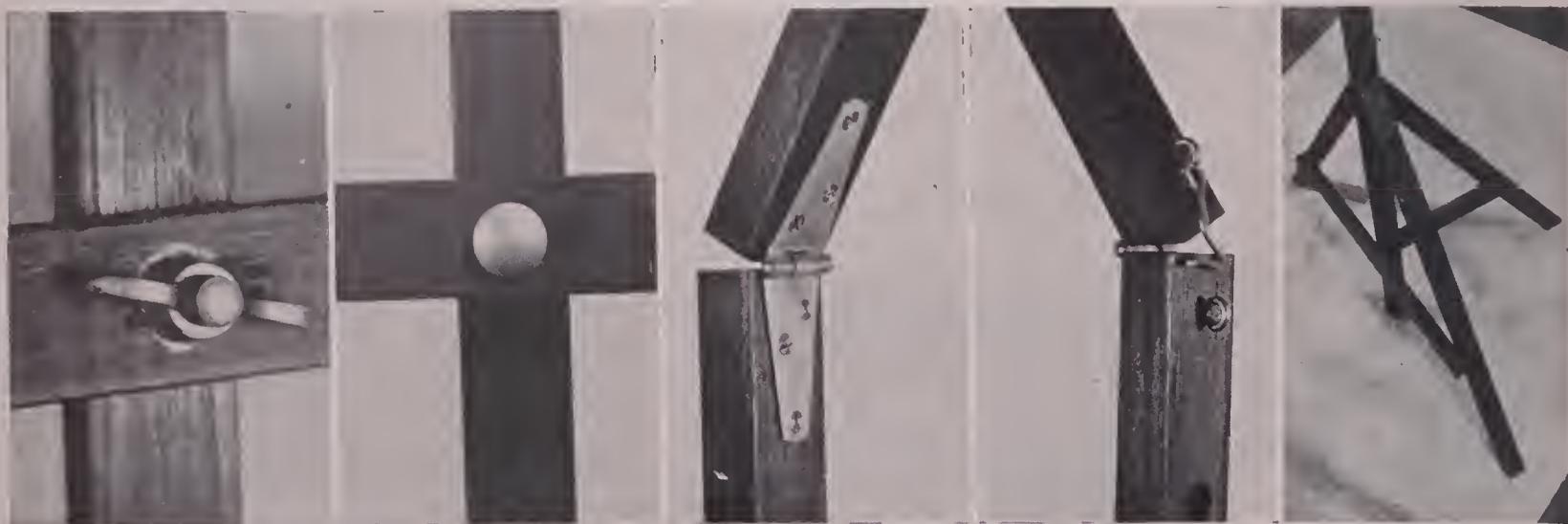


On location, a battery of flood or spot lights may be suspended from the adjustable overhead cross-beam.

preferred distance between the two supporting stands. Winged nuts enable the dismantling of the cross-beam without special tools. Hinges provide for the portability of the unit, while hooks and eyes hold the sections firmly in place.

When used to full advantage, the unit extends to a height of 8 feet, with an expanse of approximately 7 feet between stands. Because of the 3-legged base construction of the stands, designed for maximum clearance between verticals, neither stand is entirely capable of supporting itself alone, except under very exacting conditions. When used in conjunction with its mate, however, and with the cross-beam that unites the two, it may be readily seen that each stand, by the very nature of its base construction, prevents the opposing stand from falling towards it, thereby strengthening the unit as a whole, and making it practically impossible for the apparatus to topple over. Hinges, permitting the collapsibility of the beams to almost one-half their full length, do not weaken the unit to prevent the use of heavy background material, such as plywood,

(Continued on Page 24)



Details of assembly. Left to right: winged nuts enable the dismantling of the cross-beam without special tools;  $\frac{3}{8}$  in. carriage bolts, 2 $\frac{1}{2}$  inches in length, hold the cross-beam securely in place; hinges provide for portability of the unit, while . . . hooks and eyes hold the sections firmly in place; partial view of one stand, showing base construction.

# "PROFESSIONAL JUNIOR"\*

Removable Head Tripods



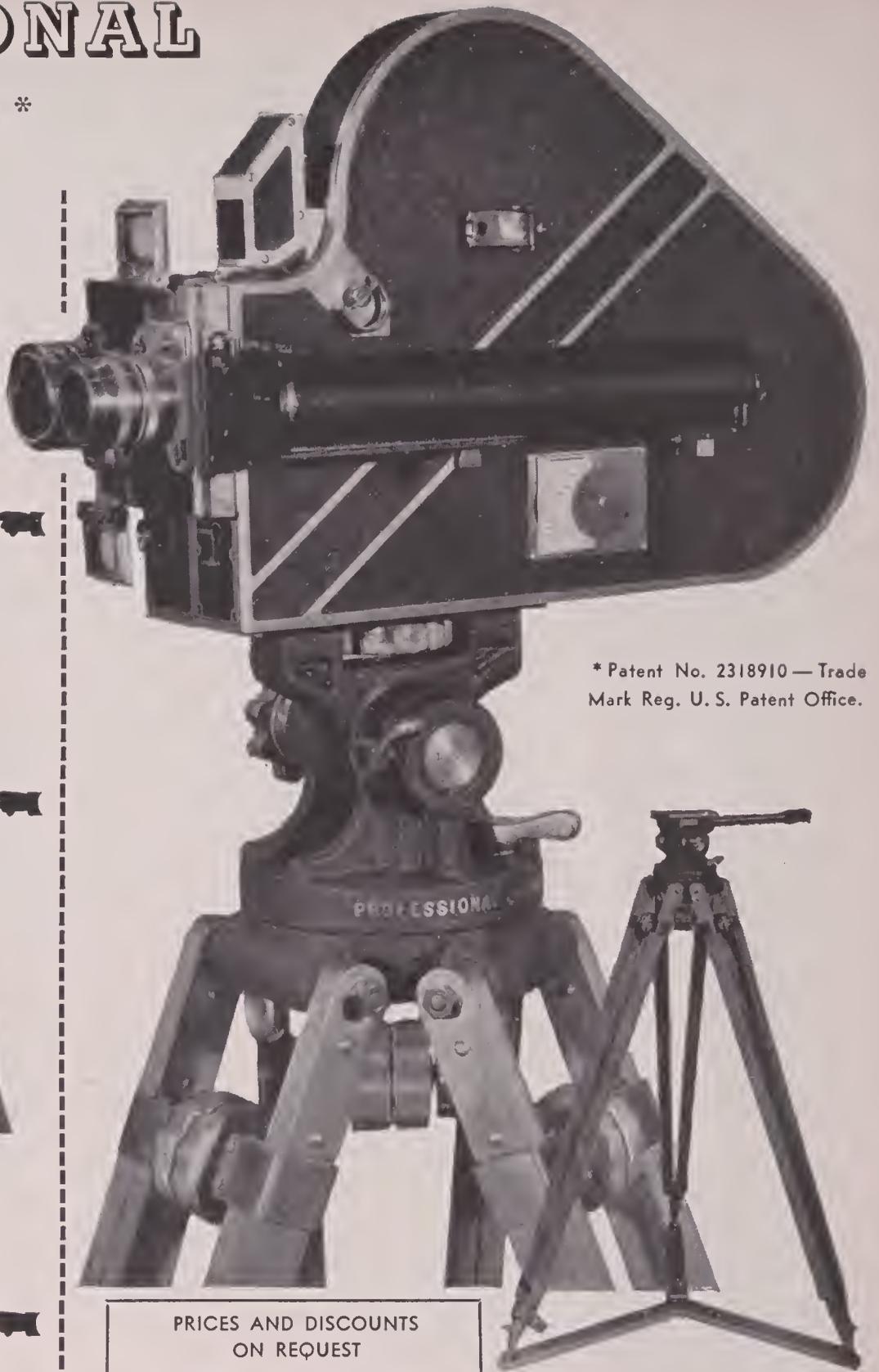
The new "Professional Junior" Baby Tripod, shown ready for the Removable Head, weighs 5 1/2 lbs., is made of Aluminum, with Dural legs having spurs. Extended height—21 inches, depressed—16 inches. It's compact and sturdy. Quality throughout.

1 →

2 →

3 →

4 →



\* Patent No. 2318910 — Trade Mark Reg. U. S. Patent Office.

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*Acclaimed the finest for every picture taking use*

The friction type head which is unconditionally guaranteed for 5 years, gives super-smooth 360° pan and 80° tilt action. It is removable, can be easily mounted on our "Hi-Hat" low base adaptor or Baby "Professional Junior" Tripod base. The large pin and trunnion assures long, dependable service. A spirit level is built in. The top-plate can be set for 16 mm. E. K. Cine Special, with or without motor; 35 mm. DeVry and B & H Eyemo (with motor), and with or without alignment gauge. Also handles "view" still cameras.

The standard size tripod base is sturdy. "Spread-leg" design affords utmost rigidity and quick, positive height adjustments. Complete tripod weighs 13 1/2 lbs. Low height, at normal leg spread, 42". Extended height 72". Legs are non-warping wood: have metal spur feet.

Adaptability: here are illustrated (1) the friction type removable "Professional Junior" tripod head that may be affixed to (2) the Standard Tripod Legs Base and (3) the "Hi-Hat" (Low Base Adaptor) and (4) the new all-metal "Baby" tripod by simply fastening the finger-grip head fastening nut that is shown under it. Note the positive-locking, fluted, height-adjustment knobs and tie-down rings of the Standard Tripod Base which is standing on a Triangle. Triangles prevent slipping on or marring of polished floors.

FRANK C. ZUCKER  

**CAMERA EQUIPMENT CO.**  
 1600 BROADWAY NEW YORK CITY

# AMONG THE MOVIE CLUBS

## Milwaukee Amateur

Group of past club productions were screened at the December 11th meeting of Amateur Movie Society of Milwaukee, held at the Red Arrow Club. Films included: "Blonde Interlude" (8 mm.); "Oh Elmer!" (8 mm.); "What Happened?" (16 mm.); and "Redouble Trouble" (both 8 and 16 mm.). Buffet lunch was served after the meeting.

Current club production, being produced by both the 8 and 16 mm. groups, is "The Paper Doll." William Rheingans is directing the 8 version, with cast including Martha Rosche, Al Wudtke, Lois Klug, and Mrs. Helen Pieske. Norville L. Schield directs the 16 mm. picture, with cast comprising Mabel Hanely, Walter Chappelle, Mary Ann Schield and Mrs. Rita Ann Bauer.

Winners in the annual club film contest will be announced next month.

## Alhambra La Casa

M. D. Gardner was program chairman of the December 16th meeting of La Casa Movie Club of Alhambra, California, held at the YMCA building. Following most informative talk on "Progress in Color Photography" by C. E. Riley, film program was presented, including: "Pacific Northwest and Canada," by Roy W. Boney; "An Old Christmas Custom," by Charles J. Ross; "Spring, Summer, Fall," by John Cook; "Flowers," by Miss Florence Ritzman; and "Jasper Highway," by Elva M. Walker.

## INFORMATION PLEASE

Program chairmen of amateur movie clubs might well consider the periodic presentation of Quiz Shows, which have apparently caught on splendidly with members of several clubs around the country.

Idea is to have members write out questions on practices and problems of motion picture photography, and present them at the special quiz show session. These questions are then discussed and answered by experienced members at a period during the evening to provide a most interesting and informative feature of the meeting. Interest of members in new ideas and desire for answers to some individual problems is best demonstrated by results of Brooklyn Amateur Cine Club recently, when 62% of the total membership responded with questions for the Master Minds to discuss and answer.

## Los Angeles Cinema

Alice Claire Hoffman was elected president of Los Angeles Cinema Club to serve during 1947, with Lorenzo del Riccio vice president, and Jack Shandler secretary-treasurer—all by unanimous vote of members—at the organization's annual banquet held at the Los Angeles Breakfast Club on December 9th.

Winners in the club's annual film contest were announced by the committee of judges, which comprised: Ted Phillips, Edwin Schallert, Herbert E. Farmer, Karl Freund, ASC, Lorenzo del Riccio, James H. Mitchell, and Harry Burell. "Rambling Through British Columbia," by Carl H. Thomsen, was adjudged winner of first prize. Other winners in order were: "Trapper," by Charles J. Ross; "Rural Vermont," by Mildred Zimmerman; "Canadian Wonderland," by William Easley; "My Diary," by Wes Strause; "Glacier Park," by Ray McMillan; "Hollywood," by Leo Colria; "Ballet On Ice," by Victor Jensen; "West Coast," by Robert Ernst; "Yosemite," by Jack Staikey; "Arizona Welcomes You," by Mrs. E. B. Kellam; "Lake in the High Sierras," by Arthur Sanger; and "Old Havana," by Andrew O'Rear. First three prize winning pictures were shown at the annual banquet meeting, with the others to be shown at later sessions.

## San Francisco Cinema

Annual dinner and election of officers for 1947 highlighted the December 17th meeting of Cinema Club of San Francisco, held at the Women's City Club. Officers offered by the Nominating Committee include: President, Charles D. Hudson; vice president, Benjamin Nichol; secretary, R. W. Arfsten; treasurer, Lloyd Littleton; and directors, Larry Duggan, E. G. Petherick, E. L. Sargeant.

Program of the evening presented "Ramblings Thru the West," a selected group of kodachrome slides by Loring D. Powell, and "Canadian Rockies Vacation," 1,500 feet of kodachrome by Leon Gagne.

## Philadelphia Cinema

Christmas meeting of the Philadelphia Cinema Club, held at Franklin Institute on December 10th, featured an all-8mm. film program, which included: "Christmas Packages" and "Christmas Tree," both prize-winning films by Walter I. Bruner, Jr.; "Paintings by Jack Frost," by Mrs. Frank Hirst; and "The Boss Comes to Dinner," ACL prize-winner by Ryne Zimmerman of Milwaukee.

Roland Root delivered a talk and discussion on "Lighting the Christmas Scene," accentuating indoor lighting technique for movies of the yule season. Musical selections were presented by Claire Rasch and Elizabeth Jervis.

## St. Louis Amateur

December 10th meeting of Amateur Motion Picture Club of St. Louis was held at the Roosevelt hotel, providing film program which included: "Saskatchewan," 800 ft. in 16 mm. by Harold Davidson of Minneapolis; "The Large Springs of Missouri," by William F. Gross; and "Lincoln's New Salem," by Lon Wadman. Final feature was a quiz show period, in which member questions on motion picture photographic techniques and problems were answered by committee of experienced members.

St. Louis Amateur's 11th anniversary show has been announced for February 25th; while another in the series of popular four minute contests—in which members enter reels running maximum of four minutes for consideration is planned for January.

## Los Angeles Eight

Annual banquet and film contest of Los Angeles Eight MM. Club was held at Scully's on evening of December 7th, at which time presentation of the 1947 officers was made. Total of 19 splendid prizes were donated for the contest, in addition to the Club Grand Prize Trophy; Horton Vacation Trophy, and the Babb Achievement Trophy.

First three winners in the annual contest were: "Our Vacation, 1946," by Paul Cramer; "How to Win Friends and Influence People," by Fred Evans; and "Sunday Holiday," by John E. Walter. Those submitting films for the contest included Adelf Apel, Robert Beazell, John Boaz, Mildred Caldwell, Stanley Clemens, Paul Cramer, Ward Dudley, Fred Evans, Sylvia Fairley, Dow Garlock, Al Larsen, Joseph Savel, Bion Vogel, and John E. Walter.

## Oakland Camera

Oakland Camera Club is organizing a section on motion picture photography as part of its expanding activities. Initial group meeting was held at Chabot School, with about 75 interested movie makers attending to get the section off to a fine start.

Dr. Numa P. Dunne will supervise the movie section of the Oakland Camera Club, and has outlined a program for initial meetings which will comprise a complete course in the fundamentals of movie making and the fundamentals of camera work.

At the December 10th meeting, lecture was presented detailing the different types of movies, their significance in both the commercial and amateur fields, and significance to the amateur. In addition, several different types of 8 and 16 mm. cameras were demonstrated, and two films were exhibited.

(More Club News on Page 33)

# KODASCOPE SIXTEEN-20



## Peak Projection Performance— Under Finger-Tip Control

KODASCOPE SIXTEEN-20 combines top-notch performance with outstanding simplicity of operation. Major controls are centered on a single, indirectly illuminated push-button panel. Finger-tip pressure starts the projector . . . another button lights the lamp . . . the "reverse" button rewinds the reel when the show is over. And other operations are as simple. The Cordomatic power cord winds into the projector base when you press the release . . . easy-action tilting and framing controls and wide-opening sprockets and film gate simplify threading and picture alignment. Yes, with Kodascope Sixteen-20, the projectionist can really take it easy.

And there are many other features—adjustable speed . . . "still-picture" control . . . reverse projection . . . built-in thread light . . . vertical tandem claw that permits silent projection of 16mm. sound film . . . enclosed drive shafts . . . convenient lamp inspection and alignment facilities . . . full Underwriter approval for safe 100-125 volt, A.C. or D.C. operation, with lamps up to 1000 watts. \$225— with 750-watt lamp, 2-inch  $f/1.6$  lens, and carrying case.

See your Kodak dealer. Ask him, too, about Kodascope Sixteen-10, with comparable lens-lamp versatility, \$115.

**EASTMAN KODAK COMPANY, Rochester 4, N. Y.**

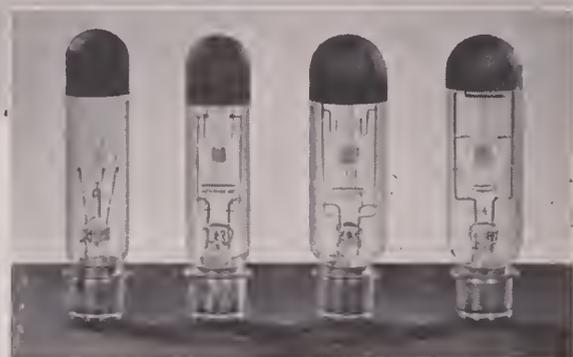
## 24 LENS-LAMP COMBINATIONS

The right lens . . . the right lamp—for wonderful showings in home, clubroom, or auditorium

BIG MOVIES . . . with exactly the right illumination . . . whatever the Kodascope-to-screen distance—that's "tailor-made projection," a Kodascope feature that lets you match equipment to audience size. The 2-inch  $f/1.6$  lens and 750-watt lamp are just right for average use. And for unusual conditions, you can switch to any of five accessory lenses . . . any of three accessory lamps—for large movies even

from short "throws" . . . brilliant movies even from well back.

Still another "Sixteen-20" advantage—every glass-air surface of projector and condenser lenses is *Lumenized*—coated for finer definition, greater contrast, improved colors . . . and larger screenings. Because *Lumenizing* ups light transmission as much as 40%, you can show sparkling 16mm. movies on screens up to ten feet in width!



Any of these interchangeable lamps—including one of 1000 watts—can be combined with any of these lenses. Result—"tailor-made projection" . . . your choice of 24 lens-lamp combinations.



**Kodak**



U.S.C. football squad members sit in darkened dressing room at half time to view 16 mm. movies of the first half action and listen to Coach Jeff Cravath point out imperfections of play.



Coach "Greasy" Neale of the professional Philadelphia Eagles sets up a Filmo projector to run off pictures of previous games aboard a transport plane for the team's next game.

# 16mm. Films For Grid Instruction



Houston portable film processing machine develops pictures of U.S.C. grid games within 10 minutes for showing to team at half time. Elbert Baldrige and Beverly Normanly are attaching film magazine.

Purchase of a new Houston 16 mm film processing machine by the University of Southern California for use of its athletic and cinematography departments is being watched with interest by universities throughout the country.

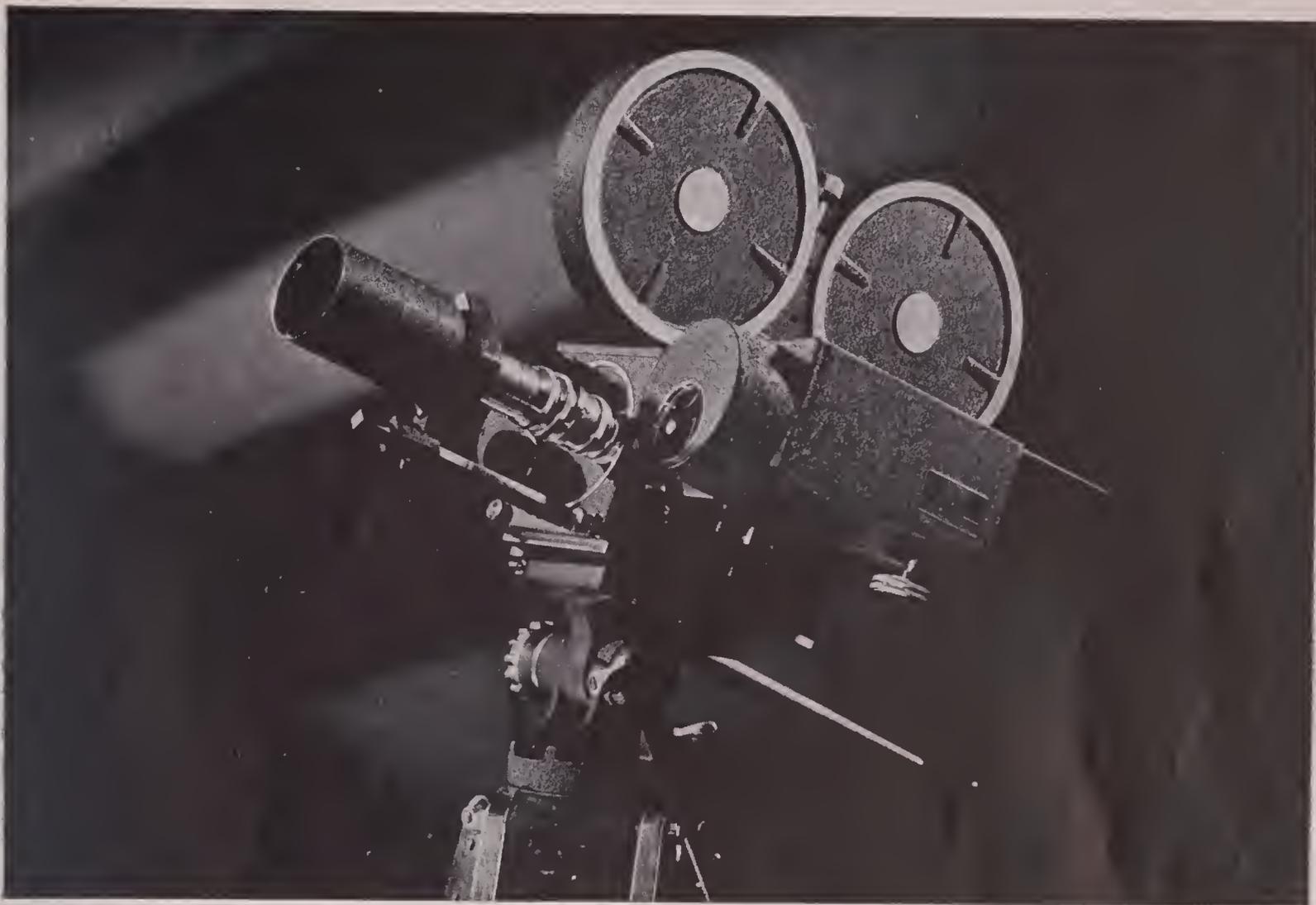
Although its prime usage is by the cinematography department, Southern California's Trojans are finding it of untold value in the field of football strategy. The machine is geared at a speed which makes it possible to show first-half action at half time.

This revolutionary innovation has suggested a number of ways that the film industry itself could make use of such portable equipment. One of them, for example, is for on-location usage to check particularly difficult angles and shots which later would be taken and recorded on 35 mm sound film.

Jeff Cravath, the Trojan's veteran coach, is believed to have been one of the first to visualize use of the machine as a means of obtaining perfection in football and other sports. To back up his views, a demonstration was held during the university's last spring inter-squad contest in May. Regular 16 mm. pictures were shot and rushed to the portable machine in "takes." When squad members retired to their dressing room mid-way of the game, they were amazed to see first-half pictures flashed on the screen. Cravath was thus able to point out imperfections which resulted in mid-season caliber play during the second half.

The machine, manufactured by the Houston Corp. of Los Angeles, has many uses sports-wise other than in actual contest. Whether in football,

(Continued on Page 24)



The only professional camera

*specifically designed*

for 16-mm cinematography

These are some of the *unique* advantages you secure in the new Maurer 16-mm Professional Motion Picture Camera —

▶ Single pull-down claw locates film *accurately*, without requiring additional movement of a registration pin. Perfect registration is insured, whether your film is fresh, or has been on your shelf six months or a year.

▶ Rack-over mechanism permits *critical* focusing with high power microscope, as well as viewing the entire field, directly through the taking lens.

▶ 235° dissolving shutter is capable of making *automatic* fades or lap dissolves of forty frames or sixty-four frames, as well as manual fades.

▶ View finder — anastigmatically corrected — gives the largest and clearest image of *all* erect image view finders.

▶ *Gear-driven* magazines of 200-foot, 400-foot or 1200-foot capacity.

*Write for complete information.*

**16mm**  
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Professional Motion Picture Cameras and  
Recording Equipment for the Production of  
Industrial, Educational and Training Films.

## Fastax Camera

Continued from Page 7

right angle prism mounted on the inside of the door fits into the sprocket behind the viewing hole through the surface of the sprocket. A microscope objective in the finder tube is focused through this prism and an additional right angle prism directly onto the film plane. A light trap, operating by an external lever, prevents light from the finder from fogging the film while the camera is in operation.

The speed of the camera is governed by voltage applied to the motors and ranges from 150 frames per second to 8,000 pictures per second for the 8mm camera, 4,000 pictures per second for the 16mm camera, and 3,500 pictures per second for the 35mm camera; the 100-foot load of film lasts from 1½ seconds to 25 seconds, depending on the camera speed.

In order to take fully exposed pictures with available lenses and Super XX film at such speeds, it is necessary that light of extreme intensity be employed. However, by keeping the subject area to a small size, the focused, over-volted filaments of a few 150-watt show window spotlights, having the sealed-beam reflector, are sufficient.

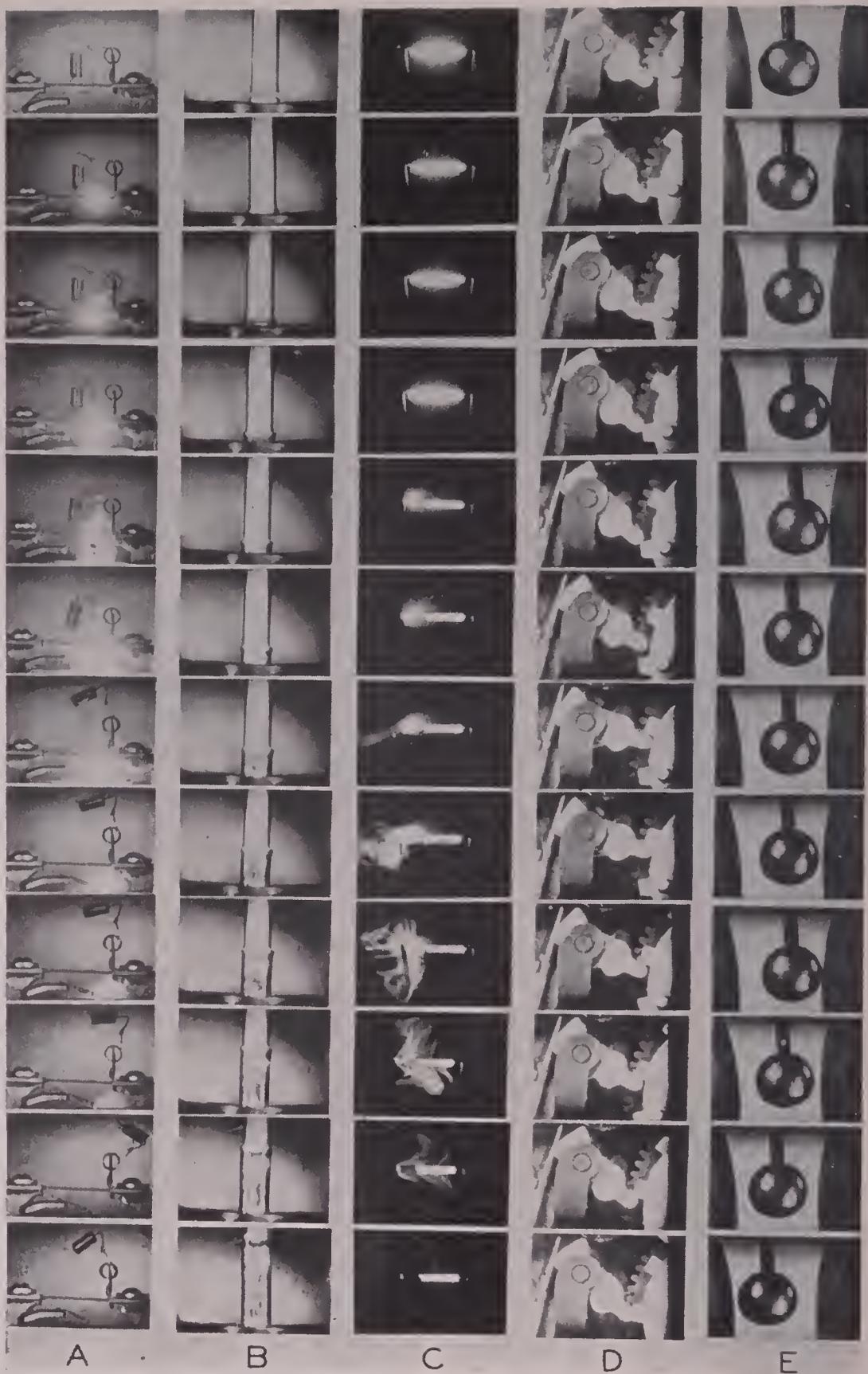
The versatility of the Fastax has enabled it to be used in many unusual applications. Black and white and Kodachrome film have been used successfully in the camera. Polarized light has been used in studying the stress and impact conditions in transparent materials. It is also possible to take high-speed pictures of self-luminous objects, such as the filaments of incandescent lamps.

Other applications are being made at the Bell Telephone Laboratories using special Fastax high-speed camera equipment to photograph continuous traces from a cathode ray oscilloscope.

### EK Lenses Lumenized: 8 mm. Editing Kits Back

As a major part of its program to extend the advantages of "Lumenizing"—Kodak's new, hard-surface, magnesium-fluoride lens coating—to its line of Ciné-Kodaks and Kodascopes, the Eastman Kodak Company has announced that its Ciné-Kodak Model 25 will now be supplied with Lumenized lens, and that the 2-inch f/2.5 lens, and the 2-inch f/1.6 lens for Kodascopes Models G, E, EE, Sixteen-10, Sixteen-20, and Sound Kodascope Model FS-10 are now Lumenized.

In addition, the following lenses are now Lumenized: 63mm. f/2.5 Ciné-Kodak lens and the 25mm. f/1.9 Ciné-Kodak lens for Ciné-Kodak Magazine 8. The Ciné-Kodak Editing Kit, 8mm., has also been announced as once again available in limited quantities. This kit contains rewind, splicer, movie viewer 8mm., and space for reels and cans up to 400-foot capacity—all packed in a carrying case covered with black Kodadur.



FASTAX HIGH SPEED CAMERA

Strip A shows the burning out of a telephone fuse. Strip B shows the ram of a press descending on a plank of soft metal. Successive pictures show metals rising around the ram form a condenser cam. Strip C shows the burning out of a piece of fuse wire. Strip D shows the operation of the pulsing cam in a telephone dial. Strip E shows the clapper of a telephone ringer striking the gong in the fourth picture, rebounding and striking it again in ninth picture and about to strike the other gong in last picture.

### Lack President of ASA

Frederick R. Lack, vice president of Western Electric Company, has been elected president of the American Standards Association for 1947. Lack, formerly vice president of ASA, succeeds Henry B. Bryans. George H. Taber, Jr., will hold post of ASA vice president during the year.

### Vets on B & H Payrolls

For the past several months, plants and branches of Bell & Howell Company have had more than 25 per cent of world war veterans employed, according to company announcement. As part of the program, B & H specializes in on-the-job training for the vets; many of whom acquired new skills while in service.



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How to keep kids at home — you ask? Wholesome, lively entertainment — the answer! Sound Movies . . . the kind of fun kids enjoy most. Thousands of sound films are now available to you . . . free, for rent, or purchase . . . jungle thrills, fine sports, opera . . . for teen-agers and grown-ups, too.

And it's top entertainment because a VICTOR projector insures true sound movie performance, with brilliant picture clarity and true sound fidelity. Write today for a demonstration in your own home. Your family and their friends will enjoy this modern way of entertainment and learning with 16mm sound movies.



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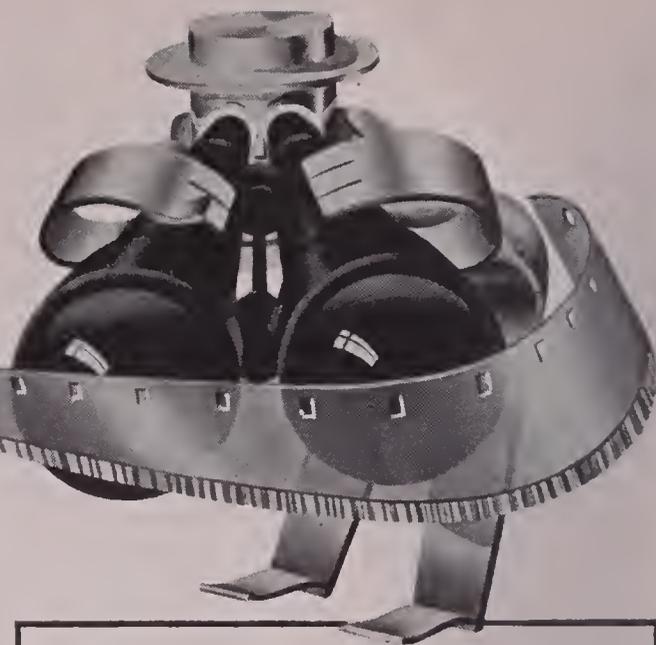
# TAKE A GOOD LOOK\*

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When you are in Hollywood stop at 6534 Sunset Boulevard for a *good* look at the Fonda Film Developer. Ask every possible question about the patented *Fonda driving principle*. That's the vital part of any film processing equipment, and we welcome comparison of Fonda's unsurpassed method of regulating film tension.

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**STAINLESS PRODUCTS**

### Football Movies

(Continued from Page 20)

track, swimming, boxing or any other sport requiring specialized form or individual instruction, coaches will be able to show their proteges mistakes on the screen within a matter of minutes after they are committed.

The machine also is getting extensive usage at U.S.C.'s famous department of cinematography, under the direction of Harris Moore. Much of the department work is in connection with visual education, now a required course for all student teachers. The university's enrollment in this course is the largest on the Pacific Coast.

The compact automatic machine is the only portable equipment of its kind. It has a routine processing time of 10 minutes, the quality being variable with the speed used. Hundreds of these machines were used by the armed forces during the war. They were in world-wide operation, principally to provide immediate processing of films taken in combat and reconnaissance flights.

#### Penna. Grid Films

Having long since proven its value in the systematic coaching of football teams, visual education claims as one of its earliest and most thorough practitioners in that field the News Reel Laboratory of Philadelphia. Since 1924,

when University of Pennsylvania athletic officials first availed themselves of the laboratory's services, the Philadelphia concern has handled an increasing volume of such work for schools, colleges, and professional football clubs in many parts of the country.

An example of how intensively the football films are used occurred recently when Coach "Greasy" Neale of the Philadelphia Eagles set up a Bell & Howell projector in the cabin of a TWA plane carrying the professional team to the West Coast. Films of previous games were projected en route, with Neale analyzing plays for the squad by way of preparation for the next encounter.

In filming the University of Pennsylvania games, Louis Kellman has used as much as 1800 feet of 16mm film in an afternoon, shooting at 32 frames per second with a Filmo camera.

### Motion Picture Division of PSA Set Up

Details for the establishment of a motion picture division of the Photographic Society of America were completed at the recent PSA convention in Rochester, with Harris B. Tuttle elected chairman of the division for term of two years. Other officers of the section include: Frank H. Richterkessing, vice-chairman; and John E. Allen, secretary-treasurer.

Dr. Donald H. Miller, Richterkessing, and N. William Wright will function as chairmen of the western, central and eastern states divisions, respectively.

Initial PSA motion picture salon will be held in conjunction with the 1947 convention at Oklahoma City.

### Wollensak Prices Hold

Photographic lenses and accessories manufactured by Wollensak Optical Company of Rochester will not be subject to price increases at the present time. This announcement was made recently by the company.

### Portable Light Stand

(Continued from Page 16)

velvet, or other yard goods often desirable for photographic backgrounds. Similarly, your most expensive lighting units may be used with the assembly, with the assurance they will be amply supported.

If you have felt handicapped in your indoor picture taking activities because of undesirable backgrounds, and if the facilities have been lacking for those superb Hollywood high-lighting, back-lighting, and top-lighting effects, you'll enjoy building this inexpensive, practical, background support and light stand.



## A short song about speed---

(PLUS A WORD ABOUT THAT "THEATER-LOOK!")

**S**TART singing right here—because here's where you learn about uncanny speed for indoor movies . . . and for work under poor lighting conditions. Here's a super-speed film that gives your home movie scenes that sharp, clear "theater-look."

Want proof? Then just load your camera with Ansco Triple S Pan Film.

Now—look at those screen images you get—so distinct, so real—so lifelike—

due in no small measure to Triple S Pan's long, smooth gradation scale.

And here's the best part of this song on speed—Triple S Pan Film also has wide latitude. You can shoot under adverse lighting conditions, and know that you have an extra margin of exposure safety. Shoot for that smart, clear, "theater-look" in your home movies. Use fast Triple S Pan film every time. **Ansco, Binghamton, New York.**

ASK FOR

*Ansco*

8 and 16 mm

**TRIPLE S PAN FILM**

## Development Cinematic Art

(Continued from Page 11)

bring art into his work, being ignorant of the subject, he did so by a slavish imitation of a combination of the classic forms of painting, and the work of portrait photographers. The motion picture embarked on a period of pictorial imitation.

By 1916, Rembrandt lighting and composition were here to stay. Hitherto, light, either daylight or arc light, was considered only as a means to get the image onto the film. For the first time lighting was being employed as a device to increase the artistry of the picture. It was crudely done and scarcely understood. It is said that the New York office of one company complained that a film employing contrasty lighting was unsalable due to the fact that only half of the actor's face was visible. When the office was informed that this effect was "Art" resulting from the use of Rembrandt lighting the film was given special advertising.

A further pictorial influence was the use of extreme diffusion resulting from the placement of gauze, nets and wavy glass discs in front of the camera lens, or the use of special "pictorially soft" lenses. The devices eliminated detail in the scene, and the result was a series

of blurred areas which smoothly blended together in patterns of light and shade not unlike the works of some of the French impressionist school of painters. This also greatly simplified the problems of the cameraman in lighting screen personalities as the inaccuracies in the makeup and the lines of age were simply blurred over.

The use of the diffusion disc laid greater emphasis on lighting and tonal composition. Previously, the emphasis, due to the high resolving power of the standard lens, had been on line and texture.

Cameras and camerawork had become more complicated by the close of the First World War, and many cameramen used assistants. This system provided for a form of apprenticeship so that in due course of time the assistants became full fledged cameramen. The assistants, however, were chosen primarily for their interest and enthusiasm.

In 1919, expressionism which was being experienced in other art forms made its appearance in films with Wiene's "The Cabinet of Doctor Caligari." This required a type of cinematography which utilized weird lighting and distorted camera angles to create stylized psychological impressions of reality. The emphasis was laid not on the de-

piction of actual scenes and objects, but on interpretation or expression of these scenes by means of the cameraman's inventive artistry. It attempted to express the psychological essence of the subject.

This period helped develop many of the devices of trick photography such as the distorting lens, etc.

The various styles of camera work continued and were brought to a high point of perfection. Then in 1927 Warner Brothers introduced their Vitaphone feature sound picture with speech, "The Jazz Singer." The enthusiasm of the public for sound films put an abrupt close to silent productions. The camera and cameraman were inclosed in an immobile sound proof booth. All camera movement ceased. The lighting technique had to be modified in order that three or four cameras might simultaneously shoot the scene to provide the necessary long shots and closeups at the same time that the sound was recorded. This complicated procedure took precedence over creative endeavors.

By 1930, blimps of sound proof material around the camera restored the mobility of the camera. The cameraman then attempted to adopt his silent film technique to sound film production.

At this time great strides were made in the development of motion picture equipment. Interlocked motors and supersensitive films made possible the perfection of rear projection processes. Color cinematography had been demonstrated in the form of Kinemacolor in 1908, but it was not until 1935 with the production of the three color Technicolor feature picture "Becky Sharp," that there was complete acceptance of color motion pictures. This entire period is characterized by inventions of equipment and refinements of technique rather than any pictorial style of its own.

In the late 1930's, new demands were being made on the cinema. The newsreel was becoming increasingly more popular. As the public became more interested in civic and social responsibilities, governments of various countries produced special films. These were in many cases a combination of film journalism, education, and propaganda. The Second World War gave great impetus to this style of film making and the result has come to be known as the "documentary film."

Naturally, a style of camera work developed for documentary productions. This camera work is based on realism, for documentary films appeal to the logic of men's minds, and the films must be believable or they fail. Therefore, realism is stressed in camera angles, lighting, natural settings, and the absence of make-up.

The roots of the documentary film movement reach back to Flaherty's "Nanook Of The North" produced in 1922, and extend through the government produced film "The River" supervised by Lorentz in 1937. These tendencies of documentary films are reflected in many present day feature produc-



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tions similar to de Rochemont's "The House on Ninety-Second Street."

The role of the cinematographer in the production of modern theatrical motion pictures is that of a highly skilled artist charged with a large part of the responsibility for the complete production. However, due to the present economic system of film production, the Director of Photography is customarily assigned to a picture just before production starts. This system does not allow him sufficient time to become an integrated member of the creative group, and therefore, all too frequently he can contribute too little of an artistic nature to the film. Experiments by foreign studios, documentary workers, and an increasing number of Hollywood film companies, reversing this procedure and having the cinematographer work with the director, writer, and producer during the pre-shooting planning stages, have almost without exception resulted in substantial improvements in quality. It is to be realized, however, that this system is of greatest worth when serious artistic efforts are required, and that it will be of little benefit in the mass production of standardized program pictures. The Director of Photography is potentially one of the most valuable of the group of creative workers in film production.

As for predictions of films and film techniques of the future, it should be evident from a study of the history of motion pictures that they invariably reflect the culture and ideologies of the period. Trends in motion pictures have their counterpart in the other arts. These counterpart trends precede motion picture trends because the cinema is the most complicated of all art forms. Motion pictures therefore require a greater length of time to develop a style than other arts which are less communal in nature, and may be produced by one man. Together with all true functional art forms, the motion picture will in the future continue to develop in order that it may entertain and enlighten its patrons.

### Mobile Service Units for Bell & Howell

Mobile service units, designed to afford complete maintenance and repair facilities for Bell & Howell sound and silent motion picture projectors, will be established in various localities by special representatives of the company.

First mobile unit was delivered to Wayne Newman, service manager for Deseret Book Company of Salt Lake City, and others will be spotted in various sections of the country as soon as they are off the assembly line. Each will be completely equipped with necessary machine tools, replacement units, spare parts, jigs, etc., for on-the-spot service of projector owners.

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## Current Assignments of A. S. C. Members

As this issue of American Cinematographer goes to press, members of the A.S.C. were engaged as Directors of Photography in the Hollywood studios as follows:

### Columbia

Charles Lawton, Jr., "The Lady From Shanghai," with Rita Hayworth, Orson Welles, Glenn Anders.

Edward Cronjager, "Three Were Thoroughbreds," with Robert Young, Willard Parker, Marguerite Chapman, Akim Tamiroff.

Vincent Farrar, "For the Love of Rusty," with Ted Donaldson, Tom Powers, Ann Doran.

Burnett Guffey, "Assignment to Treasury," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vladimir Sokoloff.

George Meehan, Jr., "Bulldog Drummond at Bay," with Ron Randell, Anita Louise, Terry Kilburn.

Lucien Andriot, "The Corpse Came C.O.D.," with George Brent, Joan Blondell, Adele Jergens.

### Metro-Goldwyn-Mayer

Hal Rosson, "To Kiss and to Keep," with Gene Kelly, Marie McDonald, Charles Winninger, Spring Byington, Jean Adair.

Sidney Wagner, "The Romance of Rosy Ridge," with Van Johnson, Thomas Mitchell, Marshall Thompson, Selena Royle, Charles Dingle, Guy Kibbe.

George Folsey, "Green Dolphin Street," with Lana Turner, Van Heflin, Donna Reed, Richard Hart, Frank Morgan, Edmund Gwenn, Reginald Owen.

Harry Stradling, "Song of Love," with Katharine Hepburn, Paul Henreid, Robert Walker.

Ray June, "The Birds and the Bees," (Technicolor), with Jeanette MacDonald, Jose Iturbi, Jane Powell, Ann Todd, Mary Eleanor Donahue, Edward Arnold, Harry Davenport.

Robert Surtees, "The Rich, Full Life,"

with Elizabeth Taylor, George Murphy, Mary Astor, Spring Byington, Gene Lockhart.

### Monogram

Harry Neumann, "Black Gold" (Cinecolor), with Anthony Quinn, Katherine DeMille, Elyse Knox, Kane Richmond, Raymond Hatton.

Jack Greenhalgh, "High Conquest," with Anna Lee, Gilbert Roland, Warren Douglas, Beulah Bondi.

Henry Harp, "Violence," with Nancy Coleman, Michael O'Shea.

### Paramount

Lionel Linden, "Variety Girl," with Mary Hatcher, Olga San Juan, DeForest Kelley, Frank Ferguson.

William Mellor, "Blaze of Noon," with Anne Baxter, William Holden, Sterling Hayden, Sonny Tufts, William Bendix, Howard da Silva, Jean Wallace.

John Seitz, "Saigon," with Alan Ladd, Veronica Lake, Douglas Dick, Luther Adler, Morris Carnovsky, Luis Van Rooten.

Leo Tover, "Deadlock" (Hal Wallis Prod.), with Burt Lancaster, Kirk Douglas, Wendell Corey, Kristine Miller.

### RKO

Nick Musuraca, "Out of the Past," with Robert Mitchum, Jane Greer, Virginia Huston, Richard Webb, Dickie Moore.

Jack McKenzie, "Seven Keys to Baldpate," with Phillip Terry, Jacqueline White, Eduardo Ciannelli, Margaret Lindsay.

### Republic

Tony Gaudio, "Gallant Man," with Don Ameche, Catherine McLeod, Roscoe Karns, Joe Frisco.

John Alton, "Wyoming," with William Elliott, Vera Ralston, John Carroll, Virginia Grey, George (Gabby) Hayes, Albert Dekker, Maria Ouspenskaya.

### Twentieth Century-Fox

Leon Shamroy, "Forever Amber" (Technicolor), with Linda Darnell, Cornel Wilde, Richard Greene, Glenn Langan, George Sanders, Leo G. Carroll, Margot Grahame.

Harry Jackson, "Mother Wore Tights"

(Technicolor), with Betty Grable, Dan Dailey, Jr., Mona Freeman, Anabel Shaw, Connie Marshall, Michael Dunne, William Frawley, Veda Ann Borg.

Joe MacDonald, "Moss Rose," with Victor Mature, Peggy Cummins, Ethel Barrymore, Vincent Price, Margo Woods, Patricia Medina.

Charles Clarke, "It's Only Human," with John Payne, Maureen O'Hara, Porter Hall, Philip Tonge, James Seay.

Joseph LaShelle and Arthur Arling, "Captain From Castile" (Technicolor), with Tyrone Power, Jean Peters, Cesar Romero, Lee J. Cobb, John Sutton, Antonio Moreno, Thomas Gomez.

Charles Lang, "The Ghost and Mrs. Muir," with Gene Tierney, Rex Harrison, Edna Best, Robert Coote.

### United Artists

Russell Harlan, "Red River" (Monte-rey Prod.), with John Wayne, Montgomery Clift, Walter Brennan, John Ireland, Joanne Dru, Noah Beery, Jr., Harry Carey.

Victor Milner, "The Other Love" (Enterprise), with Barbara Stanwyck, David Niven, Richard Conte, Joan Lorring, Maria Palmer.

William Daniels, "Personal Column" (Hunt Stromberg Prod.), with George Sanders, Lucille Ball, Charles Coburn, Cedric Hardwicke, Alan Mowbray, Joseph Calleia, Alan Napier, George Zucco.

Karl Struss, "Heaven Only Knows" (Nero Films), with Robert Cummings, Brian Donlevy, Joria Curtright, Helen Walker, Stuart Erwin.

Franz Planer, "Vendetta" (California Pictures), with Faith Domergue, George Dolenz, Hillary Brooke, Nigel Bruce.

### Universal-International

Milton Krasner, "The Egg and I," with Claudette Colbert, Fred MacMurray, Marjorie Main, Louise Allbritton, Percy Kilbride.

Charles Van Enger, "Buck Private Comes Home," with Bud Abbott, Lou Costello, Joan Fulton, Tom Brown, Nat Pendleton.

Russell Metty, "Ivy" (Interwood Prod.), with Joan Fontaine, Richard Ney, Patricia Knowles, Herbert Marshall, Cedric Hardwicke.

### Warners

Peverell Marley, "Night Unto Night," with Viveca Lindfors, Ronald Regan, Osa Massen, Brod Crawford, Rosemary De Camp.

Arthur Edson and William Skall, "My Wild Irish Rose" (Technicolor), with Dennis Morgan, Andrea King, Arlene Dahl, Alan Hale, George Tobias, George O'Brien, William Frawley.

Carl Guthrie, "The Woman in White," with Eleanor Parker, Alexis Smith, Sydney Greenstreet, Gig Young, Agnes Moorehead, John Emery, Curt Bois.

Ted McCord, "Deep Valley," with Ida Lupino, Dane Clark, Wayne Morris, Fay Bainter, Henry Hull.

Sid Hickox, "Dark Passage," with Humphrey Bogart, Lauren Bacall, Agnes Moorehead, Tom d'Andrea.

Ernest Haller, "The Unfaithful," with Ann Sheridan, Zachary Scott, Lew Ayres, Steven Geray, Eve Arden.

## New! TELEFILM'S "Lok-On" Flange



Used by Leading Hollywood 16mm Editors and Producers for Editing and Re-winding

It's Telefilm's latest 16mm. time saver! Sides are of heavy gauge clear plastic. Engraved footage scale on inside surface shows amount of film on spool. One side removable—so you save time by slipping on film without winding. Nothing ever like it for winding short lengths of film into coils quickly, without endangering emulsion surfaces. Outer side has specially-made locking device, allowing removal of film by means of a simple lock. Core takes standard lab pack spools, fits a standard 16 or 35 mm. rewind.

### TRY IT 10 DAYS - MONEY BACK!

May be purchased complete, 8 inch size \$17.50 or 9 1/2 inch size \$18.50, or the face side with spool may be purchased separately at half above prices. Immediate delivery. Use it 10 days then money back if not delighted.

## TELEFILM INC.

**HOLLYWOOD 16mm HEADQUARTERS**

6039 Hollywood Blvd., Hollywood 28, Calif.

## Hints on Exposure Meter Use

George H. Espy of Weston Electric Company gave a most informative talk on exposure meters and correct use at a recent supplemental meeting of the Metropolitan Motion Picture Club of New York City.

He pointed out that, while the meter correctly reads reflected light values, it does not do any thinking for itself—and that process is up to the user.

His advice, as summarized in MMPC bulletin, is:

Take a reading from the camera position, aiming the meter at a point midway between the camera and the view to be taken. Good for average subjects.

Take a closeup reading of the object of greatest interest. If a person, take a reading of the flesh tones. Your audience will accept all else if the flesh tones are correctly exposed. Hold your meter a distance equal to the shorter dimension of your subject. Be sure not to read the shadow of the meter. Also be sure no extraneous light falls on the cell.

Read the brightest light and the darkest and expose at a position midway between the two. Add the two light values and divide by two. The stop corresponding to that value is the stop to use. Kodachrome has a latitude of 4 to 1. So if your values exceed those limits you will have under and over exposure on both ends. Best results will follow when the values are 3 to 1 or even 2 to 1.

Use the back or palm of your hand as a substitute for flesh tones if you can't go close enough to read.

Be sure your meter is in good working order. Have it checked at the Weston office or compare it with another meter known to be in good working order.

## Cinema Workshop

(Continued from Page 14)

As in the lighting of close-ups, so, too, in general set lighting the key light should not hit the set straight-on, but should come from one side or the other. There should be a definite source indicated (to give a reason for the highlights), and its effect should follow through in the entire sequence.

When the source comes from outside a window, its direction may vary with the time of day. For instance, morning sunlight falls at a sharp angle from above; whereas, evening sunlight shines directly into a room, casting long shadows. In a second story room, light from a street-light will, of course, shine into the room from below.

Many 16 mm. film-makers have a dif-

ficult time matching the lighting of close-ups to that of long shots. They design the long shot lighting first, and then try to match the close-up lighting to it, discovering, in many cases, that the lighting scheme is not at all right for the closer shot. They then rearrange the lights until the close-up looks good, only to find, when the film is finally cut, that the lighting of the two scenes does not match at all.

Because of this, it is better policy to plan the lighting of the close-up first, and then broaden it out into general set lighting for the long shot.

We have discussed some of the standard techniques for lighting sets and close-ups. We are now ready to take up some of the more unusual types of lighting.

NEXT ISSUE: *Lighting for Special effect.*

*Amazingly* **INEXPENSIVE!**



**CHROMA-TECH, Creators of Modern Motion Picture Machinery, has amazed 16mm laboratories from coast-to-coast with their newest ...the Add-A-Unit Developing Machine; an outstanding 16mm film developing machine designed with not only such singular features as its speed, its safety to film, its remarkable disengaging head, but with PRICES TO MATCH HIGH PRODUCTION METHODS! Add-A-Unit is available in two models. The 150 foot per minute machine (yes, we said 150 foot per minute... 9000 feet per hour) sells for \$4,500 plus taxes in stainless steel; sheet steel \$4,250 plus taxes, when available. The 1000 foot per hour machine sells for \$2,750 plus taxes, in stainless steel; sheet steel \$2,500 plus taxes, when available. (All prices subject to change without notice.) These prices ARE AMAZING when you consider that ADD-A-UNIT can be run at these profit-making high speeds with ABSOLUTE safety to film, and at a cost so low as to make developing a minor item. If you can, arrange for a demonstration at once! If you cannot arrange to see the Add-A-Unit in person, write for complete information which is available now. Don't delay...attend to this today! We know you'll agree with the industry and say, "Add-A-Unit, that's the developing machine that uses its head!" Write to:**

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Cinephon Silent 35mm. Mitchell type camera, adapted for Mitchell 1000 foot magazines, 4 Astro lenses, upright finder, free-head tripod, direct focusing rackover ground glass automatic dissolving shutter, footage counter, tachometer, like brand new.

Cinephon 35mm. smallest, lightweight newsreel cameras, 200 foot internal magazines, 6 volt electric motor attached, automatic turret with 3 lenses, dissolving shutter, direct focusing, tachometer, tripod, complete.

Arriflex 35mm. Cameras with 200 foot external magazines, built-in parallax-type view finder, perfect center from 3 feet to infinity, tachometer, Hi-Hat, 12-volt motor attached, lightweight plastic, non-spill battery, case and fittings, tripod, complete. Choice of Meyer, Astro, Sonnar and Biotar Coated Lenses.

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12 volt shoulder batteries, lightweight, plastic \$35.00 for production.

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We service Arriflex cameras, motor and parts. Weston No. 614 Studio Foot Candle Meters, calibrated, new, \$51.00.

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## Victor President Tours

S. G. Rose, president of Victor Animatograph Corporation of Davenport, is currently on extended business tour through Mexico. Later he will visit the Pacific Coast area for meetings with key distributors of the Victor 16mm. equipment.

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## Hi-Speed 16mm. Developing Machine Introduced by Chroma-Tech

Operating at speeds of 150 feet a minute with complete safety to film has every appearance of being extremely simple for the new Chroma-Tech Add-A-Unit 16 mm. developing machine recently introduced to the 16 mm. industry. The Add-A-Unit employs an ingenious disengaging mechanism which goes into operation with as little as four ounces of tension placed on the moving film. This disengaging head consists of a spring loaded carrying bracket on which is mounted taper roller bearings sustaining a full cantilever stainless shaft. Mounted on this shaft is a series of hard rubber rollers which carry the strands of film. These rollers may be driven in any combination desired, providing positive drive to each bank of rollers.

The film runs under such low tension that it may be pulled away from the rollers and inspected as it continues moving through the drying stage. Any action creating tension of four ounces causes the disengaging head to release, and the drive of the film to be stopped.

A second bank of rollers is located at the bottom of each developing tank, and these rollers, being adjustable, provide the method of controlling the developing time through controlling the length of each strand in solution; thus, the actual time in the developer. Running at a speed of 150 feet a minute, the developing machine performs quietly and smoothly. At this normal speed the solution pumped into the bottom of the tanks creates sufficient turbulence for fine grain developing, and the extra recirculating tanks provide fresh solution with a complete change approximately every two minutes.

Each "unit" is made up of six processing tanks and five rinse tanks. This system of washing between each tank stops any solution from carrying over to the next tank with the film. The "units" are made of expanded steel and dipped time and time again in liquid Latex neoprene. This dipping builds up an impregnation of 1/8" on all surfaces. This method of impregnation will not pull away from the metal under tem-

perature changes, and provides a surface always clean and unharmed by developing and fixing solutions, it is said.

The tanks, before dipping, are spot-welded throughout. The dry box is made of steel and is fitted with large glass doors permitting inspection of the film throughout the drying process. Drums of perforated metal, fitted with soft cloth, polish the film as it dries, avoiding any spotting of film by the solution which may have been left on the film. Air circulating through the drums aids drying. The disengaging feature of the Add-A-Unit is provided in the dry box as well, and here, hand inspection of the film is possible if desired.

The tanks and dry box comprise the basic unit for black and white development. For reversal, an additional unit is required, while a third unit is added for color development. The addition of each unit is surprisingly simple, and all plumbing and piping is easily accomplished. These units need not be adjacent to operate efficiently at the machine's speed of 9000 feet per hour. If it is desired, the dry box may be placed in a light room; the film being threaded through a light tight slot from the dark room.

## New PSA Awards

Photographic Society of America is establishing two new awards for annual presentation in the field of pictorialism. The Stuyvesant Peabody Memorial Award for Pictorial Photography, achievement medal, will be presented to person designated by special committee to have done the most for pictorial photography during the preceding year.

Second new award will be one for Merit in Pictorial Exhibiting, in form of a certificate for consistent participation in salon exhibitions.

## Cowling Made Full Colonel

Announcement has been made by USAAF of the promotion of Lieut. Col. Herford Tynes Cowling to the grade of full Colonel. At termination of hostilities, Col. Cowling was assigned to Wright Field, Ohio, as chief of Division of Photography, Technical Intelligence of Air Materiel Command. Prior to entering government service in 1935, he was a member of A.S.C.

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## Aces of the Camera

(Continued from Page 12)

of short subjects made in 1934 and called, "Musical Moods." Filmed in Europe, these pictures served the purpose of a testing ground for the then new 3-strip Technicolor camera. He returned to California to employ his talents on "Becky Sharp," the first feature-length film made on 3-strip. Then, "Trail of a Lonesome Pine," and "God's Country and the Woman," which almost terminated his career when a log-jam explosion in which he was too closely involved blew his camera into the nearby river and gashed the head of his assistant. It literally rained tree trunks for an uncomfortable few minutes.

After that he had a unique opportunity to see more of the world. Not all of it, mind you, but Canada, Brazil, South Africa, India, Ceylon, Siam, Java, Bali, China, Peru, Chile, Sweden, Denmark, Czechoslovakia, Hungary and Austria. All this over a period of three years when he roamed with Jimmy Fitzpatrick making the famous "Travel-talks." During this time he shot approximately forty pictures; and on much of the material directed, cut, and served as business manager as well.

On Walter Wanger's "Vogues of 1938" he presided as first cameraman on the New York unit. He shared screen credit for the cinematography on "Dr. Cyclops;" shot the live action sequences for Disney's "Fantasia," with Stokowski and Deems Taylor, scenes that required the use of colored filters on all the lights; shared credits on the live action sequences of "The Reluctant Dragon;" and took the first Florida location unit for "The Yearling."

His superlative knowledge of Technicolor photography made him a natural choice as the man to set up and have charge of the cameras for the double screen work on "Gone With the Wind," used on the famous fire scenes.

"Dive Bomber," which was nominated for the Academy Award, is also one of his credits. On this picture the major part of his work was on the superb aerial photography that distinguished the production. And perhaps it was the Navy contacts he made while shooting the picture that persuaded him to cast his lot with that branch of the service when the War started to roll.

He also shared the screen credits for the aerial photography on "Captains of the Clouds," before returning to earth to shoot the miniatures for "The Black Swan," which received the Academy Award for Color Photography; and for "Crash Dive," which won the Award for Special Effects, he photographed the underwater scenes and the fire sequence as well as the miniatures.

From 1943 until January 1946 Winton Hoch served in the U. S. Navy, assigned to the Bureau of Aeronautics working on "photographic problems." If this story could be told in its entirety it would throw a lot of light on what some of Hollywood's top cameramen were

able to contribute, through their highly specialized knowledge, to the war effort.

In the Navy he organized, and for a year and a half was in charge of the Motion Picture Photography Division of the Navy Photographic Science Laboratory in Washington, D. C., where, in addition to the administrative work he developed a very effective method of radar-scope photography that met the pressing needs of the Navy. He also designed and supervised the construction and use of equipment for underwater photography, and participated in anti-submarine work. Higher priority work then took him to the U. S. Naval Ordnance Test Station at Inyokern, California, where he used airborne cameras on all types of Navy aircraft for metric work as well as general reportorial and record coverage on all of the Station's military activities, and developed a mathematical and photographic system that permitted the computers and test conductors to obtain extensive aerial ballistic data that had previously seemed out of reach. This work has been published as a confidential report and distributed to all pertinent government departments.

As a civilian again his first postwar feature credit, recently finished, is "How Dear to My Heart," for Disney.

This modest, conscientious man likes to talk about the future of motion pictures. To him that future looks extremely interesting. And with him, and men like him, that future is assured.

## Gilbert Joins Willard

Erskine F. Gilbert has joined Willard Pictures, New York, producers of commercial and industrial motion pictures. He was previously associated with Jam Handy.



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## Staging Musical Numbers

(Continued from Page 9)

proofed camera to the amphibious movements of the players, *while keeping time with the music.*

Again, in "Anchors Away," there was a sequence in which one of the players danced with a cartoon mouse—the mouse, of course, being painted in later by the cartoon department. In this sequence, the operator had to imagine the mouse and visualize where he was going to be, so that he could leave room for him throughout a constantly changing composition. Levitt admits that for days afterward he was seeing mice in his dreams.

Since "Forty Second Street" sang its way onto the screen in the last decade, the staging of musical numbers for the camera has become a definite art. The dance director (may he soon be awarded a more accurate title) is the technician responsible for expressing music and action in terms of camera and celluloid. Working closely with the cinematographer, he continues to seek new and interesting ways of bringing song and dance to our theatre screens.

Looking back at the progress that has been made in this field, Donohue observes: "All of us now staging musical numbers for the screen owe a great debt to Busby Berkeley, who pioneered the art, and developed an entirely new concept of screen entertainment."

### Camera Records V-2 Rocket Flight

A 35mm. motion picture camera with electrical attachments built in a specially-designed housing in the fuselage of the German V-2 rocket fired to an altitude of 65 miles at White Sands, New Mexico, last October, provided photographic records of how the earth looks from that height.

The standard DeVry 35mm. model A camera, after functioning perfectly to record for the eye of man vistas never before seen or adequately imagined, was blown clear of its rocket vehicle at 25,000 feet, and although the lens and batteries were smashed in the free fall to earth from this five mile height, the film was found in perfect condition and the metal working parts in surprisingly good order.

Making four pictures per second for three minutes of ascent and part of descent, the camera made a remarkably comprehensive 4½ minute, 50 ft. motion picture of the earth's surface, at altitudes varying from 100 feet to 65 miles.

Stills from the film as reproduced in newspapers and magazines reveal the marvelous capacity of the camera to record the detail exposed to it in flight. In fact, one of the stills reproduces a segment of the earth's horizon covering an estimated 40,000 square miles—an unchallengeable tribute to American optical genius and lens manufacturing skill.



RIDING THE CAMERA CRANE FOR A ZOOM ORCHESTRA SHOT. Crane is shown on tracks in upper photo, with Director of Photography James Van Trees, A.S.C., atop the ladder supervising the intricate setup. In lower photo, camera, with Director Al Green aboard the platform, has zoomed in for closeups of various sections of the orchestra. Picture is Charles R. Rogers' production of "Fabulous Dorseys."

## Utah Cine Arts

Annual party night and election of officers to function for 1947 was held by Utah Cine Arts Club of Salt Lake City at Teamsters' Hall on December 18th. Film feature of the evening was "This is the Story of Aladin's Lamp," a 16 mm. kodachrome subject for which Dr. Rich Johnston received three awards during the past year. Club's annual banquet and installation of officers will highlight the January meeting.

## New York Eight

In addition to number of films of members, program of the November 18th meeting of New York Eight MM. Club, held at hotel Pennsylvania included showings of "Skyways," by Edward Heyl; "The Shriners' Parade," by William Close; and Dr. Macdonald Browne's "Murder in Central Park."

## Brooklyn Amateur

Leo Heffernan presented his "Land Snakes Alive" and "Trees That Grow in Brooklyn" at the November 6th meeting of Brooklyn Amateur Cine Club for enthusiastic response of the members.

Initial guest night of the new season was held on November 20th at the Stanley Smith restaurant, with program staged by Jay T. Fox.

## Seattle Amateur

Charles J. Frisbie, who travelled 25,000 miles earlier this year in England, France, Switzerland and South America, presented portion of the 1,200 feet of 8 mm. kodachrome he shot on the tour at the December 10th meeting of Seattle Amateur Movie Club. Progress is being made on plans for production of a club film, "Let's Make a Movie," which is slated to start shooting within the next few months.

## Leicas Again Available

Distribution of Leica cameras in the United States has been resumed, with limited supplies available, is announced by E. Leitz, Inc. New Leica IIIc model is made in the original Leitz works at Wetzler, Germany, and are imported by arrangement with Office of Military Government, U. S., through U. S. Commercial Company. Money derived from importation will go into funds for cost of occupation of Germany.

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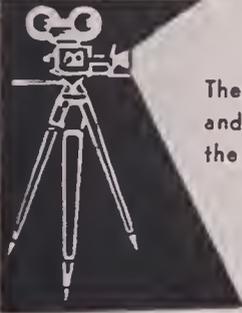
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Pictorial Films of New York announces it has purchased outright world distribution rights to two amateur-produced 16mm. pictures—"Arts and Crafts in Mexico," and "The Inside Story." Former was produced by Ralph E. Gray, FACL; and latter was made by Dan Billman, Jr., president of Minneapolis Cine Club.

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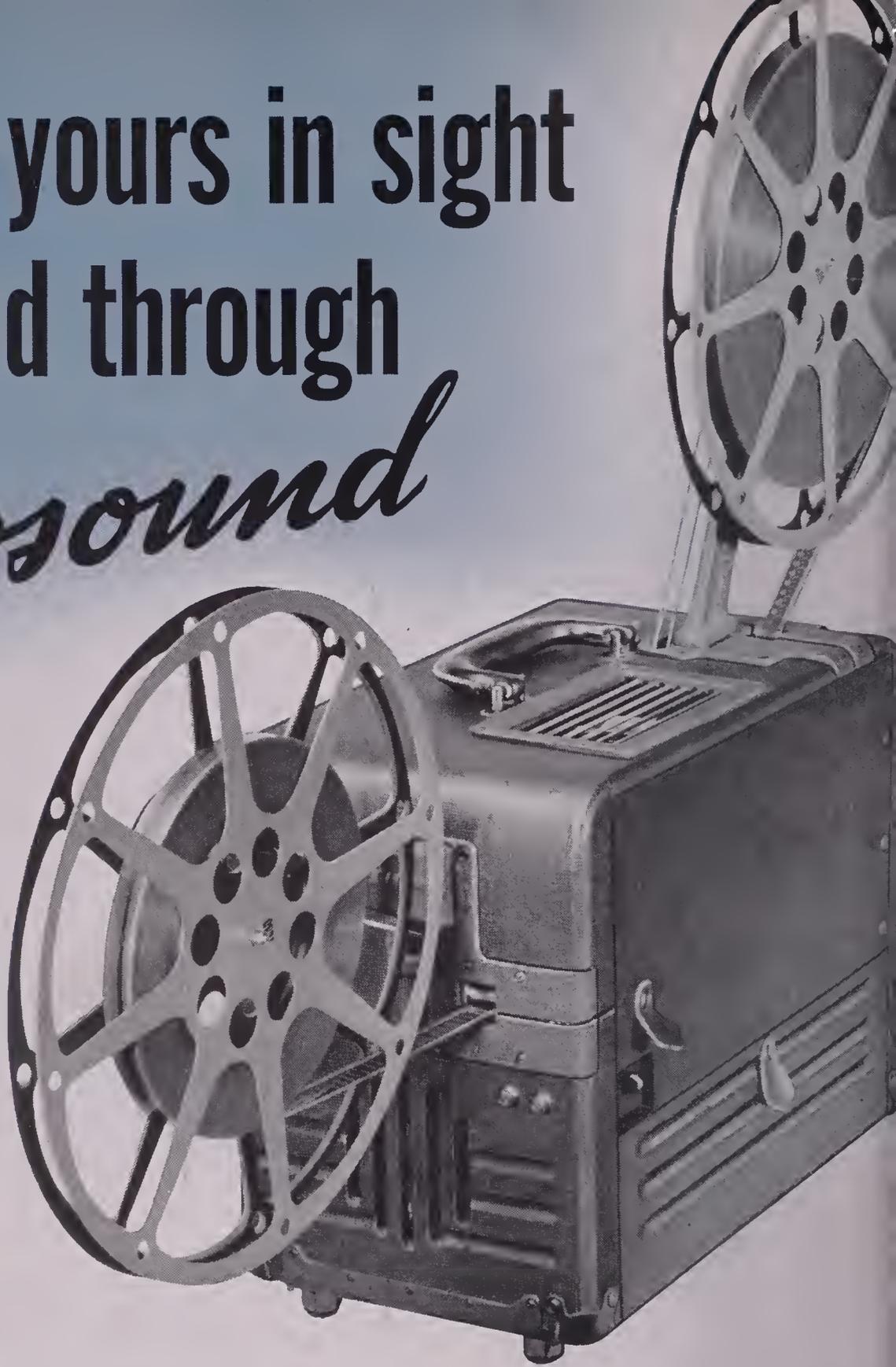
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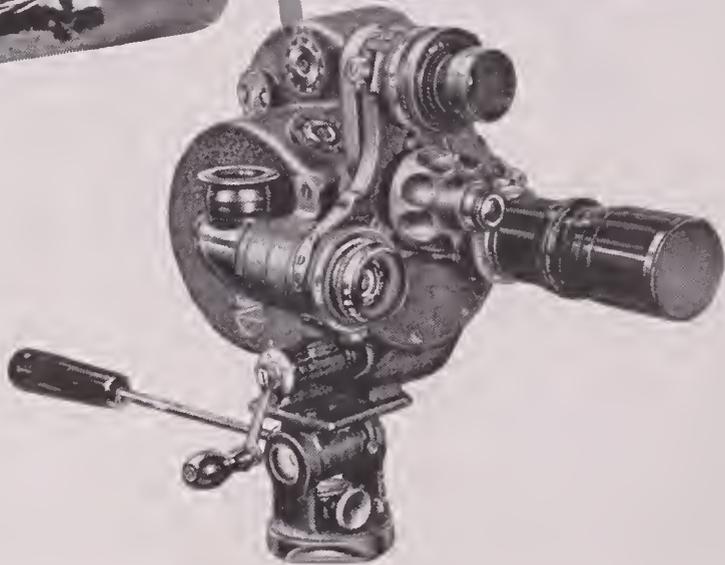


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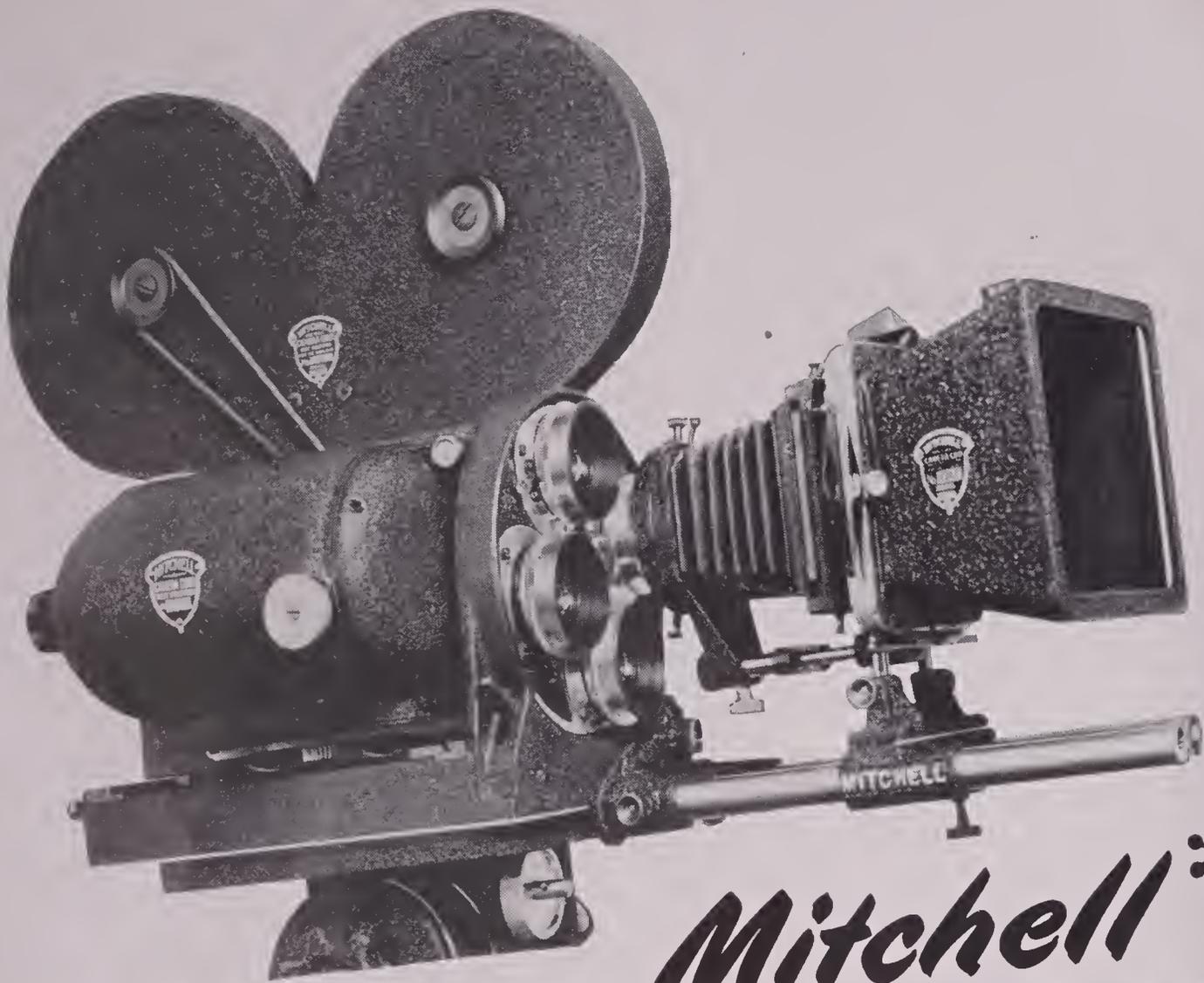
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

FEBRUARY, 1947

NO. 2

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ON THE FRONT COVER—Linda Darnell and Cornel Wilde ready for a scene in the Twentieth Century-Fox Technicolor production, "Forever Amber." Directory of Photography Leon Shamroy, A.S.C. is seated in front of camera, with director Otto Preminger on his left.



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McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

Entered as second-class matter Nov. 18, 1937, at the postoffice at Los Angeles, California, under the act of March 3, 1879.

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**L**UCIEN ANDRIOT came to this country from Paris. He was only sixteen years of age when he arrived in New York, but he had already had more than a year of experience working in a motion picture laboratory in France and came to these shores as part of the lab staff of the Eclair Film Co. when those French pioneers decided to open a branch on this side of the Atlantic.

Undeterred by extreme youth, his ambition soon reached out of the lab to encompass broader horizons. Lucien became a cameraman, shooting one-reelers which he then had to develop, print, and sometimes project, himself.

With the advent of the first World War he joined the American Army and was assigned to the Photographic Division of the Medical Corps; a classification which, it seems, was not reactivated during the recent fracas. During those war years he met for the first time other men who were destined to become important members of the motion picture industry: among them, Lewis Milestone, Wesley Ruggles, Richard Wallace, and Len Smith, A.S.C.

When the war was over, motion pictures, which still had a long way to go, had at least come out of their swaddling clothes. The screen began to make its bid for popular recognition in the field of entertainment by turning out some pictures which, considering the handicaps in the light of today's technical developments, were superb and definitely gave the medium the impetus it needed toward the recognition it sought. One of these early films was a picturization of Mark Twain's classic, "A Connecticut Yankee in King Arthur's Court," produced by William Fox in 1920.

This first production of the famous Connecticut Yankee, not to be confused with the later production starring Will Rogers, was photographed by Lucien Andriot on the Western Avenue stages of the old Fox lot. Rather, it was shot partly on the stages. What actually happened was that the production planning had been over ambitious and had failed to take into consideration the size of the stages. The result was that the stage provided only enough space for the background; the rest of the set and most of the action overflowed on to the lot where, someone fondly imagined, the sunlight could be used to light the foreground action and made to match the artificial light used on the back part of the set that was enclosed within the stage.

No amount of persuasion on Lucien's part could convince the originators of this idea that the set-up was photographically impossible. But, after learning the hard way, they finally permitted him to enclose the exterior half of the set in a tent. The resulting conditions were then far from perfect, but the final product turned out to be a tremendous success. The screen presented



## ACES of the CAMERA

LUCIEN ANDRIOT, A. S. C.

By W. G. C. BOSCO

a popular classic in, for those days, an extravagant setting and stars Harry Myers, Rosemary Theby and Pauline Stark, and cinematographer Lucien Andriot were on their way to fame.

Of particular note at the time, due to the sympathetic reception by producers and public alike of "trick" pho-

tography, was the spectacular opening Lucien contrived for the "Connecticut Yankee;" a scene in which an actor representing the author turned the pages of his book out of which walked the characters made famous in the story. Not much of a trick by today's stand-

(Continued on Page 72)

# Recent Developments In Photographic Optics

By Dr. Wilbur B. Rayton

*(Editor's Note: This most informative and enlightening discussion on optics and lenses was presented by the late Dr. Rayton before members of the American Society of Cinematographers at the A.S.C. clubhouse on the evening of October 28th, 1946. This was the last paper delivered by Dr. Rayton before his sudden passing three days later in San Francisco. His position as one of the world's most outstanding authorities on optics and lenses for motion picture engineering is widely recognized.)*

MR. PRESIDENT, Mr. Chairman, fellow members of A.S.C., I have often wished to meet with you. I have been in Hollywood many time and for one reason or another I has never seemed to find the time to even get into the building. I really took great pleasure in Mr. Clark's invitation to come here tonight, in spite of the fact that I had no carefully prepared story to present. Had I known about this in Rochester, it is conceivable that I might have had more material to illustrate what I might talk about. We will just have to have a little informal conversation on the subject of new developments in motion picture lenses and perhaps related equipment.

I think we might cover the subject in three sections. First, the question of lens design. Perhaps you are not greatly interested, but there is one modern development that concerns design which I shall have to lead up to gradually.

One of the fundamental difficulties with a lens is the fact it has different focal lengths for different colors. One of the very first steps in the development of what we now think of as corrected lenses was to get rid of that color. Very early it was discovered that if a certain equation was satisfied relating the optical constants of the glass and the focal lengths of the two elements of a combination mounted close together, then chromatic dispersion could be corrected and the lens would have the same focus for two different wave lengths, and very nearly the same focus for all others.

Considerably later than that time, men struggling with the problem of what was wrong with the image formed by a lens identified one defect and named it curvature of field. About 100 years ago an Austrian, Josef Petzval, was led to another equation, which, if satisfied, would produce a lens that had no curva-

ture of field. His equation also connected the optical properties of the glass and the focal lengths of the elements. With the glasses then available it was impossible to satisfy those two equations simultaneously achromatic—i.e., free from color aberrations and with a flat field.

In the 1870's Professor Abbe began his

very fruitful work in the field of optics. He, struggling with these equations, came to the conclusion that if a glass existed different from any that had then been known, it would be possible to satisfy both of these conditions. He interested the maker of chemical glassware and lamp chimneys, Dr. Schott, in the problem, and between them they developed some glasses that have since been known as Jena glasses. They differed considerably from glasses previously available as they had higher indices of refractions for low dispersions. The glass is characterized by two constants generally. One, its index of refraction, represented, for example, by "n," and another constant that prescribes how much the index of refraction differs with wave length. A particular ratio is set up. It is the ratio of the index of refraction for yellow light minus unity divided by the difference in the indices of refraction for the red and blue. That quantity has been characterized by a Greek letter which is pronounced in English as "new."

The difference between the new glasses developed by Dr. Schott and Professor Abbe and older glasses was that for a certain nu-value the new glasses had a higher index of refraction than had been previously available.

The availability of these glasses then led to the modern anastigmat lenses, the development of which began along in the 90's. I think the first one was dated about 1890. From 1890 to 1910 was the

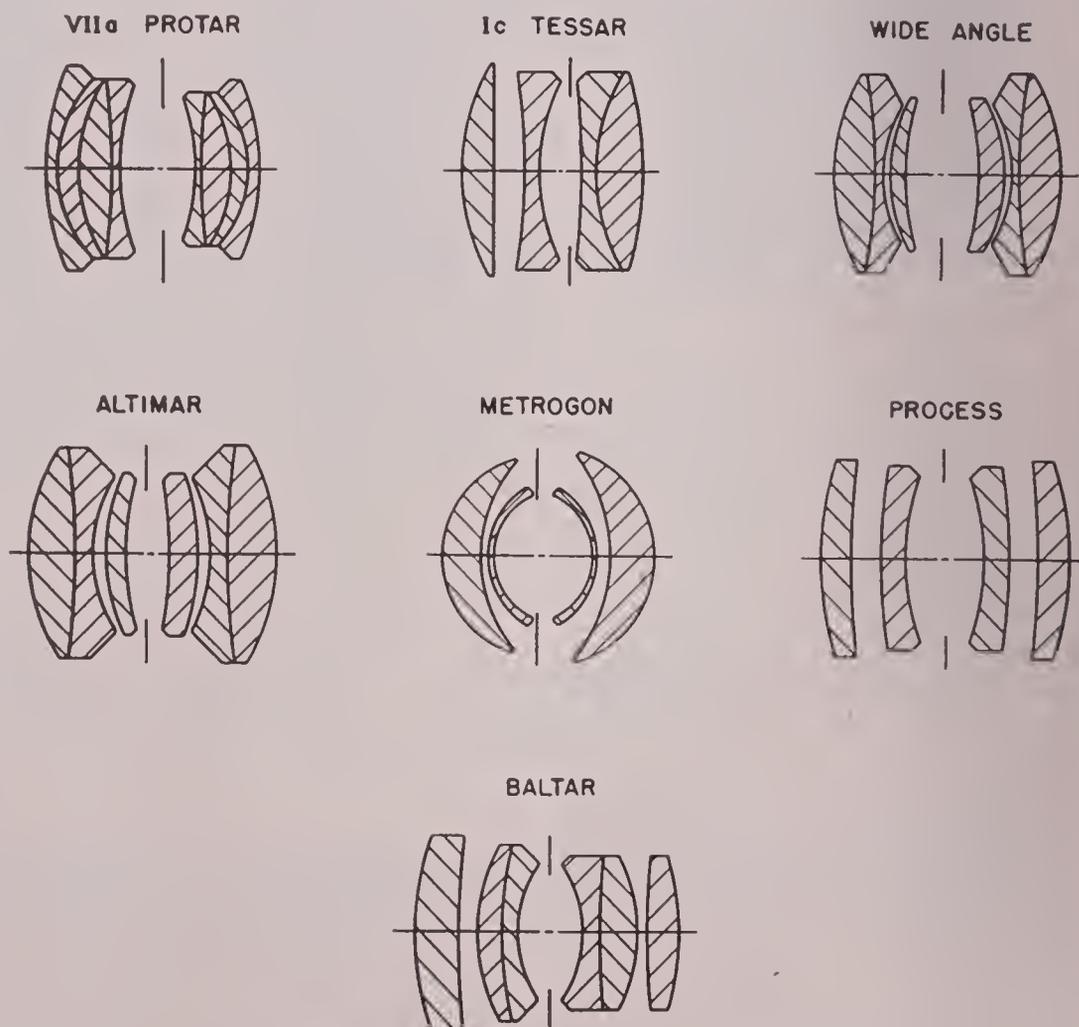


Fig. 1. A group of anastigmats (highly corrected photographic lenses.)

period of development of lenses of new types.

If I may have the first slide. (Fig. 1.)

This slide shows several lens types, not all of them by any means. It just represents a group of various types of lenses, all of them anastigmats. The first one in the upper left corner is a convertible lens in the sense that either half may be used by itself and it can be used in combination. The next in the upper line is the well-known Tessar, then comes a construction that gives an angle of about 80 degrees, a very good definition at about  $f/8$ . On the middle line, the first lens on the left is a 70 degree lens with the speed of  $f/4$ , and the middle lens is a 90 degree lens with a speed of  $f/6.3$ ; it is the well-known Bausch & Lomb Metrogon, extensively used for aerial photography. The one on the right is a process lens and the one on the bottom is a motion picture high speed lens.

Now you will observe that the lens at the upper right, the one at the left of the middle line, the one at the bottom, are all very much alike (although there are differences, and there is a resemblance in the case of the metrogon and the process lens), in that they all consist of four components, all of which are in general meniscus in shape, mounted around a diaphragm. The origin of this type of lens traces back, in my thinking, to the design of a telescope objective. That lens was designed by a mathematician by the name of Gauss. Two of them put together around a diaphragm led to a lens that was proposed and patented by Alvan Clark, America's most celebrated optician, manufacturer of the big telescope at Yerkes and Riggs Observatory.

The next step in the development was the Planar of Dr. Rudolph, about 1895, which was a lens much of the order of the Baltar in general appearance and from which many lenses have been derived, in England and Germany and in this country. They differ from each other with respect to speed and field coverage, and these differences are brought about largely by different glass combinations.

Now the question is, why should we have so many different glass combinations. I meant to say many different lens constructions. The answer is because there is no mathematical equation or set of equations that can be written down to describe a given number of conditions and to find one best answer to the problem. The design of lenses is arrived at still very largely by cut and try methods, by intuition, you might say, and imagination on the part of the lens designer.

Now all this leads up to the question of what are we going to do in the way of furthering the work done by Dr. Schott. You probably have read in advertising literature and in the public press, stories of new glasses that have been developed over recent years. These glasses are an extension of the work of Dr. Schott. They have higher indices

of refraction than those obtained before and give the lens designer that much more to work with. It is nothing new in basic principle; it is an extension of what we were already doing.

In addition to the new glasses there are other materials that might be thought of in lens design. There are synthetic crystals. One of them is called Beta magnesia. It is a magnesium oxide or combination of magnesium oxide and other oxides. Another is spinel, a mineral that is a magnesium-aluminum oxide. These have astonishingly high indices of refraction and rather low dispersions. They have the further advantage of being very, very hard, physically hard and chemically hard. They are not commercially available in optical quality. But there is, perhaps, reason to think that the future will bring these materials, and I am sure the lens designer can make good use of them if he has them.

During the war fluorite was made artificially for the first time. Fluorite is a very interesting optical material. It has an exceedingly low dispersion, lower than any other material available for optical work and that is a real advantage, although in this case it is unfortunate that it is coupled with an index of refraction that is too low. It is very difficult to design a lens with a flat field in which fluorite is used. But for lenses of very small field of view, it makes possible a design of a really apochromatic lens—i.e., a lens that forms images in the same plane for three different colors. Strictly speaking, there is, up to this time, no photographic lens that can do that.

So we have great hopes for the future for what may possibly be accomplished with these new materials.

And then, too, of course, we have all heard of plastic lenses. Plastics will be used when they have any advantage over glass. Their only advantage, perhaps, that was thought of during the war, was cheapness. But I think experience shows that to make a lens that compares in optical performance with a glass lens, and make it out of plastic, costs as much as it does to make it out of glass. Furthermore, it hasn't the durability of glass, and from the designers' standpoint this is a very poverty-stricken field of materials in which to work. We have hundreds of kinds of glass to two kinds of plastic suitable for optical design.

So much for design.

After you design the lens and make it, it can still be ruined in mounting, and we have been thinking of new methods of mounting. I think perhaps some of you were at the meeting of the S.M.P.E. and saw this slide. Nevertheless, I will ask for the second slide. (Fig. 2.)

This is the plane of the diaphragm (E). The usual method of mounting is to mount this diaphragm in a barrel that is threaded on the front and back; to mount the front half and the back half of the lens in independent mounts that screw into the threaded barrel. It is a very difficult thing to get all those

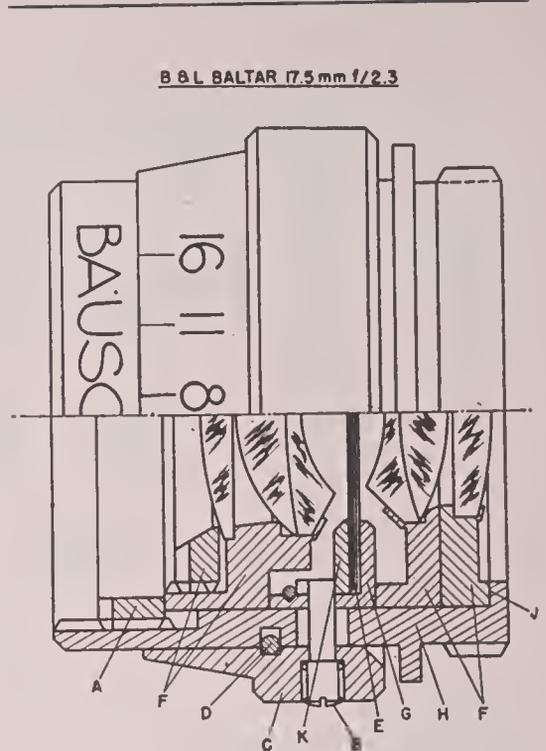


Fig. 2. A precision mount for short-focus Baltars.

threads on a common axis. This sketch illustrates a method of mounting that we have used in mounting microscope lenses with a great deal of success for many years, and recently have introduced a similar mounting for motion picture lenses of short focal lengths. Each component is mounted in a separate cell (F). The diaphragm is mounted in a housing (G). The cells and the diaphragm housing are turned to the same diameter and pushed into a sleeve that can be very easily machined to a true cylinder, constant in diameter. Naturally, these have to fit very well. There is no point in doing this if there is any sloppiness in the fit of these cells in the barrel.

This is a shoulder (J) by which the whole system is located, and that is a retaining ring (A) which screws the whole thing together and holds it in place. This is the diaphragm actuating ring (C). It is slipped over the front and engages this spring ring (D). The actuating pin (B) is screwed into (C) with a screwdriver, and it projects through the barrel (H) into a slot in the diaphragm ring (K). Our experience with this type of mount is that it holds lenses centered better than any other style of mount with which we have ever experimented.

Now the second point in which developments have been made in recent years is the application of films to the surfaces of the lenses. Now I am pretty sure you must be rather well bored with the story of antireflection films. These thin films have other possibilities than simply reducing the reflection from lens surface, so we will give a few minutes to this subject.

(Continued on Page 54)

# Photographic Highlights Of 1946

By GLENN E. MATTHEWS

(Technical Editor, Kodak Research Laboratories, Rochester, New York)

(From the 1947 Colliers National Year Book, P. F. Collier and Son Corp, New York)

THE most photographed event of all time was the atomic bomb tests on July 1 and 25 in Bikini lagoon in the Pacific. At each of those tests, more than 500 cameras were used; these included miniature type cameras using 35-mm. film, press cameras, motion picture cameras using 16-mm. and 35-mm. films, and many types of aerial cameras with lenses as great as 48 inches in focal length. During the two tests, more than 100,000 photographs were made and over three million feet of motion picture film was exposed, and this did not include the many thousands of pictures taken by the press.

In order that the different phases of the explosion could be studied later, many records were made with high speed cameras using color films. The cameras were located in batteries on high steel towers around the lagoon, in airplanes, on destroyers and target ships. Cameras were also used on several "drone" airplanes. Many of the cameras were operated by electronic controls from remote stations. The first few milli-seconds of the explosion were recorded with a special ultra speed streak camera.

Besides the explosions, many photographs were made before and after the tests; included in the latter group of pictures were underwater records made with special waterproof cameras and lamps to show under-water damage to ships. Study of these thousands of photographs was expected to reveal much valuable information on the effectiveness of this powerful weapon.

## Rocket Photography

Numerous photographic tests were made at White Sands, New Mexico, by the U. S. Army from high speed rockets of the V-2 type. A typical installation for one of these tests was eight gun-type electrically controlled cameras using 16-mm. film. Successful pictures

were made from a record height of 65 miles above the earth. The rocket continued on upward to a height of over 100 miles but the vibration was so great that the pictures taken above 65 miles were blurred. (Fig. 1) Several of these photographs were reproduced in the magazine *Life*, for December 2, 1946.



Figure 1. The earth from altitude of 45 miles, photographed by camera installed in a V-2 type rocket.

Spectograms of the sun were also made with a special spectograph built by Bausch and Lomb Optical Company and installed by the Applied Physics Laboratory of Johns Hopkins University in a rocket that was fired on October 10. (Fig. 2)

On the night of December 17, another rocket rose to the record height of 114 miles. A camera installed in it made photographs of the exhaust flames and incandescent fins of the rocket. These pictures will be used to study the effect of the atmospheric constituents on combustion of fuel at this high altitude.

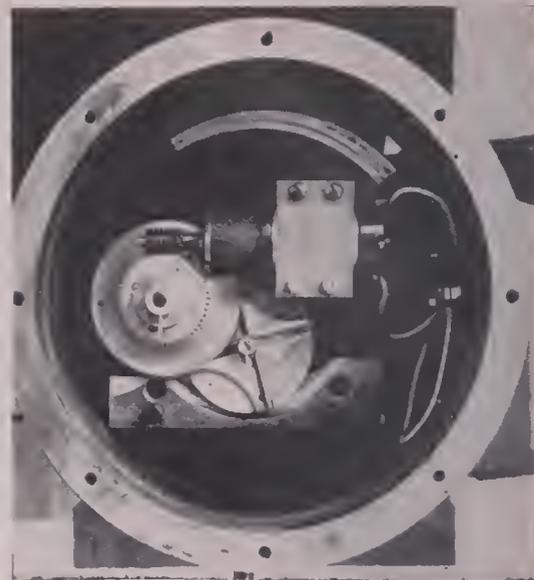


Figure 2. Rocket Spectograph for recording sun's spectrum during rocket flight. End view, showing film cassette, Geneva wheel mechanism, and tiny electric motor for turning interior rotor for eight exposures of ultraviolet-sensitive film.

Such experiments were expected to reveal much useful information about conditions in the upper air around the earth.

## Photographic Manufacture

Although the manufacture of sensitized photographic materials and equipment reached an all-time high for production in a peacetime year, consumer needs were so great that dealers seldom received enough photographic materials to satisfy the demand. Strikes in various industries, especially the steel and coal strikes, held up delivery of metal stocks to many firms, including the photographic manufacturer, and production of some types of apparatus was slowed up.

Nevertheless, quite a number of cameras, projectors, exposure meters, flash bulbs, and miscellaneous accessories were marketed. Twin-reflex cameras were manufactured by several firms. Older models of roll film cameras and miniature cameras using 35-mm. film were made available again. A stereoscopic miniature camera called the "Stereo-Realist" was advertised. It was equipped with a matched pair of f/3.5 coated lenses, a range finder, and a synchroflash shutter. The stereo transparencies were examined with a twin-lens viewer having a built-in lamp. A device called the Harrison Color Temperature Meter was sold for use in measuring the color temperature of various light sources. The unknown source was viewed through various filters arranged on a revolving disk.

Several types of equipment that were developed during the war were being adapted to peacetime use. A camera that exposed 4 by 5-inch pictures automatically at the rate of two per second was being used by the Associated Press; it was known as the Fairchild Sequence Camera.

The use of high intensity stroboscopic flash units was being extended. Several types of these units were marketed under such trade-names as Kodatron, Electroflash, Electronic Flash Gun, Amglo, Everflash, and Flash-Tronic. One flash gun, known as the Dyna-Flash Synchronizer, had a small built-in a.c. generator; another called the Magnafash was actuated by a magnet.

Other adapted war developments were a compact film tank for daylight processing of either 16-mm. or 35-mm. motion picture films; printers for photographic paper which used "cold light" Argon lamps for making the exposure; film dryers, and print straighteners.

Comparatively few new films or papers for black-and-white photography were announced during the year. A new motion picture film for photographing a television monitor tube was described by White and Boyer in the August issue of the *Journal of the Society of Motion Picture Engineers*. This film could be used as a negative or, if processed by reversal, as a positive. A light sensitive emulsion for coating on plastic, metal, wood, and other surfaces was announced for sale by the Glenn L. Martin Company, Baltimore. It was recommended chiefly for use for the reproduction of drawings. A contact printing photographic paper known as Devolite could be used in rooms with daylight or electric illumination. Exposure was done with the paper held a few inches from an ordinary 100-watt bulb.

A rapid processing, fast-drying paper used during the war for making charts and maps was marketed under the name, Resisto, by Eastman Kodak Company. A new warm-tone paper called Charcoal Ember was announced by the Dassonville Company. According to an article in the June issue of *Camera* (Baltimore) sepia prints could be made directly from color transparencies on a paper called Grant Panchroreversal.

#### Special Types of Equipment

Checks and documents could be photographed on both sides simultaneously with a new microcopying camera known as the Duplex Recordak which was marketed early in the year. A new cartographic camera manufactured by the Fairchild Camera and Instrument Corporation was designed to take lenses of three focal lengths, 5.2-inch, 6-inch, and 8.25-inch. It was operated either automatically or manually and intended for topographic or planimetric mapping (Fig. 3). Orthographic and isometric projections of objects could be made with the Cooke Orthocamera which had a very large lens highly corrected for spherical aberration. The camera was used to photograph objects whose width was equal to or less than the diameter of the lens.

An instrument for the rapid production of photographic records was described in the September issue of the *Journal of the Franklin Institute*. It was designed to photograph a transient



Figure 3. New Cartographic Aerial Camera, equipped with between-the-lens shutter operating at 0.01-second, 0.02-second, and 0.03-second, and also a focal plane shutter; three lenses of 5.2, 6, and 8.25 inches respectively. It takes pictures 9 x 9 inches.

image on an oscilloscope tube face, develop the image, and project it very much enlarged onto a screen, all in the short time of 15 seconds. A fine grain positive 16-mm. film was used (Eastman Type 5302) and the processing solutions were heated to 140°F. Equipment of this type will probably have uses in the fields of television, documentary reproduction, and industrial processes.

Several types of radar cameras were described which consisted essentially of an optical system and film holder that recorded the image on the oscilloscope face. By this means permanent records were made of the transient image on the scope (Fig. 4).

At the December meeting of the Rochester Technical Section of the Photographic Society of America, Colonel Goddard of the Army Air Forces described a new aerial camera having a focal length of 100 inches. To avoid the excessively long housing that would result from a straight light path, two mir-

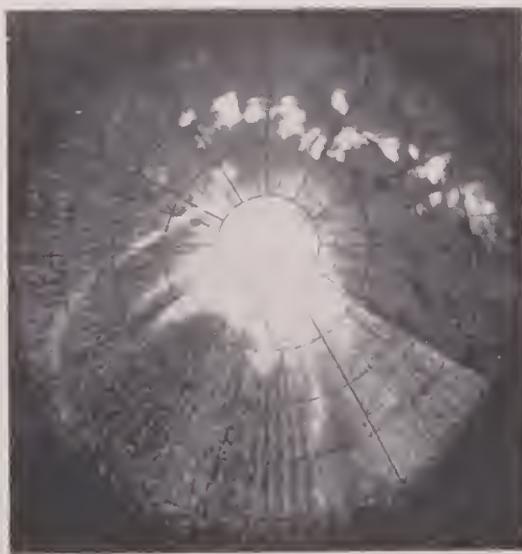


Figure 4. Radar Scope photograph of a tropical typhoon; made on the USS aircraft carrier, Ticonderoga.

rors within the housing bend the light rays so that the overall size of the camera is only about 4 by 4 feet.

#### Color Photography

More color films and printing materials were available for general use than had been in dealers' stocks for several years. Public demand for color materials was so great, however, that manufacturers found it difficult to meet it even with increased production.

One of the most important developments of the year was the announcement in August of a new color sheet film called Ektachrome that could be processed by the user to give a positive color transparency. This product was derived from the Kodacolor Aero Reversal film that was introduced in 1940 and used throughout the war as a color reconnaissance film by the armed forces. The new film is particularly suitable for commercial illustrative photography. The announcement of the film was said to have been held up for some time while research chemists worked out a new color developer that is far less likely to give skin irritation than hitherto known color developers, or even than ordinary developers in normal use. Total processing time to obtain a transparency is 90 minutes.

For color prints from Ektachrome, Kodachrome, and other color transparencies, the Eastman Kodak Company recommended their Dye Transfer Process which uses a tanning developer, special dyes for rapid transfer, mordanted paper, and a simple device to insure accurate registration of the three images.

Color prints from color transparencies were being made commercially by several firms in the United States. For such work, Pavelle, Inc., New York, and the Technifinish Laboratory, Inc., Rochester, used Ansco Printon, a reversal integral tripack material coated on white acetate support. Eastman Kodak Company continued to supply Kodacolor prints (formerly called Minicolor), and Kodachrome Professional prints (formerly called Kotavachrome).

Ansco Color roll film was placed on the market in March by the Ansco Division of the General Aniline and Film Corporation which had previously introduced other color products including a sheet film for making color transparencies, a 35-mm. film for use in small cameras, a 16-mm. motion picture film, and a color printing material. The properties of three new Ansco 35-mm. color films for professional motion pictures were described in the May issue of the *Journal of the Society of Motion Picture Engineers*.

The composition of Agfacolor film and methods of processing it were disclosed in reports of military investigators in Germany. Between 1940 and 1945, thirteen feature-length, and about fifty short-subject motion pictures were made by the Agfacolor negative-positive proc-

(Continued on Page 70)

# MOOD IN THE MOTION PICTURE

By HERB A. LIGHTMAN

OF THE thousand and one elements that go into the filming of the modern photoplay, one of the most important, but perhaps least understood, is cinematic mood.

This intangible factor exerts a powerful influence upon an audience's reaction to a film, and consequently upon that film's ultimate success at the box-office. Simply explained, the function of *cinematic mood* is to create a kind of psychological setting in which the audience-mind is stimulated to move about and explore the deeper meanings of the screen story. In this way, the audience is drawn more closely into the action of the film, experiencing its impact almost as participants. The creation of such *emphatic response* is the most important function of mood in the motion picture.

## How Mood Is Achieved

It is difficult to set down in specific terms how an element as elusive as *mood* is created. The process does not follow clear-cut rules, and it is not entirely due to any single phase of production, but rather to a forceful blending of all of them; script, direction, camera, action and cutting. However, it is possible to say that the factor which contributes

most directly and most forcefully to the synthesis of cinematic mood is the motion picture *camera*.

Aside from the physical tools such as lenses and film, the materials which the Director of Cinematography uses to create the illusion of mood are lighting, angles and camera movement. Of these, lighting is the most fundamental, since it is the interplay of light and shadow that determines the photographic key of the scene.

*High-key* lighting, characterized by brilliant source light with strong *fill*, produces a light airy mood especially adaptable to comedy themes and action drama. *Low-key*, consisting of a predominance of dark tones with softly-lit highlights, creates a richly dramatic mood especially suited to love, mystery and suspense stories.

In the *low-key* pattern, shadow and silhouette play a major role. Shadow suggests the unknown and, correctly used, can be built up into an almost tangible force threatening the protagonist. By playing down all but the most important areas of action, a more forceful emphasis is produced. Silhouette, too, is a device which, because of the detail it *omits*, places greater emphasis upon the

background, upon more brightly illuminated players in the scene, or upon the dialogue—as the case may be.

*Camera angle* represents the point-of-view from which the audience, by means of the camera lens, is led to perceive a specific bit of action. The selection of that angle can do much to condition the mood of the scene. Viewed from above, for example, an action sequence takes on an epic sweep; while, viewed from a low angle, the same sequence gathers force through an optical distortion that makes the players seem to loom into the composition. Their height is accentuated: they dominate the frame.

Generally speaking, a high angle places the audience in an omniscient position, minimizes the players as individuals, and clarifies broad patterns of action. A low angle, on the other hand, accentuates the importance of the individual player, makes him overwhelm the audience, and lends striking force to more closely staged patterns of action.

*Camera movement*, too, is strongly conducive to mood in that it allows the audience to experience various points-of-view of the filmic situation, moving smoothly from one to another without interruption. Thus a continuous atmosphere is created and maintained.

## Various Approaches to Mood

Top-notch Hollywood cinematographers all recognize mood as an indispensable part of their craft, although each may have a slightly different approach to placing it on the screen.

Lee Garmes, A.S.C.—Director of Cinematography on such mood-filled pictures as "Guest in the House," "Love Letters," "Specter of the Rose," and "Duel in the Sun"—points out that mood is a mercurial element that cannot be recorded in cut-and-dried form in a script.

"The dominant mood of the picture is, of course, decided upon before a camera turns," he explains. "But it is not the kind of thing you can write down on a piece of paper and then forget about. Mood grows from scene to scene as you work. It is on the sound stage that you really sense the little subtleties of interpretation that will convey to the audience something over and above the impression created by the action and dialogue alone. From then on, it is a matter of adapting lighting, angles, and camera movement."

Garmes rather favors subjects which can benefit by low-key lighting. These include deeply emotional and psychological themes, as well as suspense stories. He is also partial to low angles in this type of film, being one of the few cine-



Skillful contrast of light and shadow, plus dramatic composition contribute to the pure cinematic mood exemplified in the above scene from "The Long Voyage Home," strikingly photographed by Gregg Toland, A.S.C. This film faithfully captured the wistful yet dramatic atmosphere of the lives of sea-faring men.

matographers who actually welcomes low-ceilinged sets. Currently shooting Alfred Hitchcock's "The Paradine Case," he is using all of these approaches, plus his own particular style of softly diffused lighting to produce suspenseful mood.

James Wong Howe, A.S.C., Director of Cinematography on such outstanding films as "Viva Villa," "Algiers," "Prisoner of Zenda," "Air Force," and "King's Row"—is of the opinion that mood depends primarily upon lighting.

"Simplicity in lighting is the key to creating strong mood," he points out. "A simple unified source of light will pack more punch than a larger number of lesser units scattered all over the set, each canceling out the effect of the other. It is not necessary to have the players fully illuminated through every foot of film. They should be allowed to move from full-light to half-light to silhouette as they would in real life. It is in this way that camera mood becomes a fluid dramatic force."

Howe's concept of mood lighting was forcefully exemplified in "King's Row," a film which he photographed some years back. The story was a violent emotional drama with strong psychological undercurrents. It called for a mood of impending tragedy, even in the relatively gay sequences which preceded the dramatic climax.

Cinematographer Howe accomplished this effect through the use of dynamic low-key lighting. Several sequences were done in almost total darkness with only selected areas of the set being cross-lit with spotlights. The players moved from dark to light areas, being brought into sharp relief at dramatic points in the



"King's Row," photographed by James Wong Howe, A.S.C., utilized somber low-key lighting and forceful wide-angle effects to produce a mood of impending tragedy. In the above scene, everyone but the central figure is subdued, so that audience attention is sharply focused upon him.

action. In one highly dramatic sequence, the set was completely dark, the sole illumination coming only from sporadic flashes of lightning outside the window.

Mood in "King's Row" was also enhanced through the use of wide-angle lenses in *pan-focus* effect. In this way, foreground objects were made to loom importantly into the composition, not

only in order to frame the background action, but to provide dramatic emphasis within the scene. In one sequence, for instance, a hypodermic syringe (the motivating prop of that particular sequence) dominated the foreground and became the focal point of interest as the players in the background directed their action toward it.

#### Fitting Mood to Theme

One of Hollywood's foremost mood experts is Gregg Toland, A.S.C., Director of Cinematography on such film masterpieces as "The Informer," "Grapes of Wrath," "Citizen Kane," and "The Long Voyage Home."

Toland is a versatile purveyor of mood, adapting his style of lighting and composition strictly to the requirements of the filmic theme. In "The Informer," for instance, he achieved a somber mood through the use of swirling fog, looming shadows, and sharp cross-lighting. This mood grew in power through the use of striking close-ups in the climactic sequence.

In "The Long Voyage Home," his skillful simulation of source lighting, plus a fine feeling for texture and form, lent a wistful yet powerful mood to this dramatic story of sea-faring men. There were no false camera tricks, nothing that did not enhance the down-to-earth, salty atmosphere of the film.

"Citizen Kane" was notable principally for the number of revolutionary camera—to purposely create an unreal perspective of a man's life. He did this with era techniques which it utilized. Here Toland was told to go all out for effect

(Continued on Page 69)



The above scene from "Grapes of Wrath" illustrates realistic mood achieved through absolute simplicity in source lighting. Filmed by Gregg Toland, A.S.C., this socially significant film profited strongly from documentary photographic approach.

DEPARTING from standard lighting set-up, we shall now discuss some of the ways in which controlled interior lighting units are used to achieve special effects, plus that intangible cinematic quality known as mood.

By *special effects* we do not mean *tricks* which are conjured up in specially equipped departments of professional studios, techniques such as slow motion, optical printing, and miniature photography. Rather, we refer to the unusual lighting patterns which the cinematographer is called upon to design in order to enhance certain out-of-the-ordinary phases of the screen story.

Closely allied in this respect is *mood* lighting, which functions to create a psychological setting for the audience's imagination. Naturally, this type of lighting must only be used in sequences whose dramatic structure calls for such treatment. To force it into a sequence which does not warrant so forceful a technique is to create a much-ado-about-nothing impression in the minds of the audience.

As in any other kind of set illumination, mood lighting must remain consistent with *source*. It is true that the source may be relatively small, such as a candle, oil lamp or an open fireplace—but the cinematographer must first ask himself: "From where is the light coming?" Once having established this basis, he can slant his lighting pattern toward it.

Many non-professional cinematographers become baffled when attempting this sort of lighting, because they walk onto the set and start arranging lights in accordance with a purely mental idea they may have of the desired effect. It is much more efficient to set up the actual situation, if possible, noticing the way the light falls, and then duplicating as closely as possible the highlight and shadow relationship in terms of artificial illumination. In order to reproduce the effect of candlelight, for instance, light a candle on the set and study the effect it creates.

As in any other phase of film production, special effect lighting should not call attention to itself. The moment the audience begins to pay attention to the lighting instead of to the dramatic content of the scene, something will be lost from the effect of the film.

#### Low-key Lighting

Low-key lighting, characterized by softly lit highlights, and shadows which fall off into dense black, is especially effective when used in sequences dealing with crime, mystery and (paradoxically enough) love. Any dramatic situation in which human emotions are portrayed as "boiling about inside," can usually be helped by low-key.

To be truly effective, a low-key set-up should be arranged in such a way as to point up the main areas of action and play everything else down. This, of course, calls for pre-planning—therefore, the final lighting scheme should not be definitely set until the pattern of action in that sequence has been worked out.

Genuine low-key is usually lit rather

softly, harsh black and white contrast being avoided. On the other hand, it does not do to use heavy fill light, as the low-key effect will then turn into a wishy-washy overall gray pattern.

In lighting low-key, the highlight areas are given *normal* light levels, while the shadow areas are allowed to fall off sharply. There are two schools of thought regarding the exposure of this kind of set-up. Some cinematographers advocate slight underexposure and normal printing. Others advise normal exposure, with the negative later being printed down for a darker effect. The latter theory seems to give the most favorable result, since in this way a greater amount of shadow detail is included on the film—but, in either case, you must be sure to let the laboratory know what effect you are after, or they will over-compensate in printing.

#### Out-of-balance Lighting

Another style of lighting having a predominance of shadow area, but with a more dynamic quality than straight low-key, is that which is known as *out-of-balance* lighting. This type is characterized by harsh contrast between crystal white and velvet black, with very few intermediate gray tones.

Although somewhat radical in effect, *out-of-balance* lighting is extremely dynamic and is especially adaptable to violent action or dramatic themes. Its stark light and shade patterns are not always flattering to feminine players, but the realistic effect it produces is very suitable for down-to-earth dramatic or documentary subjects.

The effect is achieved through the use of simple, brilliant light sources with little or no *full* illumination. In its more extreme forms, *arcs* are used to good advantage. The style differs from straight low-key in that it is much harsher in contrast and utilizes more brilliant *key-light*. For this reason, the "glamour" shots which are so effective in softly diffused low-key are almost impossible to achieve in out-of-balance, but the style is most valuable for the illusion of unvarnished reality which it produces.

#### The Use of Shadow

Many film-makers fail to take advantage of the fact that lighting consists not only of highlights, but of *shadows* as well—and that, skillfully used, shadows can be used with striking effect to point up a screen story.

Basically, shadows give depth and modelling to a subject. Where a set is over-lit in such a way that most of the shadows are cancelled out, the result is usually flat and undramatic. But shadows carefully controlled and with suitable *fill* give roundness and perspective to sets and players.

Shadows can be used to create attractive and dramatic backgrounds. Card-board cut-outs placed in front of a spot light are the simple materials necessary to project such patterns as prison bars, church windows, venetian blinds, etc. In this way, the suggestion of a full set can be projected upon a bare wall or *flat*, an interesting pictorial background can be achieved, and cinematic mood can be intensified.

Often shadows are used to suggest an active force threatening a character in the story. A player spotlighted in one corner of the screen with a dark mass of shadow engulfing everything else, will convey the impression that the character is being threatened by unknown hostile elements. In a chase sequence, high shadows that dart about with the fleeing character will intensify the furtive nature of the chase.

Sometimes moving shadows can be highly effective, as in a scene where the shadows of trains, cars, or people intermittently cross the players. A light going on and off outside the window of an otherwise dark room creates a highly kinetic effect.

*Plane lighting* is a style of set illumination in which shadows play a dominant role. This is the kind of pattern in which specific areas and planes of the set are illuminated, the rest being allowed to go dark. The players, moving from one area to another, alternately pass through highlight and shadow in a way which is dramatically striking.

Silhouette, too, is an effective way to use light and shade. It is especially good on close-ups in which the characters are shown in profile. It is useful in emphasizing dialogue where the visual image would otherwise interfere. It is also a good way in which to play down one character in contrast to another who is brightly lit.

#### Special Cinematic Effects

There are several special effects which apply to situations that are bound to

(Continued on Page 58)

# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 8. Lighting For Special Effect

By CHARLES LORING

CREDIT

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# Prize - Winning Soviet Films of 1945

By OLEG LEONIDOV



*(Editor's Note: This article was radioed to American Cinematographer from Moscow, and is approved release of the Soviet film industry. It is being published to provide information on activities of Soviet film production.)*

SOVIET cinema art is distinguished for its variety of subjects and a wealth of genre. Some films deal with contemporary problems, while others portray the distant past and show our attitude to the life and customs of those times. In addition to screen dramas and monumental epics, there are lively musical comedies.

Soviet films are created, not only by Russian masters, but also by producers and actors of the multi-national family of the Soviet Union. Each republic has its own film studios and trains its own producers, actors, and cameramen. These groups of filmmakers include highly skilled and experienced producers and actors of the older generation, and young graduates of the All Union State Institute of Cinematography; or of cinema studios apprentices just launching on their screen careers.

These characteristic features were fully reflected in the list of feature films and newsreel documentaries of 1945 that won the Stalin prize—annually awarded for outstanding work in the field of art.

Among present Stalin prizewinners are Friedrich Ermler, Vladimir Petrov, and Yuli Raizman; all of whom have been working fruitfully in cinematography from the early years when Soviet feature films were originally started. Their artistic standards are very high, and their films are distinguished for scene composition and excellent mounting. Their casts are exemplary for fine teamwork. However, these qualities in common end here, for each one of them is a highly individual personality.

Ermler is at his best as an impassioned publicist and ardent artist. His are problem films—always revolving around the most vital and even topical subjects. Such is his "Great Citizen," depicting the struggle waged by leaders of states against enemies of the people, trying to hamper the building of the new socialistic society. Of signal interest is his film, "Great Turning Point," awarded the Stalin prize for 1945. Action of the film is in the war period when de-

cisive battles were being fought on the banks of the Volga. Although script writer Boris Chirskov does not name the specific place of action, it's clear to everyone that it is Stalingrad where the Hitlerite divisions met their ill-fated end.

Besides Ermler, as producer of this best film of 1945, Stalin prizes were awarded to scriptwriter Chirskov, cameraman Abraam Koltsaty, artist Nikolai Suvorov, and the players of principal roles; Mikhail Derzhavin of the Vakh-tangov theater, and Alexander Zrazhey-sky of Moscow Maly theatre.

Producer Vladimir Petrov works in an entirely different style, and with different material. He's known primarily for his historical films ("Peter the First" and "Kutuzov") and screen versions of classic literary works. Several years ago he adapted to the screen Alexander Ostrovsky's play, "Storm," and recently completed production of the same author's play, "Guilty Though Guiltless." Jointly with cameraman Vladimir Yakovlev and artist Vladimir Yegorov, he created the colorful picture of "Life of the Old Russian Provincial Theatre." Film story unfolds the tragedy of a mother forced to part with her illegitimate son; and—after a lapse of many years—finds him again, thus restoring her happiness. Leading role is played by Ala Tarasova, star of the Moscow Art Theatre Peoples Artiste of USSR. The whole cast of "Guilty Though Guiltless" received Stalin prizes.

The third of the older generation of prize winning producers, "Yuli Raizman, is well-known for his feature films, "Last Night," and "Mashenka." His work is in soft lyric vein, delicately drawing complex and contradictory feelings. Raizman recently tried a different field—one that seemingly is not his forte—a newsreel documentary of Berlin. However, he coped with this unusual and difficult task just as successfully as his previous feature films. This documentary, showing how the Red Army stormed the last citadel of German Fascism, was mounted exclusively from footage taken by front-line cameramen. Although there is no plot or dramatic situations, the film is so beautifully mounted and replete with ingenious bits of directing that it is just as fascinating as a feature film. In addition to Raizman, Stalin prizes were awarded to co-producer Elizaveta Svilova and five cameramen.

In the newsreel documentary classification, Stalin prizes were awarded for three other films. The first—"Defeat of Japan"—was produced by feature film



FOREIGN VISITORS AT THE VICTOR ANIMATOGRAPH CORPORATION PLANT at Davenport, Iowa, are increasing as world travel facilities ease. W. E. Kellogg and L. V. Burrows, service manager and director of distribution, respectively for Victor, are shown with Govind Amonkar of Bombay (in white suit) M-G-M representative for India, and Roy King of Melbourne, executive of Pyrox Pty., Ltd.

(Continued on Page 60)

# Gear Drive

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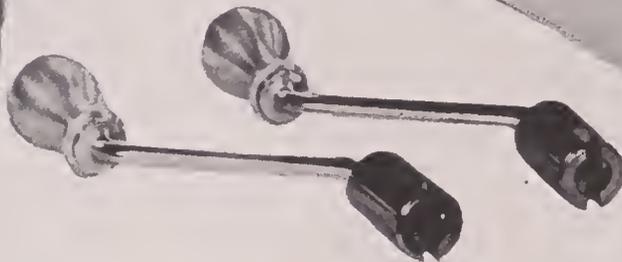
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E. K. Cine Special Camera mounted on "PROFESSIONAL JUNIOR" Gear Drive tripod.



# Developments in Optics

(Continued from Page 45)

May I have the next slide, please. (Fig. 3.)

You all know that a polished piece of glass reflects light. This chart is put together to show for a number of surfaces, anywhere from zero to twelve, how much light is transmitted, how much is reflected back into the object space, and how much of it appears in the image space as flare. The upper curve is the transmitted light in percentage. For eight uncoated surfaces the transmission is about 65 per cent. With a coated lens with eight surfaces, it is over 90 per cent. The light reflected back into the object space probably does no harm; it is represented by the curves marked "rejected." The light that gets into the image space as flare is represented by the lower curves, reaching the neighborhood of eight per cent for twelve surfaces uncoated, and practically insignificant for coated lenses.

Next slide, please. (Fig. 4.)

You have all heard how these films are deposited in the vacuum by evaporation. You have perhaps heard explanations of how they work. This slide is supposed to represent schematically what happens. The upper layer is the film; below that is glass. Light, coming down from the upper left, hits the surface of the film, and presumably some of it is reflected. Then the idea is that some light passes down through the film, hits the film glass surface, and is reflected in such a manner that, if the film is a quarter of a wave length thick, it is presumed that this energy, going up there to the upper right, destroys itself. That is a false conception. If it ever destroyed itself there could be no increase in transmission, It's gone and it's destroyed. But the facts are that, by putting the film on the glass surface, the light that comes through the glass is actually increased. There is no destruction of energy. The energy appears in another direction.

I think the true statement of affairs is that, under these conditions, mathematically it is impossible for light from either one of these surfaces to move in the direction of the upper right, as is shown in this slide.

Next slide, please. (Fig. 5.)

This shows a photograph taken of two lenses. The one on the left is an uncoated lens and the one on the right is coated. The one on the left shows reflections and you can't see into the lens at all; the one on the right, by killing off the reflection, shows the diaphragm leaves and the background.

Now we have a picture (Fig. 6a) taken with an uncoated lens and the next view (Fig. 6b) shows the same view taken with a coated lens.

In addition to antireflection applications of these films, there are other uses for them. One thing we can do with them is to increase the reflectivity of

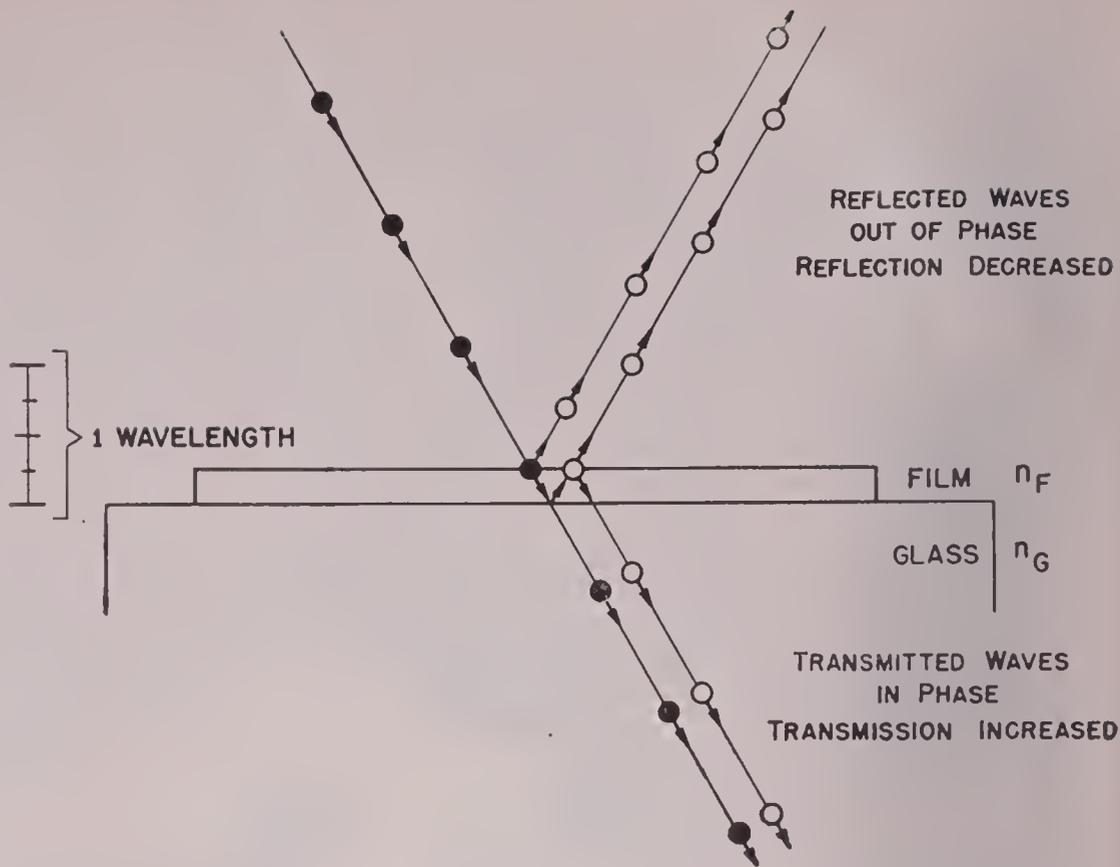


Fig. 3. Transmission losses and usefully transmitted light in unfiled (uncoated) and filmed (coated) lenses.

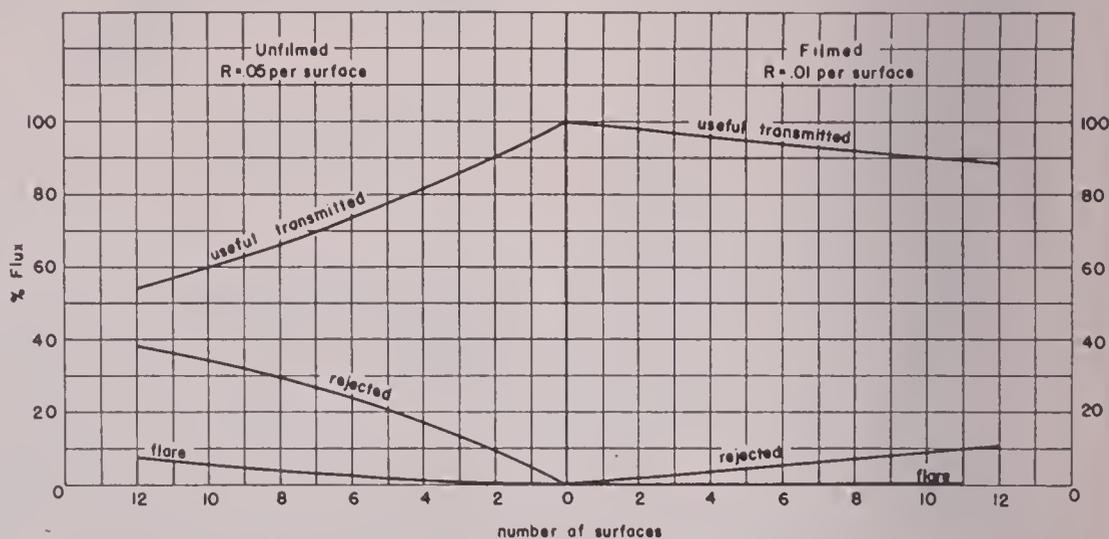


Fig. 4. The action of an anti-reflection film. When the index of refraction ( $n_F$ ) of the film is less than the index of refraction ( $n_G$ ) of the glass, the interference at a quarter wave film decreases reflectance and increases transmittance.

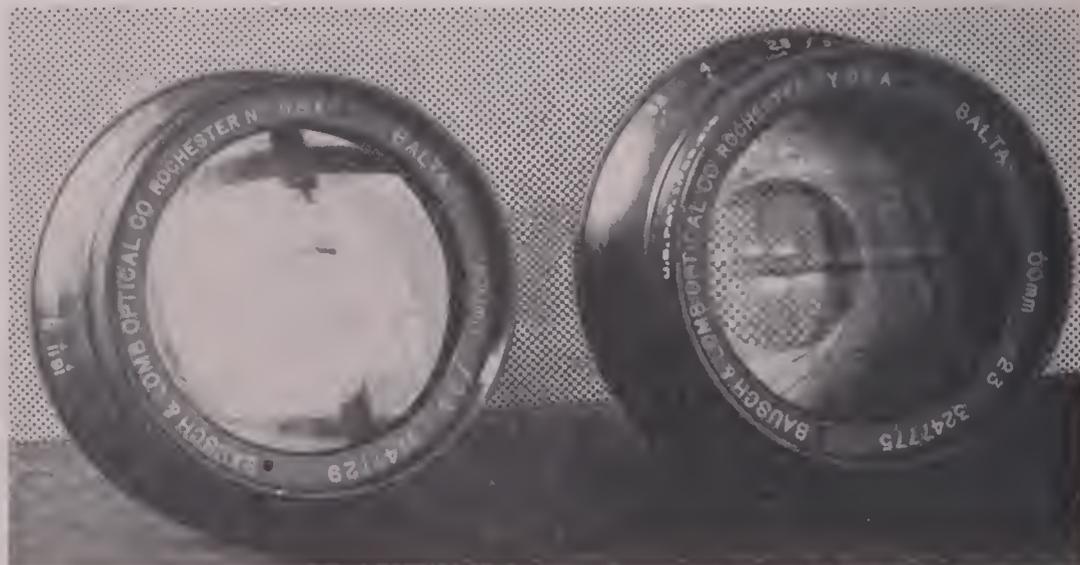


Fig. 5. An uncoated and a coated lens. The coated lens (right) clearly shows the diaphragm and the background.



*This photograph, made directly through the Maurer View Finder, was taken on a Maurer 16-mm Camera, and enlarged from the 16-mm frame*

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The correct fields for lenses longer than one inch in focal length are provided by a wire frame masking device within the finder. The rotation of a single knob

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a metallic deposit. Aluminum has normally a reflection of about 90 per cent. We have increased that to over 98 per cent by depositing film combinations on the surface. For another application films have been used to produce filters with a very narrow band of transmission. Filters can be designed that transmit a band of wave lengths only 15 millimicrons wide and have a very respectable transmission at their maximum, of, say, 30 or 35 per cent.

In approaching the monochromatic filter, heretofore, there has been absorbed energy that is terrifically prohibitive. The new filters seem, therefore, very promising for many applications, and they may have some applications in photography. I don't know what sort of pictures you will get with monochromatic filters, but I feel fairly sure they would not do for general photography, but probably special effects might be found from their use that would be quite interesting.

Another application of thin films is to overcome a difficulty exhibited by some kinds of glass. I have in mind most of the so-called barium crowns and other glasses with high indices and low dispersions, whose surfaces are not remarkably resistant to the atmospheric attacks.

Almost any glass is soluble in water. At least, I will turn it around and say it another way: some of the components of glass are soluble in water. The barium crowns are notably so. We have found, through the study of thin films, a method by which such surfaces can be treated, creating a film on the surface which is not strictly an antireflection film but is an anticorrosion film that will protect those surfaces almost indefinitely. We used such treatment on some of the lenses that we manufactured for aerial photography during the war, with great success. We had not a single lens returned because of the surfaces having corroded.

Now that has to be taken with a grain of salt. Lenses in the South Pacific, in many cases, became unusable. Perhaps

some of you were out there and saw that happen. But they were made unusable by conditions that would have made crystalline quartz unusable. Actually the protection afforded to glass by these films is entirely adequate for any ordinary and most extraordinary uses.

What the future holds for thin films, I do not know. I know it is a very profitable field for study and I expect that many things are going to come out of further study of the properties of thin films and the methods of making them.

The third and last deviation from current practice in the field of photography relates to the marketing of diaphragm stops. As you know, it has been customary since the early days of photography to mark the lenses in a series of numbers that indicate the ratio of the effective diameter of the stop to the focal length. The assumption is that that is a figure that measures the brightness of the image. So long as lenses are simple in construction that was pretty generally true, and so long as the requirements of photography were not too precise, the currently used method of marking lenses was entirely satisfactory. You also all know of efforts made here in Hollywood in late years to overcome a situation that results from the fact that lenses do not precisely obey the laws that they were supposed to with regard to the brightness of image.

Lenses have become more complex with more elements, more reflecting surfaces, more glass in them. As a consequence two lenses marked with the same f-numbered may differ quite decidedly in brightness of image. Of course, the introduction of antireflection films complicated the matter very considerably by adding in a factor of anywhere from 25 to 30 per cent, depending upon what kind of a lens it was. So efforts have been made here successfully to overcome that difficulty and to do something leading to a system of calibration such that any two lenses, regardless of focal length, set at the same stop number would give the same exposure.

Before that can be made universal, or even universal within the motion pic-

ture field, a little standardizing has to be done. It is possible to design a device with which to measure the brightness of the image formed by any lens at any stop opening on an absolute basis. We have such equipment, and we can calibrate a lens according to any prescribed set of conditions, but two conditions in particular must be prescribed. One is, what are we going to call a normal lens?

All lenses absorb and lose light through reflection. So in thinking about a standard lens we must assign to our standard lens a certain loss of light. Or, let's put it the other way, a certain transmission. I think that a figure of 65 per cent transmission would be a fair figure to adopt for that purpose. It represents the transmission of a lens of substantial focal length of, say, the construction of the Tessar lens uncoated.

The second condition should be related to the fact that short focus lenses covering a wide angle lose light at the marginal field because of the two following factors. One, a cosine factor, so-called, that depends on the angle of the field of view and amounts to quite a considerable number in the case of, say, an angle of 25 degrees off the axis.

The other is the mechanical cutting down of the diameter of the beam of light by the mounts of the front and back elements of the lens. Now if the field of view gets to be very substantial, the reduction in illumination due to those two factors is quite considerable so that at any exposure at a given aperture the center will be darker than the margin of the picture in the negative.

We have to equate this exposure made with such a wide angle lens to one made with a narrow angle lens of long focus in which the density from the center to the edge is practically uniform. Or, at any rate, the grading is far less than it is in the wide angle lens.

Now if the measurement is made by integrated light in the entire picture area and an exposure is made on that basis, it seems inevitable that the cen-

(Continued on Page 66)



Fig. 6a (left) an interior photographed with an uncoated lens. Fig. 6b (right). The same interior photographed with a coated lens. Less flare and greater detail. The "hot spot" between the wings is greatly suppressed.

# Is Black and White here to stay?

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- We think not.

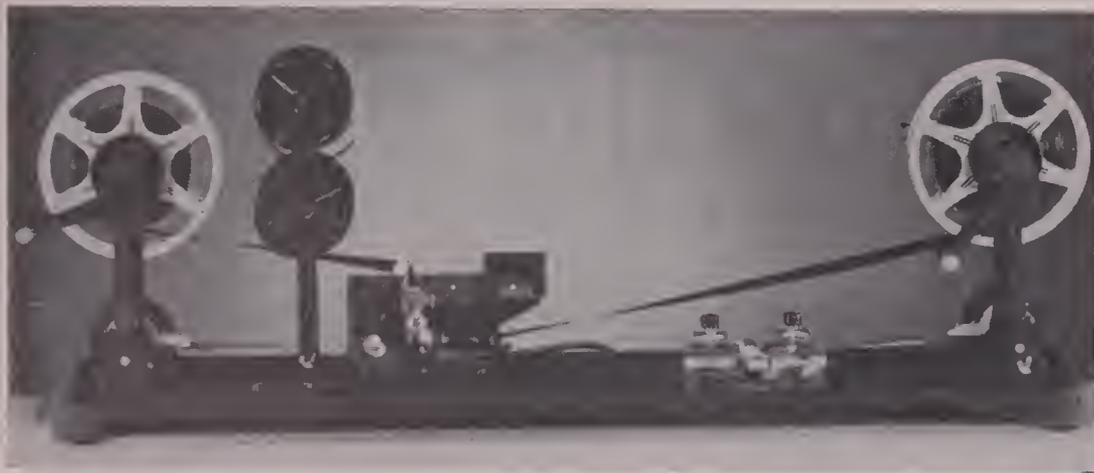
We think black and white pictures are merely a milestone on the way to the ultimate in photography—*natural colors*.

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# NEW 16mm. MASTER EDITING OUTFIT



To meet the demand of amateur movie makers for an editing outfit which will take hard usage and offer the ease of operation and flexibility of professional editing units, the Eastman Kodak Company has just announced that it is now beginning distribution of a Cine-Kodak Master Editing Outfit for 16mm. movies.

Combining several editing aids which have heretofore been offered by Kodak only in separate form, the editing outfit now incorporates Cine-Kodak Master Editing Rewind, Cine-Kodak Senior Splicer, and Cine-Kodak Editing Viewer mounted on a 17-pound metal base which provides rock-steady support and 37-inch working space for professional quality editing.

In addition, the Cine-Kodak Editing Bracket, which accepts up to four Cine-Kodak return reels, can be fastened with a wing nut between the viewer and the left rewind spindle.

Both spindles of the rewind are geared for speedy film winding, and film can be wound in either direction. Brakes at the base of each spindle keep winding under smooth control, since finger tip pressure will slow film or stop it whenever desired.

Spindles on the Cine-Kodak Master Editing Outfit accept 16mm. reels up to 1,600 feet. With the Cine-Kodak Editing Viewer, which is an integral part of this outfit, the worker can see every scene in action as the film is edited.

## Cinema Workshop

(Continued from Page 50)

come up in the course of the average photoplay. These include candlelight, lamplight, firelight, flashlight, etc. We shall analyze methods of stimulating these effects with a minimum of lighting units.

**Candlelight**—For medium shots where the light source is not shown, use a small, unshielded photoflood (No. 2) placed in the center of the table and screened from the lens by one of the characters in the scene. This will produce an overall glow, simulating the light source of the candle. For a long shot, where the candle is seen, use spotlights (one for each character) cross-played at "candle level" and condensed with *snoots* or *barn doors*. There should also be a spot played downward from directly overhead. For close-ups, use a baby spot or "Dinky inky" (with light diffusion scrim), placed a bit below eye level.

**Lamplight**—Almost the same set-up as for candlelight (only somewhat brighter) in stationary shots; but when the character moves about the set, a small high-intensity "peanut" bulb can be fastened to the lamp itself on the side not facing the camera. Use an auxiliary spot, focussed softly, to follow the movement about the set as well.

**Firelight**—Naturally, the fire itself should be the "hottest" part of the scene in angles where it shows. Therefore it is well not to overlight the rest of the scene. For reverse angles, not showing the fire, place your key-light low in the fireplace, simulating the natural source. Use floods or spots with fairly wide diffusion. The flickering effect of firelight can be achieved quite naturally by waving a small leafy twig in front of the light.

**Flashlight**—This effect is simulated by means of a baby spot with a concentrated beam, which is located out of camera range. The operator must be careful to synchronize the movements of the spot to fit those of the flashlight itself.

**Matchlight**—In scenes where the character is portrayed as lighting a cigarette the glow can be simulated either by (1) Fading in a concentrated diffused baby spot on the subject's face, or (2) By concealing in the subject's hand a tiny "dashboard" type auto bulb which will give just enough of a glow to simulate the matchlight effect.

The above are the simplest special lighting effects to set up, and also the ones which the advanced amateur or semi-professional will encounter most frequently in his shooting. It is well to remember that a good special effect should go unnoticed *as such*. In any event, where the effect seems too difficult to achieve realistically, it should be discarded and the action changed to accommodate a simpler and more natural effect.

NEXT ISSUE: *Filming in Color.*

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## Soviet Films

(Continued from Page 52)

experts Alexander Zarkhi and Joseph Kheifits, and newsreel producer Irina Setkinanesterova. Makers of such remarkable films as "Deputy of the Baltic" and "Member of Government," Zarkhi and Kheifits are representatives of the second generation of film producers. Due to their vast experience on feature films, they succeeded in portraying in this documentary, not only the defeat of Japanese soldiery by the heroic Red Army and Navy, but also the underlying nature of Japanese imperialism and the spirit of militarism nurtured in the marrow of every Japanese's bones from childhood and constituting the basis of morals, culture and upbringing of the Japanese people. In addition to the producers, the Stalin prize was awarded to five cameramen whose material formed the groundwork of this splendid historical document.

Stalin prizes were awarded to another one of the oldest producers of documentaries—Ilya Kopalin—and the cameramen who worked on "Liberation of Czechoslovakia"—which depicted the friendship of two great Slav peoples and the liberating mission of the Red Army which helped to deliver the Czech populace from the Nazi yoke.

Cameramen who made the colored film in Moscow, "Physical Culture Parade, 1945," and achieved such progress in Soviet color cinematography, also received Stalin prizes. Also recipients are a number of younger producers and actors, also Azerbaijani for the musical screen comedy, "Arshin Malalan," made in Baku.

National films produced in various Soviet republics graphically attest to the wide development of creative powers which are now given every opportunity to grow to the fullest extent. The epoch of postwar peaceful construction invests Soviet cinematography with new tasks which Soviet cinematographers, inspired

by the encouragement given to them by the people and the government, will do their utmost to accomplish.

## Castle Films Acquired by United World

United World Films, subsidiary of Universal Pictures, has acquired Castle Films, pioneer in the sale of 8 and 16 mm. prints of film subjects for the home movie market. Deal, which comes only a few months after United World took over the Bell & Howell Filmosound Library (which rents 8 and 16 mm. films to non-theatrical accounts), focuses at-

tention on the importance of the miniature film field and indicates policy of United World to become active in all phases of production and distribution.

The Castle organization, headed by founder Eugene Castle, will continue to operate Castle Films; but the latter's present catalogue of approximately 200 subjects will be greatly increased during the coming several years through access to the hundreds of newsreel, travelogue and other subjects in the vaults of Universal Pictures which can be edited into 8 and 16 mm. subjects for outright sale to the home movie libraries through camera store outlets which handle the Castle catalogue.

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# AMONG THE MOVIE CLUBS

## New York Metropolitan

Metropolitan Motion Picture Club of New York City launched its 1947 activities with a splendid film program for the January 16th meeting, held at hotel Pennsylvania. Films unreel included: "Flowering Byways," by Ernest Kremer; "Blue Sky—Small Fry," by Terry Manos; "The Past Master," by George Valentine; "Murder in Central Park," by Macdonald Browne; and "Alpine Vixen," by Anchor O. Jensen.

Entries for the novice film contest closed on January 31st, and films will be exhibited at the February meeting for voting by the general membership. First, second, and third prizes of \$50, \$30, and \$20—donated by Harry Groedel—will be presented.

At the January 8th supplemental meeting, Charles Coles demonstrated the Norwood exposure meter, and illustrated his talk with slides. Member Joseph Hartley described his grey card method of reading exposures and exhibited a film demonstrating the procedure.

## Los Angeles Cinema

Lorenzo del Riccio, program chairman for 1947, turned over the January 6th meeting of Los Angeles Cinema Club to James Mitchell. Guest speakers were Freddie Smith, film editor of MGM studios, and Fred Gateley of Coronet Productions, who delivered splendid and informative talks on film editing and techniques of cameras and equipment. Showings of two prize-winning films, "Arizona Welcomes," by Mrs. E. B. Kellam, and "Glacier Park," by Ray MacMillan followed, and then Messrs. Smith and Gateley commented on the composition, continuity, light temperatures, and editing of these two pictures—and both stressed that tripods should always be used by amateur cinematographers.

## San Francisco Cinema

Initial 1947 meeting of Cinema Club of San Francisco was held on January 21st at the Women's City Club. Film program included: "The Country and Cities of Nova Scotia and Quebec," by Mrs. Ray Frick; "Live Steam at Danvers Mass.," by Larry Duggan; and "Acrobatic Ballet," "Ballet Waltz," and "San Francisco Ballet," by Miss Meinert.

## La Casa, Alhambra

With Roy E. Wheeler as chairman, January 20th meeting of La Casa Movie Club of Alhambra, Calif., was held in the Y.M.C.A. building. Members' films shown comprised: "A Florida Vacation," by Andrew G. Orear; and footage of South America, by C. K. LeFiell.

## Milwaukee Amateur

Winners in the 1946 club contest were: 16 mm. division; first, "Summer, 1946," by Norville L. Schield; second, "Amen," by Mrs. Erma Niedermeyer; and third, "Washington Interlude," by Walter Chappelle. Al Wudtke took first place in the 8 mm. division with his "Insect Life"; "In Commemoration," by Earl Peychal was second; and "Happy Hawaii," by Miss Marian Crowley was in third place.

At the December 11 meeting, held at the Red Arrow Club, the 8 mm. club production of "Oh Elmer" was shown, in addition to "What Happened?", an 8 mm. reel of past club activities. Officers for 1947 were elected at the meeting of January 8th.

## New York Eight

Helen C. Welsh of the Amateur Motion Picture Society of Albany provided four films made by members of the Albany group for exhibition at the December 16th meeting of New York Eight Club, held at hotel Pennsylvania. Subjects included: "Amsequences of 1945," a club activity in 8 mm. recording all of the parties of the organization; "In the Good Old Summertime," and "Skating — Plain and Fancy," by A. J. O'Keefe; and "Mardi Gras in New Orleans," by Charles Creamer. Member George Valentine displayed his "Summer Souvenirs," and a reel taken from an Alaska airliner was also shown.

## Philadelphia Cinema

Movie-making members of Philadelphia Cinema Club had a field day at the January 14th meeting, held at Franklin Institute. Jim Maucher arranged a short comedy running 50 feet of 8 mm. and 100 feet of 16 mm.; lighting equipment was set up; and camera-toting members trained their lenses on the action. Novel idea was to provide demonstration of the technique of indoor lighting, and to give members personal experience on the subject.

## San Francisco Westwood

Annual Christmas meeting of Westwood Movie Club of San Francisco was held in St. Francis Community Hall on December 27th. Nominating committee presented slate of officers for 1947, and film program comprised: "Santa Claus in Person," and "Santa Catalina Island," by Harry Kahn; "Northern Lights," by Leo M. Kerkhof; and "Lassen National Park," by Joseph Pissott. As usual, coffee and doughnuts were served at conclusion of the meeting.

## Brooklyn Amateur

Film program for the January 15th meeting of Brooklyn Amateur Cine Club, held at 1218 Union Street, included "Trapper," by Charles Ross; "Song of the Open Road," by Charles Benjamin; and group of colored slides on "Jasper Park" by Eugene Adams. John Manfrin exhibited a film for criticism by the film clinic committee, and winners of the 1946 club contest were announced.

At the December 4th meeting, program designed to compare Ansicolor and Kodachrome resulted in reserved judgment due to unsuitable demonstration films made available for the comparison. Charles Benjamin presented a fine demonstration of various examples of good composition at the December 18th meeting; which also included runoff of two 8 mm. films by Terry Manos—"Blue Sky-Small Fry," and "VE Day."

## St. Louis Amateur

"Western Days and Nights," by Werner Henze; and "Fifth Christmas," by Lon Wadman, featured the film program of January 14th meeting of Amateur Motion Picture Club of St. Louis, held at the Roosevelt hotel. In addition, Wadman gave a timely talk on "What to Do With Your Camera," which provided hints for better movie making. According to club announcement, 11th anniversary show of the organization will be held on February 25th.

## San Francisco Westwood

Annual dinner of the Westwood Movie Club of San Francisco was held at the Del Mar Restaurant on evening of January 25th, at which time officers, elected at the December meeting, were installed. Leo M. Kerkhof heads Westwood for 1947, Frank Boichot is vice-president, Elsa Luck treasurer, and Edna Sprec secretary. Feature of the meeting, in addition to the byplay and fun, was the filming of the event, and the exhibition of sound and color reels by Fred Harvey.

## Los Angeles Eight

Showings of several of the recent annual contest films featured the January 14th meeting of Los Angeles 8 mm. Club, held at the Bell & Howell Auditorium. Film rental chairman John Boaz announced the purchase of 10 additional films for the club's rental department, and that W. D. Garlock donated a print of "The Life of Edward." Funds for the added films were secured from accrued revenue on other films rented from the club library.

# NINE MOVIE FEET MAKE A YARD...

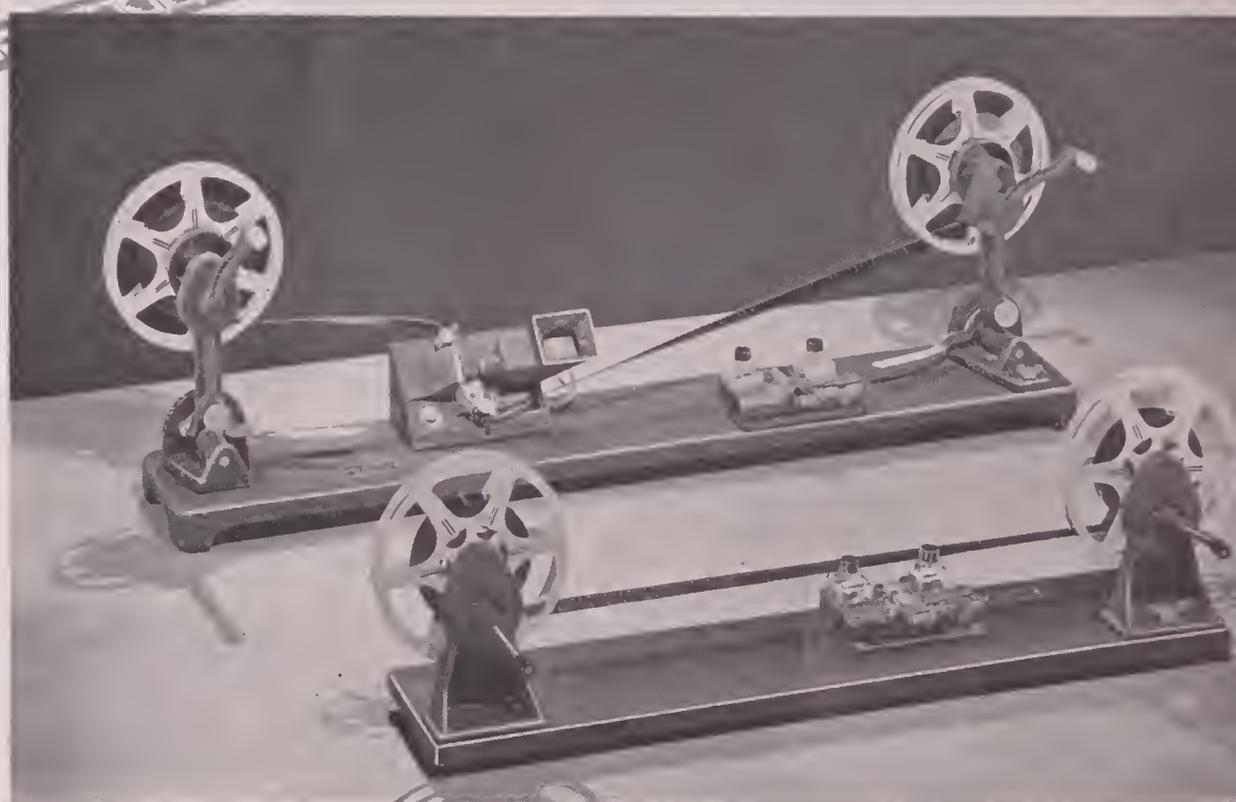
Yes—that's right. Average Hollywood editing practice eliminates about two feet out of every three—for only the very best footage is saved to show.

Amateur movie editing is seldom that exacting. Yet careful film grooming is equally important—and so are good editing aids that will cut hours from your "cutting room" chores.

## A choice of editing tools

Take the Ciné-Kodak Master Editing Outfit for 16mm. film for example—and you couldn't take a better one. Here's a rock-steady, all-metal rewind base that accepts any reel up to 1600-foot capacity, winds film in either direction under finger-tip brake control, and includes the timesaving Ciné-Kodak Senior Splicer as well as the Editing Viewer which shows movies on its ground-glass screen.

Then there's the Ciné-Kodak Senior Editor, which is a lighter and somewhat smaller version of the Master Outfit . . . takes both 8mm. and 16mm. reels up to 400-foot capacity . . . includes the Splicer but not the Viewer in the



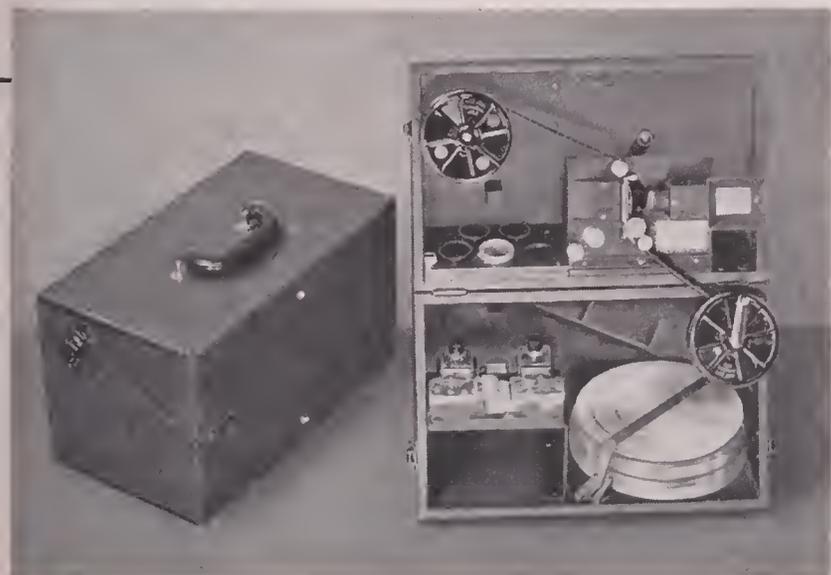
Ciné-Kodak Master Editing Outfit (back), a sturdy combination of all-metal Rewind, Splicer, and Viewer, is "tops" for 16mm. editing. Ciné-Kodak Senior Editor (front) accepts both 8mm. and 16mm. film . . . includes Rewind and the efficient Ciné-Kodak Senior Splicer.

basic unit . . . yet is designed to accept this last item when purchased separately.

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Or maybe you'd like your editing outfit all wrapped up in a neat *Kodadur* package? You'll vote for the Ciné-Kodak Editing Kit, a suitcase editing room supplied in two models—one for 8mm. film and one for 16mm.—and combining Rewind, Splicer, Viewer, work tray, film storage space, and the Editor Bracket (also available for use with either of the Rewinds)—which holds up to four processing reels of "feeder" film.

If you have already acquired parts of an editing outfit, you may want to buy one or two of these items individually. Both the Master Editing Rewind and the Senior Editing Rewind can be purchased separately. Or, if you already have a rewind, and can see how the Splicer or Viewer will be of help, they also are available as separate units. Wish we had enough space to describe the ease and certainty of splice-making with the Ciné-Kodak Senior Splicer and of scanning and marking movie scenes or individual frames with the Viewer. Better ask your Kodak dealer for the full story.



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### Two Methods of Titling

At a recent supplemental meeting of Metropolitan Motion Picture Club of New York, which—by the way—includes in its membership some of the topnotch amateur movie makers of the country, Joe Hollywood and Joseph Harley discussed and demonstrated particularly unusual title-making procedures which are worthy of sketching for the information of those who wish to delve into unusual methods to achieve distinctive titles.

Mr. Hollywood explained his method, which differs from the general commercial titler practice. His camera is locked in a frame which aims the former vertically rather than horizontally. The title is placed on the floor, or on a plane horizontal to the floor. This permits arrangement of letters without the necessity of fastening them to title card or board with cement, pins, etc. Hollywood uses cast metal letters when upper and lower case letters are required, and cut-out cardboard letters for main and end titles. The cardboard letters, he pointed out, may be obtained in different styles and sizes, and may be painted any color required with show card water color paints.

#### Special Effect Titles

Joseph Harley described a method he follows for special effect titles. The title card is printed black on white. This is

then photographed and the negative developed. This negative, now a black on white, is placed as a window in a specially-made cardboard light box having all white inner walls. The latter are lit to the desired intensity, with result that the reflected light shines brilliantly through the negative which serves as a window. The camera is focused on the window area and the whole thing shot in regular procedure.

### Rose Parade Filmed for Television

Tournament of Roses parade at Pasadena was filmed on January 1st by Telefilm Studios for specific televising of the edited footage over station W6XAO within six hours after finish of the parade. It was the first time that 16mm. pictures were made of the parade especially for television broadcast; and success of the project demonstrates the feasibility of newsreel service for television in the future.

Exposed negatives were rushed to the Telefilm laboratories for speedy development, cutting and editing, and preparation of a running commentary script. Experience in this instance indicates that such films of newsreel nature can be completed for television broadcast within three hours in the future.

### Carson Promoted by Craig

D. D. Carson has been promoted to post of sales manager of Craig Movie Supply Company, Pacific Coast distributors of various lines of motion picture supplies and equipment.

# AnSCO's New Film For Use In Color Motion Picture Production

At the recent S.M.P.E. Convention a new AnSCO film was described by Harsh and Friedman in their paper "Application of a New One-Strip Color Separation Film in Motion Picture Production." The film, which is designated as Type 155, has the unique characteristic of giving equal gammas for the red, green and blue exposures with the same development time. The following is a summary of the paper:

The use of monopack color films such as AnSCO Color Film Types 735 and 732 for the original exposure and the release printing stock in the production of motion pictures, poses certain problems in providing the intermediate duplicates or masters which are necessary for protection of the original, for foreign release or special effects.

The specific problem in motion picture color photography with monopack materials is the loss of color saturation when it is necessary to make second, third or fourth generation duplicates to arrive at a release print as is often the case in black and white motion picture practice. Current use of monopack color processes has proven that a direct print from a color original gives color reproduction of satisfactory

quality. The primary difficulty in making more than a first generation print is due to the absorption characteristics of the image dyes.

If the intermediates are not made in color, but in the form of black and white separation negatives, it becomes possible to obtain accurate records of the color densities as they are present in the originals. After conversion into black and white positives these can be printed upon AnSCO Color Printing Film Type 732.

A black and white film particularly suitable for this purpose has been produced and is tentatively designated as AnSCO One-Strip Color Separation Film, Type 155. It has the unique property that for the same development time the contrasts for the red, green and blue exposures remain substantially the same. This is equally true for low contrast (0.50) and for high (2.00).

The cyan dye used in AnSCO Color Film has a maximum absorption at approximately 6800A°. Therefore, the new material has its sensitivity extended in the red to a maximum at 6800A°. This enables the use of a Wratten No. 70 filter to yield a red separation that is practically perfect. It is not feasible to

use the No. 70 filter with a normal panchromatic film.

The following will describe the practical application of the film in the production of AnSCO Color Motion Pictures. The scene is photographed on AnSCO Color Film Type 735. This is then copied on Type 155 film using a printer which is equipped with registration pins and capable of skip-frame printing. At this stage fades, lap dissolves and other special effects can be included. The type 155 film is then developed to a gamma of approximately 0.65 in a buffered borax developer of the type used for variable density sound film. The resultant film is now a conformed master containing all the effects and with the color records as successive black and white frames. It will serve as a protection against damage to the original.

To convert the separation negatives to color prints, they are first printed on standard black and white Duplicating Positive Film on the same optical equipment for making the negatives, and developed to a gamma approximately 1.4. The final step is to print the separation positives onto Type 732 film three times through the appropriate filters. The result is a release print equal in color reproduction to a direct print from the original.

The film can also be applied to direct photography of animated pictures or used for background projection and process photography.

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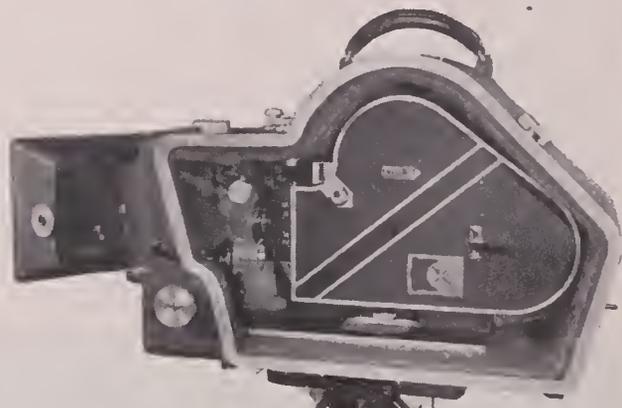
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## Developments in Optics

(Continued from Page 56)

ter of the picture in the case of the wide angle lens is going to be overexposed. Consequently it is going to be necessary to arrive at some standard practice with regard to what percentage of the area of the picture is going to be used for integrating the light in the image.

The Signal Corps Photographic Center Laboratory at Long Island City tackled this problem and decided that for their purposes it would be entirely satisfactory to integrate the light over the circle that can be inscribed in a 35 millimeter motion picture frame. Their work was going on under pretty good steam when the war came to an end. Practically everybody connected with the work left the Photographic Center, and I do not feel at all that they had reached conclusions that could be generally accepted.

If those people had stayed there until this time I am pretty sure they would have had a good story and plenty of evidence to back up any conclusions that they drew. But that is at least the basis on which they proceeded and is perhaps as good a basis as any that can be proposed at the present time.

From a manufacturer's standpoint, from the standpoint of cost of doing this

job, it is not going to be much more expensive to calibrate lenses photometrically than it is geometrically. From that standpoint the manufacturer has no choice or preference one way or the other. What is going to happen, however, is that if you have a series of lenses of various focal lengths running from wide angle to long focus, and they all have the same geometrical ratio of aperture to focal length, and they are all calibrated photometrically, then their maximum opening is going to differ all the way along the line.

It isn't going to be a nice clean package of a series of f/4.5 lenses or anything like it. One of them will be f/4.2 and another one will be f/4.7 and another one f/4.5, which is going to look rather ridiculous except to people who know the circumstances and realize that in that old series of lenses those markings that said f/4.5 on all the lenses didn't give them the same exposure whereas in the new series they will. This step is one that remains to be taken, as a matter of fact, and I have little doubt but that it will come to pass. Anything that we can do to promote it we shall be glad to do. But we do need a little help from this end before we decide just how it should be done.

I think I will leave it there. Thank you.

## New Special Effects Company Formed

Linwood Dunn, of the RKO studio's printing department, and Charles Berry, previously with the same department at Universal, have organized Filmeffects of Hollywood which will provide professional special photographic effects and optical printing procedure for both 35 mm. and 16 mm. producers.

Berry will personally operate the enterprise, located in the new Acme Film Laboratories building at 1153 North Highland Avenue, Hollywood, which will specialize in precision color and black-and white optical printing—using the Academy Award-winning Acme-Dunn 35-16 mm. optical printer and other special custom built equipment.

Filmeffects, in providing specialized optical printing services for producers, will closely cooperate with both the cinematographer and film editor in solving photographic problems on production. In addition, an experimental service will be available for the development of new ideas and practices in the special effects field. Pointing out the years of experience back of the enterprise, a company spokesman stated studio practice will be followed in providing service to the producer and cinematographer for maximum quality of duping, proper balancing of any serious contrast or density variations showing up in final editing, and other phases of optical printing practice.

In addition, facilities will be available to the free lance cinematographer for precision and quality process background plates, and for completion of composite trick photography.



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# Current Assignments of A. S. C. Members

As this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A.S.C. were engaged as Directors of Photography in the Hollywood studios as follows:

## Columbia

Charles Lawton, Jr., "The Lady From Shanghai," with Rita Hayworth, Orson Welles, Glenn Anders.

Edward Cronjager, "Three Were Thoroughbreds" (Technicolor), with Robert Young, Willard Parker, Marguerite Chapman, Akim Tamiroff.

Burnett Guffey, "Assignment to Treason," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vladimir Sokoloff.

Lucien Andriot, "The Corpse Came C.O.D.," with George Brent, Joan Blondell, Adele Jergens.

Phillip Tannura, "The Crime Doctor's Vacation," with Warner Baxter, Nancy Saunders.

## Metro-Goldwyn-Mayer

Hal Rosson, "To Kiss and to Keep," with Gene Kelly, Marie McDonald, Charles Winninger, Spring Byington, Jean Adair.

Harry Stradling, "Song of Love," with Katharine Hepburn, Paul Henreid, Robert Walker.

Ray June, "The Birds and the Bees" (Technicolor), with Jeanette MacDonald-Jose Iturbi, Jane Powell, Ann Todd, Edward Arnold, Mary Eleanor Donahue, Harry Davenport.

Hal Rosson, "The Hucksters," with Clark Gable, Deborah Kerr, Sydney Greenstreet, Keenan Wynn, Ava Gardner, Adolph Menjou.

Charles Rosher, "Song of the Thin Man," with William Powell, Myrna Loy, Keenan Wynn, Jayne Meadows, Leon Ames, Patricia Morison.

## Monogram

Harry Neuman, "Black Gold" (Cinecolor), with Anthony Quinn, Katharine DeMille, Elyse Knox, Kane Richmond, Raymond Hatton.

William Sickner, "Land of the Lawless," with Johnny Mack Brown, Raymond Hatton, Christine McIntyre.

James Brown, Jr., "Panic," with Leo Gorcey and the Bowery Boys, Teala Loring, Betty Compson.

## Paramount

Lionel Lindon, "Variety Girl," with Mary Hatcher, Olga San Juan, DeForest Kelley, Frank Ferguson.

John Seitz, "Saigon," with Alan Ladd, Veronica Lake, Douglas Dick, Luther Adler, Morris Carnovsky, Luis Van Rooten, Wally Cassell.

Leo Tover, "I Walk Alone" (Hal Wallis Prod.), with Lizabeth Scott, Burt Lancaster, Kirk Douglas, Wendell Corey, Kristine Miller, George Rigaud, Kitty Irish.

Ernest Laszlo, "Road to Rio," with Bing Crosby, Bob Hope, Dorothy Lamour, Gale Sondergaard, Frank Faylen, Joseph Vitale.

## Eagle-Lion

L. W. O'Connell, "Repeat Performance," with Joan Leslie, Louis Hayward, Richard Basehart, Tom Conway, Benay Venuta.

## RKO

Frank Redman, "If You Knew Susie," with Eddie Cantor, Joan Davis, Allyn Joslyn, Sheldon Leonard, Douglas Fowley, Sig Ruman.

Robert de Grasse, "Indian Summer," with Alexander Knox, Ann Sothorn, George Tobias, Myrna Dell, Florence Bates, Sharyn Moffett.

J. Roy Hunt, "Under the Tonto Rim," with Tim Holt, Nan Leslie.

## Se'znick

Lee Garmes, "The Paradine Case," with Gregory Peck, Ann Todd, Charles Laughton, Charles Coburn, Ethel Barrymore, Louis Jourdan, Joan Tetzl, Leo G. Carrol, Colin Hunter, Valli.

## Twentieth Century-Fox

Leon Shamroy, "Forever Amber" (Technicolor), with Linda Darnell, Cornel Wilde, Richard Greene, Glen Langan, George Sanders, Margot Grahame.

Harry Jackson, "Mother Wore Tights" (Technicolor), with Betty Grable, Dan Dailey, Jr., Mona Freeman, Anabel Shaw, Connie Marshall, William Frawley, Veda Ann Borg, Michael Dunne.

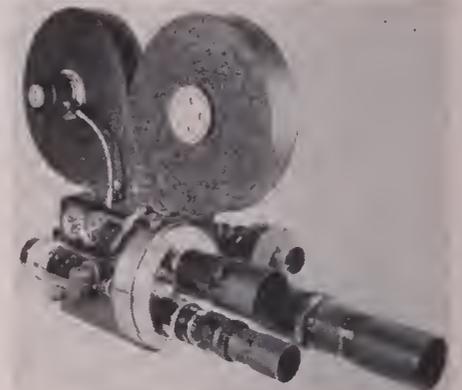
Joe MacDonald, "Moss Rose," with Victor Mature, Peggy Cummins, Ethel Barrymore, Vincent Price, Margo Woods, Patricia Medina.

Charles Clarke, "It's Only Human," with John Payne, Maureen O'Hara, Porter Hall, Philip Tonge, James Seay, Edmund Gwenn, Gene Lockhart.

Joseph LaSelle and Arthur E. Arling, "Captain From Castile" (Technicolor), with Tyrone Power, Jean Peters, Cesar Romero, Lee J. Cobb, John Sutton, Antonio Moreno, Thomas Gomez.

Charles Lang, "The Ghost and Mrs. Muir," with Gene Tierney, Rex Harrison,

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Benjamin Kline, "The Crimson Key" (Sol Wurtzel Prod.), with Kent Taylor, Doris Dowling, Dennis Hoey.

#### United Artists

Victor Milner, "The Other Love" (Enterprise), with Barbara Stanwyck, David Niven, Richard Conte, Joan Lorrying, Maria Palmer, Edward Ashley, Natalie Schaefer, Gilbert Roland.

Karl Struss, "Heaven Only Knows" (Nero Films), with Robert Cummings, Brian Donlevy, Marjorie Reynolds, Joria Curtwright, Stuart Erwin.

Franz Planer, "Vendetta" (California Pictures), with Faith Domergue, George Dolenz, Hillary Brooke, Nigel Bruce.

James Wong Howe, "Body and Soul" (Enterprise), with John Garfield, Lilli Palmer, Hazel Brooks, Ann Revere, William Conrad.

Vincent Farrar, "Stork Bites Man" (Comet Prod.), with Jackie Cooper, Gene Roberts, Dusty Schilling, Emory Parnell.

#### Universal-International.

Russell Metty, "Ivy" (Sam Wood Prod.) with Joan Fontaine, Patric Knowles, Herbert Marshall, Richard Ney, Sir Cedric Hardwicke, Lucile Watson, Rosalind Ivan, Sara Allgood, Lumsden Hare.

Stanley Cortez, "Secret Beyond the Door," with Joan Bennett, Michael Redgrave.

#### Warners

Arthur Edson and William Skall, "My Wild Irish Rose" (Technicolor), with Dennis Morgan, Andrea King, Arlene Dahl, Alan Hale, George Tobias, George O'Brien, William Frawley.

Carl Guthrie, "The Woman in White," with Eleanor Parker, Alexis Smith, Sydney Greenstreet, Gig Young, Agnes Moorehead, John Emery, Emma Dunn, Curt Bois.

Ted McCord, "Deep Valley," with Ida Lupino, Dane Clark, Wayne Morris, Fay Bainter, Henry Hull.

Sid Hickox, "Dark Passage," with Humphrey Bogart, Lauren Bacall, Agnes Moorehead, Bruce Bennett, Tom d'Andrea.

Ernest Haller, "The Unfaithful," with Ann Sheridan, Zachary Scott, Lew Ayres, Steven Geray, Eve Arden, Peggy Knudsen, John Hoyt.

## Mood in Films

(Continued from Page 49)

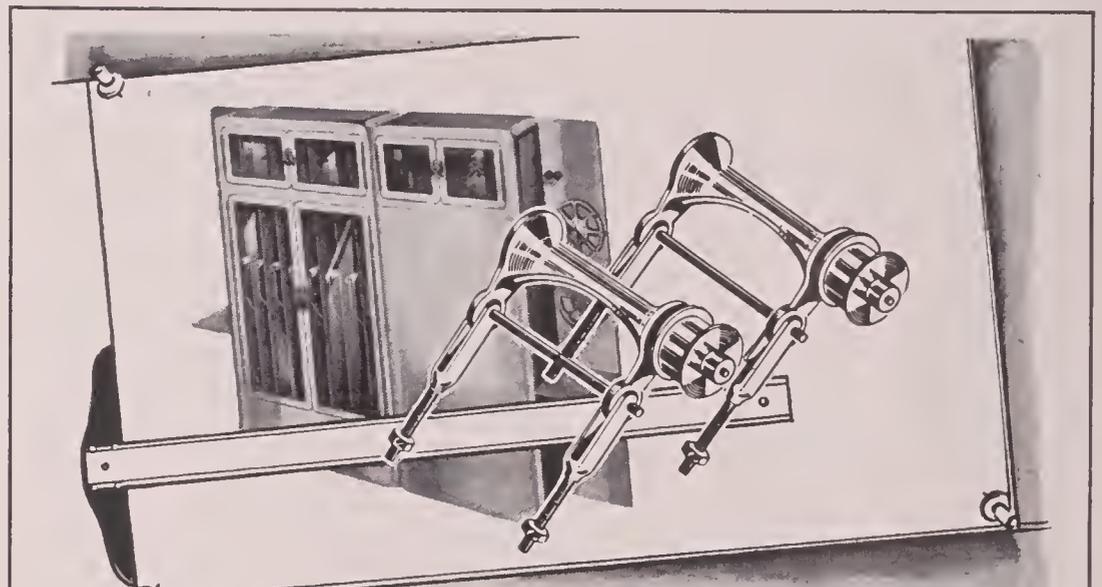
ultra-wide-angle shots, super close-ups, sweeping elevator shots, exaggerated low angles, and radical low-key lighting.

In sharp contrast to these somewhat theatrical devices, however, was his ultra-realistic documentary treatment of "Grapes of Wrath." Here was mood in the fullest sense of the term, for here was a situation re-created with all of the unvarnished reality of its true atmosphere. The effect was gained, not so much through the techniques used, as through those *omitted*. There were no filter shots, no reflectors in the exterior sequences, no attempt to "arty" angles.

Lighting was simple and direct, in strict harmony with source. Very little *fill* light was used.

It required professional integrity to film this socially significant story without the usual glamour treatment. But the resulting film carried with it a feeling of realism that was mood in its purest form.

A mood, once established, should pervade the entire sequence. Thus, it acts as a continuity device, leading the audience smoothly and naturally from one scene to another. Properly infused into the production, it is the cinematographer's most forceful device for adding a "sixth sense" to the cinema — one to which moviegoers are sure to react, even if they cannot explain why they do so.



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**Photo Highlights—1946**

(Continued from Page 47)

ess in Germany, and it was believed that a production program was being continued in eastern Germany under Russian supervision. In England, it was reported that the additive motion picture process, Dufaycolor, had been improved during the war; a finer ruling of the screen reseau was said to give superior color rendition.

The major portion of the color motion pictures shown in the theaters throughout the world were made by the Technicolor three-color process although several production releases were made by two-color processes such as Cinecolor, Magnacolor, and Trucolor. Since quite complex and bulky apparatus was generally required with all processes that exposed two or three separation negatives in the camera, there appeared to be a growing trend in favor of wider adoption of monopack color film which could be used in less bulky equipment. A new 16-mm. Kodachrome film was announced in September for use in commercial photography. Originals of low contrast made on this product were stated to give superior quality duplicates. The latitude and color quality of Kodachrome Duplicating film was also reported to have been improved.

Stereo color aerial photographs made by the U. S. Army Air Forces to show the bomb damage to Japanese industrial targets were shown in Rochester, New York, at the annual exhibition of the Photographic Society of America. The pictures were on Kodacolor Aero film exposed in a twin-lens Sonne continuous strip camera. They were projected with a twin-lens Polaroid projector and viewed with Polaroid spectacles. Amazingly sharp pictures of small objects on the ground such as a magazine cover, playing cards, and a package of cigarettes were taken with a single-lens continuous strip camera from a P-80 U. S. Army Air Force Jet airplane flying over 500 miles per hour. Examples of these pictures were shown on December 8 by Colonel Goddard in a lecture before the Rochester Technical Section of the Photographic Society of America.

**Motion Pictures**

Although plagued by strikes throughout most of the year, the motion picture industry managed to return to an active productive schedule and motion picture attendance averaged about 85 million paid admissions weekly in the United States. Production of motion pictures was also reported to be growing in several South American countries.

The twentieth anniversary of the showing of the first commercially successful feature picture with sound was celebrated with appropriate ceremonies on August 6. On that date in 1926 the Warner Brothers production, Don Juan, with musical background, was shown in the Warner Theater, New York. From that year forward, sound pictures rapidly displaced silent pictures.

The year 1946 also marked the fiftieth anniversary of the first showing of motion pictures in a theater, Koster and Bial's Music Hall, New York. On April 23, 1896, Thomas Armat, who is generally regarded as the father of the motion picture projector, operated a projection machine of his own design, which embodied certain basic features, such as a loop-forming means, and an intermittent movement that gave relatively longer periods of rest and illumination than the time needed for advancing the film.

Technical progress in the motion picture field was reported at meetings of the Society of Motion Pictures Engineers in the United States and the British Kinematographic Society in England. About 5000 industrial firms were reported to be using motion pictures for one purpose or another compared with approximately 600 firms before the war, according to an article in *Advertising and Selling* in November.

**Standardization**

In a summarizing paper in the June issue of the *Journal of the Photographic Society of America*, McNair discussed the development of photographic standards by the Still Photography Committee Z38, the Motion Picture Committee Z22, and the War Committee on Photography and Motion Pictures Z52, of the American Standards Association. A substantial background was established as a result of this work on standards for those concerned with practices and equipment manufacture. Many of the data on these new standards were published in the *Journal of the P.S.A.* and the *Journal of the Society of Motion Picture Engineers*.

**The Photographic Process**

The popularity of package chemicals in accurate ready-to-mix form was evident in photographic stores throughout the nation and in the national advertising in leading photographic publications. As new color films and printing processes were introduced, package chemicals were announced for them. Ansco provided chemical kits for development of Ansco Color film and Ansco

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Printon and Eastman marketed chemical outfits for processing Ektachrome and for the Dye Transfer Process.

A combined developer and fixing bath called Unidel was announced. A special hardener known as Hi-Temp was sold for use previous to development which permitted satisfactory processing at temperatures as high as 95° F. without any change in the composition of the ordinary developer, rinse or fixer.

Several general methods of increasing film speed were described by Miller, Henn, and Crabtree in the November issue of the *Journal of the Photographic Society of America*. A preliminary survey of hypersensitization and latensification procedure was made by Sheppard, Vanselow, and Quirk in the June and July issues of the same publication. Baumbach and Gausman gave a useful discussion of the chemistry of aluminum and chromium as hardening agents for gelatin in the July number of the *Journal of the Society of Motion Picture Engineers*.

#### Applied and Scientific Photography

In the occupational therapy program of many hospitals throughout the nation, photography was serving a useful purpose to help rehabilitate the war wounded and others who had been injured in accidents in civilian life. At some hospitals, a traveling studio, 4 by 6 feet in size, and fitted for all phases of photographic work, was being used to encourage the interest and participation of non-ambulatory patients. Repetitive strobo-flash photographs were made of normal and of artificial leg movements to help amputees learn to walk. Several thousand color slides were collected by the Color Division of the Photographic Society of America for use in veterans' hospitals.

The U. S. Army Quartermaster Corps reported very satisfactory results with Vectographs (three-dimensional photographs) as a means of evaluating the quality and characteristics of textiles. Defects in cloth samples could be shown effectively with the Vectograph, making it unnecessary to ship bulky cloth samples around to different supply depots, as reported in the October issue of *Industrial Standardization*.

High speed photographic studies of "flying fish" in the Pacific Ocean off the Catalina Islands were stated by Edgerton to prove that most species of such fish do not actually fly but rather glide after they eject themselves from the water. Several examples of these pictures were reproduced in the August number of *Travel and Camera*. (Fig. 5.)

#### New Publications

Two new magazines made their appearance: *Photographic Age* (business and industrial photography) published by Trans-World Publishing Co., New York; and *Travel and Camera* published by U. S. Camera Publishing Corp., New York.

The following new books were published:



Figure 5. High speed night photograph of a flying fish during glide; exposed with stroboflash equipment in about 1/10,000 second, using miniature speed Graphic camera.

*This is Photography*—T. H. Miller and W. Brummitt; Garden City Publishing Co., New York.

*Professional Photography for Profit*—C. Abel; Greenburg, New York.

*Photography is a Language*—J. R. Whiting; Ziff-Davis Publishing Co., Chicago.

*Mr. Lincoln's Camera Man*—R. Meridith; C. Scribner's Sons, New York.

*Photography by Infrared*—W. Clark; Wiley and Son, New York, 2nd Edition.

*Faces of Destiny*—Y. Karsh; Ziff-Davis Publishing Co., Chicago.

*The Art of the Motion Picture*—J. Benoit-Levy; Coward-McCann Inc., New York.

*Synchronized Flashlight Photography*

—G. L. Wakefield and N. W. Smith; Fountain Press, London.

*Mountain Photography*—C. D. Milner; Focal Press, London.

*Okay for Sound*—F. Thrasher; Duell, Sloan and Pierce, New York.

*Illustration credits.*

Figure 1. Applied Physics Laboratory, Johns Hopkins University.

Figure 2. Bausch & Lomb Optical Co., Rochester, N. Y., and Applied Physics Laboratory, Johns Hopkins.

Figure 3. Fairchild Camera and Instrument Corp.

Figure 4. Official U. S. Navy photo.

Figure 5. H. E. Edgerton and C. M. Breder, jr.

## Equipment Reported Stolen

More than \$20,000 worth of motion picture equipment, together with lenses and accessories, was stolen from the studio and lab of Film Arts Corporation of Milwaukee on January 5th, according to report by that company.

Included in the list are two model B Bell & Howell 35mm. studio cameras (ser. No. 60 and No. 122), and three Cine Specials. All equipment has three or one inch decal circles, which might be scraped off to provide evidence if offered for sale. Complete list of the stolen equipment can be secured by those interested from Film Arts, 725 Wells Street, Milwaukee 3, Wis.

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## Aces of the Camera

(Continued from Page 43)

ards, but one that set the industry talking in 1920.

Jack Gilbert played his first big part in "Monte Cristo," another early day success photographed by Andriot, and probably the first picture to be made on a large scale.

Three or four years later, at M.G.M., a picture was made that some people still remember for its distinctive photography. It was entitled "In the Palace of a King." Almost the entire action took place on sets with white walls and black lacquered floors. And although the story failed to measure up to the effective photography there are those who still remember it as one of Lucien's artistic contributions to the screen of that day.

Lucien prefers to remember his efforts on behalf of another great American classic, which, for some reason, seems to have fallen into limbo: "Nellie, the Beautiful Cloak Model." For this picture the entire cast, which included Claire Windsor, as Nellie, Lew Cody, Mae Busch, Eddie Lowe, Lillian Tashman and Ray Griffith, traveled from Hollywood to New York where most of the action took place. And when we say action we mean action; as any reader of that onetime best seller will attest. Nellie was subjected to the most

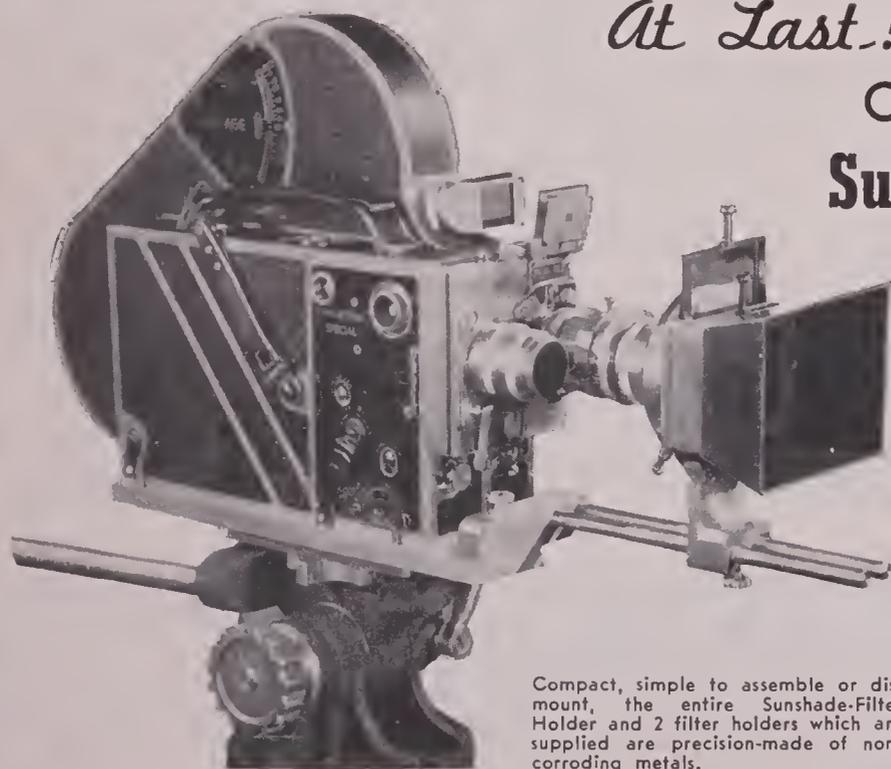
horrible treatment possible until the invention of the atom bomb. On one occasion, Lucien recalls, Miss Windsor was tied to the tracks of the elevated railway, where she was supposed to lie unconscious, and therefore perfectly still, while the train bore relentlessly down upon her prone figure. But the director was never quite satisfied. Things were not just the way he wanted them. Miss Windsor, instead of lying still, would give way to spasmodic jerks just as they were about to grind the camera. At last the director could stand it no longer. "What is the matter?" he asked Miss Windsor. "You're supposed to be unconscious. Why do you keep jerking like that?" "Well," said Miss Windsor, "if you really want to know, look down there." And they looked, down through the ties to the street below. And there was a group of boys with sling-shots, and with very good aim, using as a target that part of Miss Windsor's anatomy that protruded from between the ties. When that little extra problem had been disposed of, Nellie went back to being tortured in the orthodox manner until virtue was triumphant in the final fade-out.

Back in Hollywood, for the interiors on the same picture, the script called for a fire scene through which the villains could chase the luckless Nellie. When the studio manager heard what was contemplated he was a little ap-

prehensive. "You're sure you can handle it?" he asked anxiously. "You know, we don't want to burn down the place." "There's nothing to worry about," Lucien assured him, "nothing at all." After all, the crew was going to handle this little spectacle themselves. There were no special effects men in those days, and all they had to do was throw a little gasoline around and, just in case, keep some of the boys around with garden hoses. Everything had been planned perfectly.

But somehow the fire began to get too hot. The flames were most realistic but they were getting to be too much even for poor Nellie to work in them. Somebody suggested a bucket of water—quick! "Okay," somebody shouted; and the contents of a bucket performed an arc through the air. But it wasn't water. It was gasoline. And the worst fears of the studio manager were realized. The stage burned down.

Sometimes an unanticipated event proved a blessing in disguise. One such occasion was when Lucien was shooting "The Thundering Herd," for Famous-Players-Lasky. The company was on location up in the hinterlands above Bishop, California; and, judging by the terse notes and messages that were coming in to William K. Howard, the director, the company had been up there entirely too long. "What am I going to do" Howard asked Lucien. "Here I



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am getting notes telling me that I'm over time and over my budget. But I've still got the big scene to shoot. And now look—we're having a snow storm!"

Together Lucien and Howard sat down and re-read the script. "I'll tell you what," said Lucien, "the script describes the wagons and the riders and the herds traveling through the pass, but it doesn't describe the kind of weather. Let's shoot the scene in this snow storm." There wasn't much choice in the matter, and so Howard agreed. The results added drama and spectacle to the scene which turned out to be one of the most outstanding photographed up to that time.

"White Gold," which Lucien photographed for DeMille Productions, was probably the first predominantly exterior picture to be shot on a stage. DeMille was personally engaged in the making of "The King of Kings," at the time and did not want to be disturbed with other matters. Lucien and the director of "White Gold" went out to find their own location.

The requirements were that it be sheep country, and that they found in plenty. But with every advantage they found several disadvantages, until Lucien suggested bringing the sheep to the studio instead of the studio going to the sheep. The idea seemed crazy, but when Lucien assured the director that it would be possible to shoot this outdoor picture indoors the two of them sold the idea to the studio manager. But only on condition. He confined them to one stage. He made it very emphatic that he didn't want sheep wandering about everywhere on the lot and getting mixed up with the "King of Kings."

And so the four walls of one stage were hung with a cyclorama, the sets erected, and without moving from that one stage "White Gold" was completed.

Back at Fox, Lucien's first step into the era of sound pictures was "Christine," a vehicle starring Janet Gaynor. Actually, this production was started as a silent picture but, as "talkies" seemed to be catching on, the producer decided to dub in sound later. Then came "Daddy Longlegs," starring Janet Gaynor and Warner Baxter. And after that, "The Valiant," which was the first Paul Muni picture; an excellent three-reeler. So good in fact that it was decided to pad it out and make a feature of it. Which was unfortunate be-

cause the material that made an excellent three-reeler, as so frequently happens, made a very poor feature.

For R.K.O. Andriot photographed the late John Barrymore in "Topaz," and then Lionel Barrymore, with the help of a McGoo, in "The Return of Peter Grimm." We hasten to explain that a McGoo is an invention of Lucien's that permits him to photograph a ghost image simultaneously with the rest of the "solid" action. Then he did "Prestige," starring Ann Harding.

Some memorable scenes in the desert were among his contributions to the Lasky-Pickford picture, "The Gay Desperado," starring Leo Carrillo, Ida Lupino and Nino Martini. Then he returned once more to Fox to do a series of musicals starring Alice Faye; such successes as "On the Avenue" and "Thanks for Everything."

"Earthbound," in which almost the entire action was between "solid" characters and ghost images was accomplished in, for this type of picture, the astounding time of 30 days. Thanks once again to the McGoo and, Lucien hastens to add, the wonderful cooperation and technical understanding of Rolla Flora, A.S.C.

Following that was "I'll Give a Million," with Peter Lorre and Warner Baxter; and "Cafe Metropole," with Tyrone Power and Loretta Young.

Columbia borrowed him to do "I'll Take Romance," starring Grace Moore and Melvyn Douglas; and on another loan out he made, with the great French director Jean Renoir, that contender for Academy laurels, "The Southerner." Again, he was borrowed by Rene Clair to do "Ten Little Indians" which was released under the title, "Then There Were None."

Following a growing trend among other leading artists, directors and cameramen Lucien recently decided to freelance. Encouraged by the growth of independent production he believes it gives the cameraman, no less than star or director, a freer means of expression. In this new capacity he has completed for Hunt Stromberg, "The Strange Woman," starring Hedy Lamarr, and, with the same star, "Dishonest Lady." With the release of "New Orleans," starring Louis Armstrong and Arturo de Cordoba, the concensus of opinion will undoubtedly be that Lucien made a step in the right direction.

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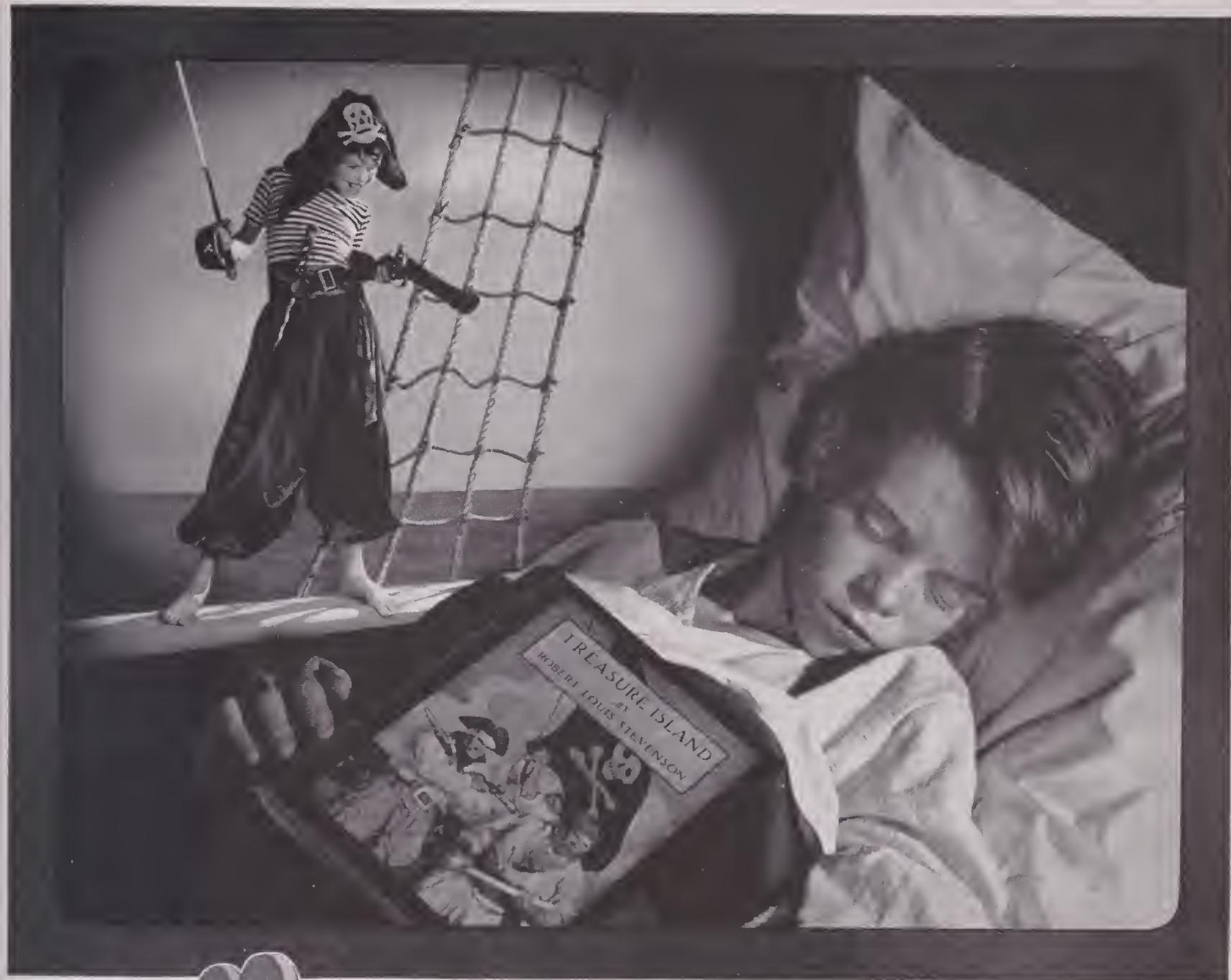
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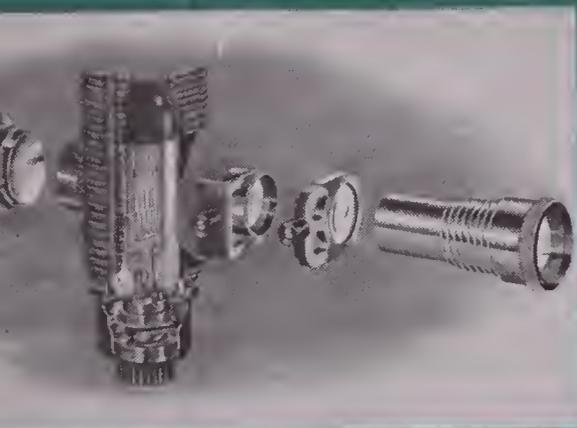
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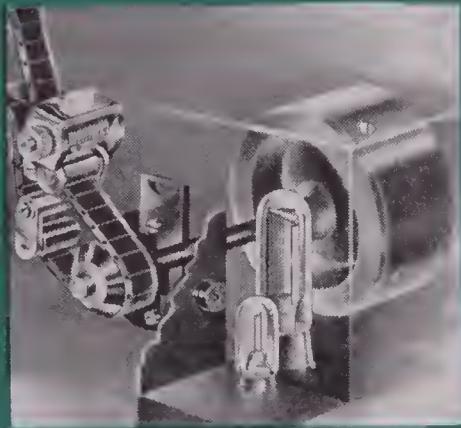
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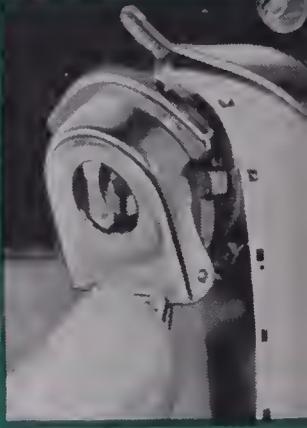
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In This Issue . . .

MOTION PICTURE  
COMPOSITION



MARCH

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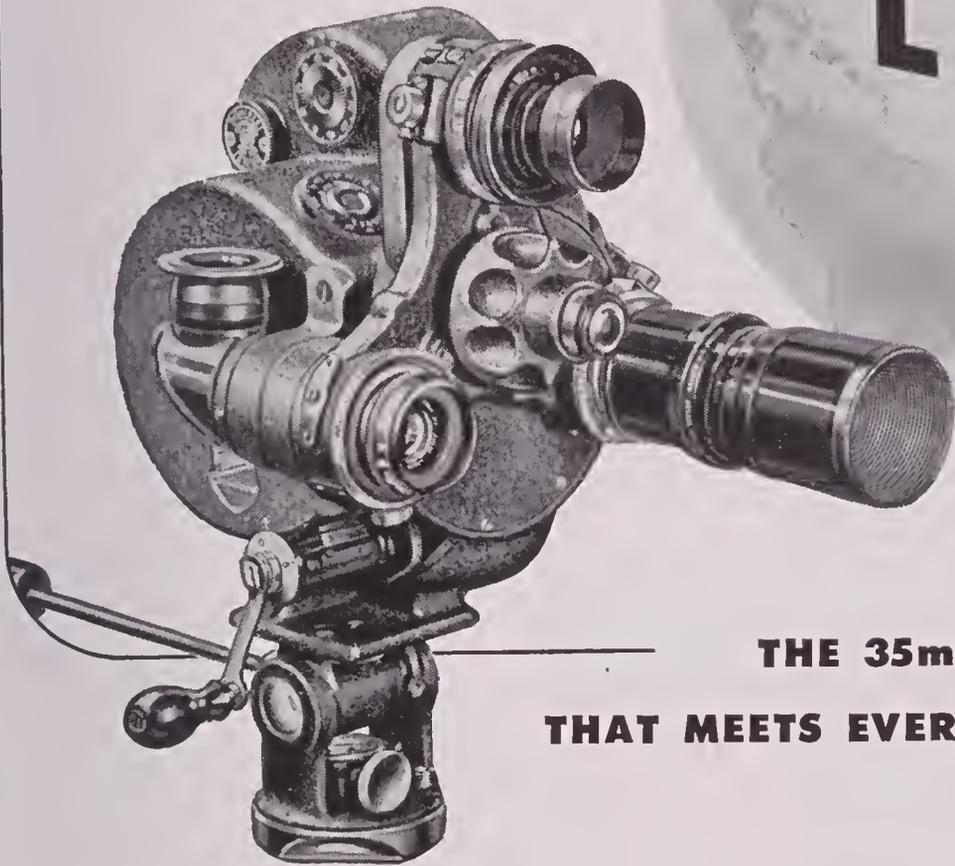


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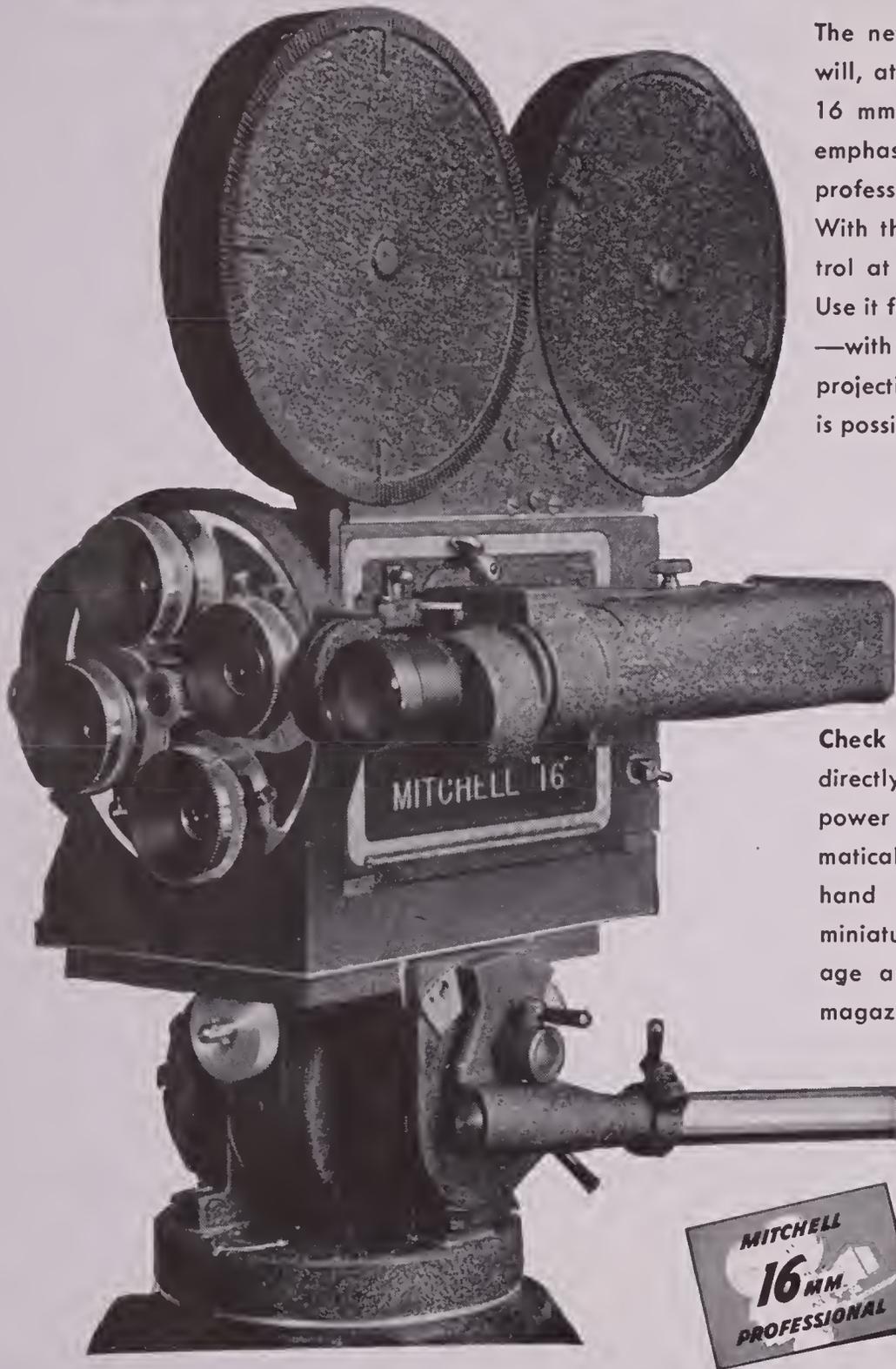
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# AMERICAN KINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28 MARCH, 1947 NO. 3

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ON THE FRONT COVER—Setup for special angle shot of Teresa Wright for the Samuel Goldwyn production, "Best Years of Our Lives." Director William Wyler closely observes beside the camera in upper left, while Director of Photography Gregg Toland, A.S.C., is below Wyler. Photo by Hal McAlpin.



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Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

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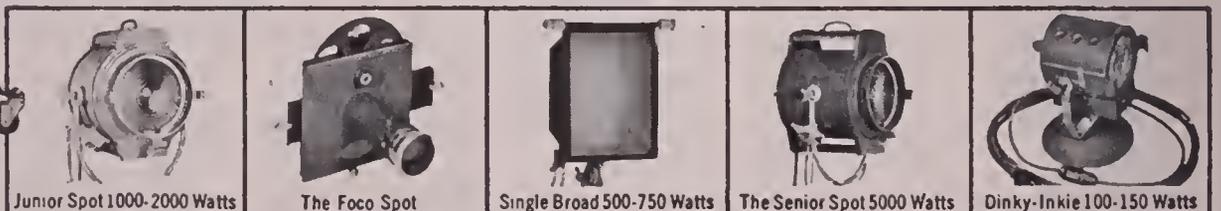
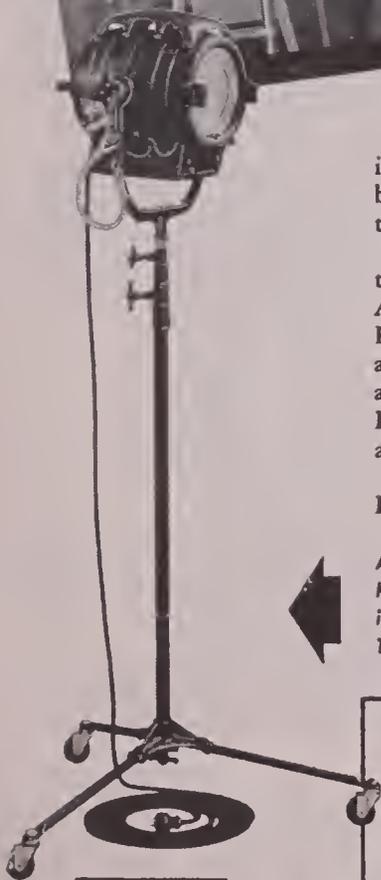
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# ACADEMY AWARD NOMINATIONS FOR BEST CINEMATOGRAPHY OF 1946



GEORGE FOLSEY, A.S.C.  
"The Green Years"—M-G-M



ARTHUR MILLER, A.S.C.  
"Anna and King of Siam"—20th-Fox

**N**OMINATIONS for the most outstanding cinematography on motion picture productions released during 1946, from which the best in black-and-white and color will be voted by the Academy of Motion Picture Arts and Sciences during the coming two weeks are:

#### Black-and-White

"The Green Years," Metro-Goldwyn-Mayer, by George Folsey, ASC.

"Anna and the King of Siam," 20th Century-Fox, by Arthur Miller, ASC.

#### Color

"The Yearling," Metro-Goldwyn-Mayer, by Charles Rosher, ASC., Len Smith, ASC, and Arthur Arling, ASC.

"The Jolson Story," Columbia, by Joseph Walker, ASC.

Selection of only two productions for cinematographic achievement in both the black-and-white and color divisions for

(Continued on Page 106)



JOSEPH WALKER, A.S.C.  
"The Jolson Story"—Columbia



CHARLES ROSHER, A.S.C.



LEN SMITH, A.S.C.  
Directors of Photography on "The Yearling"—M-G-M



ARTHUR ARLING, A.S.C.

# Composition In Motion Pictures

By Howard T. Souther

(Stephens Manufacturing Co., Los Angeles, Calif.)

*Motion pictures are the supreme medium for conveying illusion. Reality, unreality, in fact, any manifestation of artistic imagery is ours through the use of this tool of expression. Not only is the illusory feeling of all of the three dimensions present in this art form, but present also is the fourth dimension unavailable to any other form of art, time and movement.*

*The first section of this chapter will deal with the construction of the motion picture as a static form through the conjunction of lines, tones, masses and perspectives as forming a part of the unified whole.*

*The second section, to be published in April, will delineate the nature and use of color in the art product.*

*The third section, to appear in the May issue, will disclose the superior architectural unity derived from dynamics and its laws of motion.*

## FOREWORD

WHEN we go to the theater the eye is first conscious of an illuminated oblong in a sea of blackness. In a moment it recognizes portions of this oblong as having different degrees of illumination. Some of these portions are nearly white and some are nearly black. Those portions which differ from each other in tone we call the *elements* of our picture. Part of our job is to group these elements in a pleasing, harmonious way. Arranging picture elements in a satisfying manner is called good design or *good composition*. The term indicates most of the relationships which form a work of art.

These pages expound no patent system of aesthetics. If we reduce motion picture composition to a mere exposition of mechanical ingenuity we strip it of all human and social values. No other form of art confines us so little and allows us to do so much. But all expression attains to certain limits, certain boundaries within which the imagination may be exercised and the creative impulse may hold sway.

But even though beauty and rhythm in motion pictures is an abstract thing, it is still subject to laws, as is everything in nature. There are laws in nature pertaining to proportions that are gratifying, to balance that satisfies, just like those that govern equilibrium and gravity. The elements of our picture are governed by these laws whether it be in closeup, medium or long shot.

The scientific approach to our subject would demand now that we engage in a definition of terms. First, what is beauty, and second, what is *imagination*? The task of definition is a difficult one. As technicians and theorists, we must resort to defining one in terms of the other.

About beauty . . . one man says that no thing is beautiful. All things await the sensitive and imaginative mind that may be aroused to pleasurable emotion

at the sight of them. Herein lies beauty. All is as beautiful as we think it. A beam of light, a tree shadow, then a soft glow to temper the shadow—these things are facts. They are vested with beauty only when spun through the alembic of the imagination. This admittedly, is a subjective approach.

And now about imagination. We have little patience with the so-called scientific alibi that imagination is a groove in the skull, or an accidental formula in the compounding of grey matter. It is certainly more than a simple depth of tangent in the convolutions of the brain. For to us, it must mean application through sure knowledge: a bold splash of light from a sun-arc, courage to employ violent foreshortening for an effect, willingness to accommodate to accidental happenings during production. The imaginative idea is not confined to one person. The propman waxes down a light reflection from a table top; the makeup man hovers over the principals to wipe away perspiration just before the take; an electrician calls for a shop man to quiet down the growl of a motor in his arc lamp. And all this because each individual has imagined how the results of his action would seem in the final product. These constructive thoughts are repeated hundreds of times in the course of a day's work. The finished picture is truly imagination in its highest, most sustained flight. In a word, imagination is the feeling in each worker that he is not making a motion picture for "bread alone."

\* \* \*

Composition is really just common sense in the imaginative use of elements. As for these elements, there are only a few. Here is the first:

### The Frame of the Picture

The frame of the image consists of the spatial boundary within those limits the shot is to be confined. Everyday perception differs considerably from the

perception of the same things when bounded by the frame limits. On the screen we place the objects seen in a definite spatial situation; just as well do we give the objects a definite size in that spatial dimension. Consequently, the frame from a compositional standpoint is very important.

The size of the frame varies according to the size of the theater. The proportions, however, are standard and do not change. These conform to the ratio of 1.33 to 1. The resultant is four units long and three units high. The proportions we have just named are designated the *aspect ratio*.

These frame proportions have for four decades been the subject of unending controversy. Lloyd Jones, of Eastman Kodak, states that the optimum for close-up composition should be .84 to 1. The ideal for long shot construction he designates as 1.60 to 1. So we see that the present size used as a standard presents an agreeable compromise.



Because of our association with its position, the lower side of the frame conveys to us the feeling of the earth, stability, the foundation of our composition. It conforms with our sense of physical balance, and the base we find in all mechanical construction. The upper side of the frame is one which attracts less attention. It conveys the feeling of sky, infinity, indetermination. The sides, of course, derive from the base and the top. The lower portions achieve a feeling of gravity and support. The upper portions convey aspiration and ethereal quality.

### The Corners

From the standpoint of composing our picture, the corners have a very definite effect and must be considered carefully. There is an unmistakable feeling of dynamic thrust caused by the two lines meeting to form an angle. We must use this effect or subdue it as the scene requires.

The bottom corners display movement outward and downward. These combine to suggest downward thrust, and the feeling of solidarity and weight.



The upper corners suggest movement upward and outward. The equal thrust outward tends to cancel and a feeling of suspension and aspiration is experienced.



### The Vignette

When we employ the vignette the borders of our scene fade gradually into our frame and into the walls of the



silhouette emanates a feeling of repose and unity which is useful for effects. With this tool we can characterize the subject completely and forcefully project a single feature.



Cutting the lines of our border by objects in the picture has a very definite effect. The more acute the angle of cutting, the more vigorous is the effect. The illustration shows this introduction of power and vitality into the scene.



theatre. The vignette has an irregular shape generally, as though the points of the scene removed from our center of interest have not been definitely observed. The scene is confined and no parts of it seem to touch the frame. Lighting in a low key is indicated.

### Quality

This word *quality* as we shall use it is really a coined word. We shall use it to convey the thought of shading, of gradation from black to white. Later the word will embrace the thought of color and the various values which we attribute to it. But color we shall take up at length in the next section of this chapter. Until then it will be well to think of shading or quality in terms of monochrome, or all the shades of black and white. The use of black and white and the various shades between these two extremes is the purpose of the next few pages. We shall think of these as actual masses to be molded and formed at will to gain a result.

### Effecting Quality—Shadows

We may call the darker of two shades a shadow. Ruskin, the famous master said, "Learn to think in shadows." The



### Control of the Frame

As opposed to the legitimate theatre, the relative size of the frame can be reduced in motion pictures by use of the vignette and silhouette. This serves to draw attention to the actors and action. We are able, also, to effect the feeling of distance by aerial perspective through tonal control of our elements. In the legitimate theatre this must be accomplished by linear perspective, which draws the eyes violently to the vanishing point. A feeling of irritation is experienced thereby.

By controlling the light on the objects in the immediate foreground of the motion picture composition, we may suggest an enclosure for our scene of almost any size and shape.

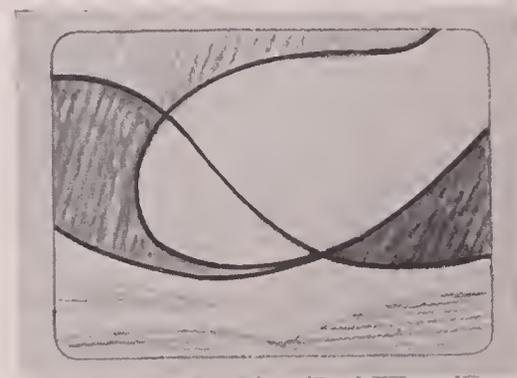
### The Background

Lee Simonson, one of the foremost theatrical designers of our time, says: "Stating it as a doctrine, one might say that the quality of a background determines one's emotional reaction to anything that happens in front of it." It is just as much a part of careful composition not to overdo. We may borrow a thought from Ernst Lubitsch and Norman Bel Geddes, who say that if a background is so beautiful and commanding that it detracts from the action it is a crime. But remember this: The mind through the eye is conscious of everything that surrounds the focal point.

The vignette is important as a tool in pictures to approximate actual vision. Wide angle lenses take in much more than does the eye. The human eye has a perception angle of about 60 degrees. In shots covering an area through a greater angle, vignetting reduces the wide angle irritation and makes for more pleasant observation. We must not strain the eye with too much picture.

### The Silhouette

In the silhouette we have the essence of simplicity. We must understand that the feeling of three dimensionality must be reduced in this form, however, because we use really only one of the aids to this type of perception—the shape of the contour. But the eye delights in following the curves of the outline, and the



general practice in composing with light and dark is to allow not more than a quarter of the scene to be very hot or light. Half the scene may be in mezzo-

tint, or half shadow, and the rest may go black. This postulate we may use as a medium. Varying the proportions will control the effects we may be creating.

#### The Handling of Quality Elements

In dealing with shadow as an element of our scene, we must recognize the fact that in interior motion pictures we build our scene from a completely unlighted back ground. This is an opposite method to that employed in most of the graphic arts. It resembles wood cuts and their manufacture; we carve out of blackness with our spotlights those parts of the scene from which we derive an exposure.

#### Procedure

1. Acquiring a pleasing design for the scene demands that first we visualize a two dimensional plan. We mean by this that modeling, or the three dimensional aspect, must be ignored when studying the light and dark scheme. This is accomplished by use of a dark glass, or half closing eyes. In this manner the mezzotints fade, and we are conscious solely of the black and hot patches.

2. Close-ups demand that we use fewer elements. A longshot permits more complexity of the component elements.

3. The use of the wide angle lens and the longshot require that the entire scene be more completely lit, and the darker patches broken up and raised in tone value. We must do this in order that the blacks will not be heavy and break up the unity of the scene as a whole.

#### Suggestions for Employing Tone or Quality Elements to Promote the Emotional Aspect of the Scene

##### 1. Unity

One postulate in rendering a scene in motion pictures is that the scene must conform to the scenes already shot and those which will be shot. Moreover, the individual elements of the particular shot must bear a distinct relationship toward each other. Whatever the action, however the grouping of the actors, whatever the background, these diverse elements must be unified into a coherent rhythmic whole. If two masses or groups divide the scene and the interest, the spectator is confused. If a large number of masses of light and shadow are present, the result is to confuse and irritate.

##### 2. Rythm

Rythm may be introduced into a scene in a number of ways. Agitating a tree which produces a shadow, moving an object such as a hanging lamp so that it appears to be swinging in the breeze makes the scene live. Life may be introduced into the scene in even a static manner. Sharp contrast, suggested movement, the use of *line*, which we shall take up later—all tend to promote vitality.

##### 3. The Deft Touch

This next condition for promoting emotion is difficult to define. Subtle indication of the object of interest . . . characterization of the single important feature of the object is sometimes all that is required. It is that feeling gained by the escape, say, of bald statement. It implies sacrifice of immediate force and contrast to gain an impression. The introduction, perhaps, of a component not

too clearly defined. A net over a certain portion of the camera lens might do it. Perhaps we might employ the vignette for only a portion of the scene. Rembrandt used this aid extensively. Leaving something to the imagination, he found, gave his pictures a quality few artists were able to duplicate in painting.

##### 4. Repose

Another element which promotes emotion is that of *repose*. The word suggests good taste. It suggests the removal of too sharp contrast. It demands that the scene fulfill its function, and purvey its ordained effect; not flamboyantly by the simulated projection of violent color and mass or turbulent line, but nicely, and in the mannerly way.

#### The Nature of Line in Photographing Motion Pictures

"The simplest possible conception of a picture is an arrangement of lines cutting into a rectangular space, in such a way as to make it interesting," says Arthur Hammond in his book on pictorial composition. Our motion picture scene, though devoid of lines such as are used in drawing, etching, et cetera, is nevertheless, governed by the principles of linear form. These affect all presentation whether it be with brush, pencil or camera.

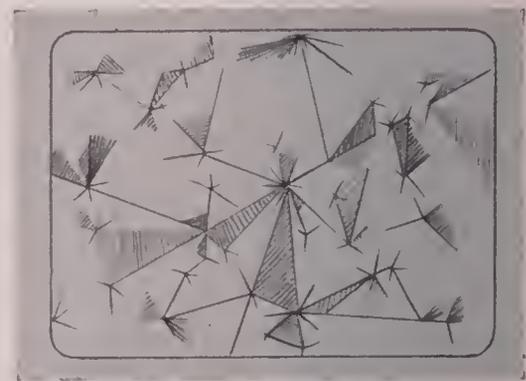
We do not presume to suggest that there should be obvious, unbroken lines running through our composition. Rather, that there should be lines made of points of interest and centers of attraction. Such breaks as are necessary may be skipped by the eye in such a way that they provide variety and interest. In much the same manner that we group our masses of light and dark, so do we arrange the objects and accents in our picture in such a way that the eye may follow the contours along the path we desire it to pursue in observing the scene.

#### The Pyramid

The pyramid is one of the most frequently used of fundamental forms. It is the secret of most stable and compact designs. In closeups the head forms the apex to the shoulders. The apex of the triangle is often placed *below* the base by the introduction of some smaller feature of interest. This serves as a link to tie the masses together, so that the triangle becomes a quadrilateral. The master Raphael used the quadrilateral or diamond shaped plan extensively. Carried to an extreme the quadrilateral form becomes round or oval. We then

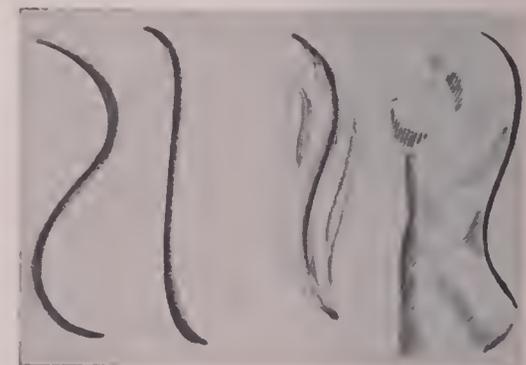


lack the firm lines that make for power. Few firm, stable designs are found that do not use the pyramid as their basic form.



#### Straight Lines

Straight lines suggest dignity, manliness, vitality, security. Points and angles derived from them suggest excitement or frenzy. If straight lines are used to excess, harshness and irritation are the result.



#### Curved Lines

Curved lines express flowing beauty. These are recommended for fine pictorial structure. Hogarth, in his book, "Line of Beauty," contends that the most perfect line is a curve which resembles

(Continued on Page 112)

# The Zoomar Lens

By Frank G. Back, M.E., Sc.D.

(Research and Development Laboratory, New York)

**T**HE Zoomar varifocal lens was first demonstrated in public at the Spring Convention of the S.M.P.E. in May, 1946, and has since then been accepted by the motion picture profession. During the short time it has been in use it has proved a valuable tool in the field of scientific educational, industrial, and commercial film production.

Though the Zoomar is a result of long and painstaking research, the final development has been greatly speeded up by the recent war. By developing various instruments for the armed forces, which in one way or another involved varifocal optical systems, valuable experience was gained. The Varifocal Viewfinder PH-532/UF for example, designed for the combat cameras of the U.S.A. Signal Corps, used for the first time the principle of a single barrel linear movement to produce a change of magnification. The same principle is also employed in the Zoomar lens. This principle, which distinguishes itself from every other varifocal optical system produced so far, guarantees perfect functioning of the instrument regardless of the inevitable wear of the mechanical parts.

At the present time the Zoomar lens for 16 mm. cameras is in production and on the market. The Zoomar lens

for 35 mm. film is still in the laboratory stage but will be available very soon.

The technical data of the 16 mm. Zoomar Lens are:

Length 12". Width 3½". Height 1½". Weight 1¾ lbs.

Aperture Range: f:2.9 to f:22.

Range: Interchangeable Wide-Angle Front-Lens. Zoom Range: 17 mm. to 53 mm. Distance Range: 4 ft. to inf. (Close-up Attachment for Wide-Angle Front-Lens permits shooting at any specified distance down to 1 inch, covering an area as small as a postage stamp. Lens can be zoomed as usual.)

Interchangeable Tele - Front - Lens Zoom Range: 35 mm. to 106 mm. Distance Range: 14 ft. to inf.

Field Coverage: Difference in field area in any one continuous shot—9 times. Difference in field area in compound zoom shot using both front lenses—36 times.

The technical data of the 35 mm. Zoomar Lens are:

Length 24". Width 6". Height 2¾". Weight approximately 9 lbs. Aperture Range: f:4.5 to f:32.

Range: Interchangeable Wide-Angle Front-Lens. Zoom Range: 40 mm. to

120 mm. Distance Range: 8 ft. to inf. (Close-up Attachment for Wide-Angle Front-Lens permits shooting at any specified distance down to 2 inches, covering an area as small as a postage stamp. Lens can be zoomed as usual.

Interchangeable Tele - Front - Lens. Zoom Range: 80 mm. to 240 mm. Distance Range: 30 ft. to inf.

Field Coverage: Difference in field area in any one continuous shot—9 times. Difference in field area in compound zoom shot using both front lenses—36 times.

The general situations under which the Zoomar lens may be used successfully are scenes necessitating a transition from a total view to a medium plane, or from a medium shot to a close-up. In all these situations, where formerly a trucking shot was required, practically the same effect can be achieved with the varifocal lens.

Any scene of a dialogue between two or more persons, in which the cameraman plans to start with a total view of the situation and then concentrate on one of the persons, can be produced with greater speed and less expense by using the Zoomar lens. The usual procedure can be reversed and the scene can start with a close-up of one speaking person and then the picture may quickly extend into a medium shot, bringing the rest of the company within the frame.

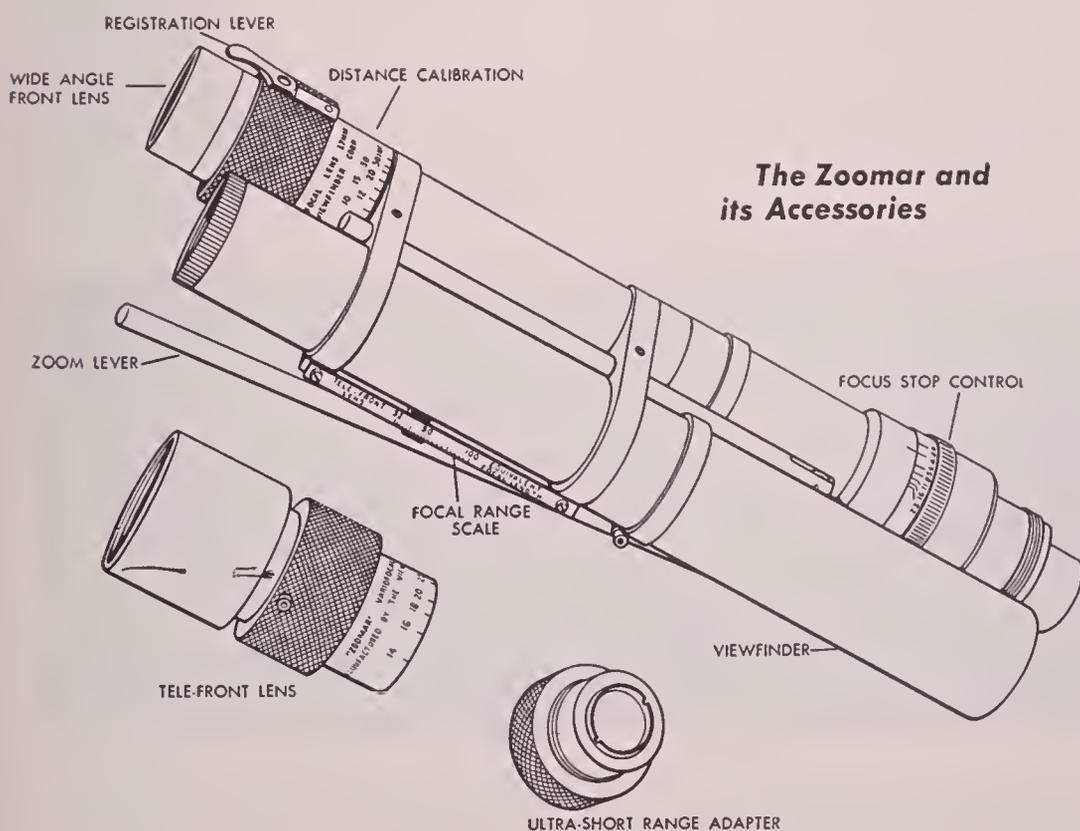
In many cases the use of two or more cameras can be eliminated and an effect similar to cross-cutting can be achieved with the Zoomar lens without the costly loss of valuable studio time by alternating telescopic view and wide-angle shots.

This becomes especially important in the production of musical pictures where the necessity of continuous and uninterrupted shooting of each scene is even greater.

Many of the difficulties of the parallel editing of picture and sound of a musical film sequence—be it playing of a classical string quartette, modern dance music or even of a composition for large orchestra—can be eliminated by shooting the scene with the Zoomar lens.

Striking effects can be achieved by combining the zoom shots with panning. The employment of both a crane (or a dolly) and the Zoomar lens should make it possible to render any shorter composition in one continuous shot,

(Continued on Page 109)



# "13 RUE MADELEINE"



## Documentary Style In The Photoplay

By HERB A. LIGHTMAN

A STYLE of documentary filming which Producer Louis de Rochemont and Director Henry Hathaway of Twentieth Century-Fox call *newsdrama* cinematography, has been applied with powerful effect to "13 Rue Madeleine," a picture now in current release.

This kinetic story of O.S.S. activities during the war was filmed *entirely* on location in Washington, D. C., Boston, New York, and Quebec—and was strikingly photographed by Norbert Brodine, A.S.C., who utilized a style of camerawork blending the best elements of studio and newsreel technique.

When the studio first decided to make "13 Rue Madeleine" exclusively in actual locales, a serious problem of settings presented itself. True, the sensational-ly successful counter-espionage picture, "House on 92nd Street" had been filmed in New York by the same set of technicians—but the settings of that picture were all established as American locales. "Rue Madeleine," on the other hand, called for settings located principally in England and France.

### Finding the Right Locales

The script of the picture indicated 128 separate sets, most of which were foreign in character. Producer de Rochemont, for many years head of the "March of Time," felt that the large

cities of the eastern United States, plus the small villages of French-Canada, would lend the picture a much more authentic flavor than anything the set designers could produce at the studio.

In order to prove his theory, he sent a still camera crew to make test record shots in locations where appropriate settings might be found. They photographed the old town-squares, the business districts built in the nineteenth century, and the quaint old residential streets of New York, Boston, the City of Quebec, and surrounding villages.

The 1500 stills which this crew brought back were turned over to studio artists supplied with similar photographs made in authentic European locales. By changing a few street and store signs, the artists transformed New York's Broadway and 21st St. into a typical London street scene. Sites in Boston, below Scollay Square, became quarters of Paris. Quebec, where even the street signs and billboards are written in French, had dozens of spots that required only minor changes to convert them into Normandy villages.

One sequence in the picture takes place at a secret airport on the French coast. To simulate this setting, there was selected a farm with a low rambling stone house and typically Euro-

pean stone wind-mill. The meadow where the plane lands was completely surrounded by the kind of hedgerows with which our invasion troops became so familiar in Normandy.

For the film, the Boston Red Cross (composed of two Beacon Hill mansions) became the O.S.S. headquarters in London. The famous Liggett Estate, an exact replica of a famous English manor house and now part of Boston College, was used as the locale of the O. S. S. training center in the English countryside.

### Toward Greater Realism

Director Henry Hathaway, a stickler for realism, points out that studio sets invariably look theatrical, no matter how closely they duplicate the real thing. "On the sound stage," he explains, "a director rehearses a scene the way it will be most effective dramatically. Then he has it lighted by experts and photographs the results. On location this is impossible. The director is forced to take whatever light is available and devise his action to fit. The result has an authentic newsreel atmosphere, surprisingly different from a studio-made film, and one that is especially vital and dramatic for factual stories."

The problem of moving camera, sound and lighting equipment, plus props, costumes and tools a distance of 3,000 miles to location sites proved something of a stickler for a while. Finally, in order to condense rolling stock, a giant 35 ft., 16 ton, semi-detached trailer truck was purchased and converted into a portable studio.

The vehicle was especially converted to carry wardrobe, properties and technical equipment, and was sent on ahead, crossing the continent in 8½ days. The cast and crew followed by plane.

From the entertainment standpoint, "13 Rue Madeleine" is a top-notch action drama, skillfully directed and capably acted by a cast of actors most of whom were recruited in the actual locations. Every phase of production was well handled, but it is the photography that



Scenes from the 20th Century-Fox "newsdrama" photoplay, "13 Rue Madeleine," which was filmed entirely on location in New York, Boston, and Quebec. (Left) A scene taken in a corridor of the LaSalle Seminary outside of Boston. Concealing light units in such scenes was a major problem. (Center) A scene depicting the activities of the French underground—actually shot in an old cellar in Quebec. Mood lighting was achieved through effective placement of the simplest light units. (Right) An exterior night shot using ARCS to simulate moonlight. Other night shots in the film were actually heavily filtered daylight.



Behind the scenes of 20 Century-Fox's documentary photoplay, "13 Rue Madeleine." (Left) In the courtyard of a seminary near Boston, the camera crew, atop an improvised parallel scaffolding, prepares to shoot a balcony scene. (Center) Strapped onto the hood of a moving automobile, the operating cameraman films an actual shot of action taking place in a car as it moves down the street. The shield built around the camera prevented unwanted reflections in the windshield. (Right) High up in an office building in Boston, Director of Cinematography Norbert Brodine, A.S.C., takes a light reading preparatory to shooting a scene.

most surely infuses the film with factual mood.

Cinematographer Brodine—who filmed "92nd Street" and has just completed another scene-of-the-crime drama, "Boomerang," for 20th-Fox—has, as a result of these three films, come to be regarded as the industry's top specialist in the application of documentary approach to the photoplay. He is anxious to point out, however, that this advantage is the result of his having been assigned to three films of this type consecutively. He feels that any first-rate cinematographer can adapt to the technique by eliminating photographic "frills" and using simpler, more realistic lighting patterns.

#### Down-to-Earth Camera Approach

The documentary style which he used to such good advantage on "Rue Madeleine" was developed by Brodine mostly through trial and error while he was filming "92nd Street," since that picture involved an almost complete reversal of previously standardized studio techniques.

On that first picture he mounted mushroom-type photofloods on strips to be used for general illumination and employed conventional photoflood lamps in bowl-type reflectors for *fill* illumination, spotlights being reserved for *key* lighting. On the second film, however, because there were such wide areas to be lit, several senior spots were taken along for general illumination in addition to the photoflood units. The seniors were especially useful in interior scenes in which exterior backgrounds could be seen through windows. Because these exterior backgrounds sometimes ran as "hot" as f.16, it was necessary to greatly increase the interior illumination to balance. In *panning* from an exterior to an interior scene, of course, the aperture opening was gradually increased during the *pan*.

"In lighting these actual locales," Brodine explains, "we were striving to maintain studio finish, plus a newsreel authenticity—while still adhering to a rigid shooting schedule, of course. Often, we would walk onto a set we had never

seen before and have to start lighting it immediately. The main problem was to keep our lighting from going flat, since there were no parallels from which to hang lights—especially back-lights and top-lights that give effective separation to the actors."

#### Working Under Pressure

Because of the time element, there was no possibility of "studied" lighting. The proper patterns had to be produced almost instinctively, working toward the best results possible within the physical proportions of the set. Often these proportions were barely adequate to get all of the equipment plus the actors into the room. Ceilings were frequently only 6 inches above the heads of the players. In cases like this, it was a real problem to place the lights so that they would give the effect without actually showing in the scene.

Sometimes, when the problem of light placement became just too baffling, ways were found to introduce actual lighting units, or "practicals," into the scene. Shooting one sequence in a quonset hut, for example, lighting was a serious problem until the cinematographer placed a series of drop-lights down the center of the hut, which not only solved the lighting dilemma, but added rich mood to the scene.

On the first picture the studio made in this manner, electrical current was secured by tapping into main circuits all along the route. On "13 Rue Madeleine," however, generators and transformers were carried so that the necessity of tapping current was eliminated.

Sound equipment was broken down and installed into fourteen portable aluminum cases that could be quickly and easily connected up in series. Simple fish-pole type sound booms were used throughout a majority of the filming. *Dolly* shots were generally avoided, since no camera booms or cranes could be carried. Wherever called for, these were made with a small "scooter" type dolly.

Working in old mansions and private homes, the technicians had to use ex-

treme care not to damage any of the walls or furnishings. Before arranging any equipment, fiber mats were placed on the floors, the lamps were wrapped in asbestos to prevent scorching, and the camera was padded.

#### An Even Line of Approach

In a picture such as this, it is a temptation to go overboard for realism in photography, using exaggerated camera effects and wierd types of lighting. Brodine, however, feels that the cinematographer must use a certain amount of restraint to avoid too extreme a style. He says:

"Those of us in the industry, along with theatregoers in the large key cities, recognize and appreciate the artistry of low-key, cross-lighting, and the more extreme mood effects. However, in making pictures, we must think of the people in the smaller towns who make up the majority of our audiences. The butcher, the baker and the candlestick-maker who pay their 35 cents to go to the movies on Saturday night, are anxious to watch certain stars and to be able to *see* their faces. I personally believe in avoiding effects that are too dark and extreme, and might prevent the audience from seeing the faces of their favorites."

One technique that Brodine improvised with excellent results, was for scenes in which characters inside a car are shown speeding down a road with the camera in close, recording the action and dialogue. In the studio, such a sequence would have been easy to make. A dummy car, cut-away in front would have been set up on a platform and made to vibrate to simulate motion. The moving background would have been projected on a translucent "process" screen behind the car, and a stationary camera would have photographed the whole effect.

In "13 Rue Madeleine," however, the camera (plus cameraman) was strapped onto the hood of an actual car and an overhead shade built so that the reflection of the equipment would not be picked up in the windshield. A series

(Continued on Page 110)

# THE NEWSREEL CAMERAMAN

By Walter McInnis

(Cameraman, Movietone News, New York)

(Editor's Note: This paper was presented in a symposium, "The Newsreel—Its Production and Significance," at a meeting of the Atlantic Coast Section of the Society of Motion Picture Engineers. It is re-printed here from the SMPE Journal by special permission.)

FIFTY years ago this October, Hammerstein's Olympia Music Hall rang to the cheers of an enthusiastic audience as President McKinley's Inaugural Parade was re-enacted in all its pomp on a motion picture screen.

In 1927, the Fox-Case Corporation launched its famous Fox Movietone News. It was instantly popular and the public who had become sound conscious overnight, received it with great acclaim. Before long the silent-type newsreel became antedated and just as quickly so did the silent type of coverage suffer a momentary lapse. All newsreel stories were covered with the prime thought in mind, "How is it for sound?" This was

purely a transition period. The newsreels had found their voice, but had not yet learned to talk.

Public acclaim for the sound newsreels was not to be denied. Before long all five major newsreel producing companies were operating sound trucks throughout the world, although none quite so extensively as Fox Movietone. It surely seemed as if the day of the silent camera had waned, but already the pendulum had reached the limit of its swing and was enduring that split-second battle with inertia before returning. In other words, motion pictures with sound were no longer newsworthy just because they had sound. Now, the sound had to be justified, and thus the newsreel commentator was born. It soon became apparent that many newsreel shots could be covered "MOS"—or in newsreel parlance, "mitout sound"—and joyfully, cameramen rushed to their respective attics and reverently dusted off the old silent cameras.

Aided and abetted by the newsreel editors who once more had become "coverage conscious" the pendulum raced back across its arc with increased momentum while the amount of field-recorded sound that was heard in the newsreel became reduced to nearly the vanishing point.

During this period many improvements in sound camera equipment were made by the Wall Camera Company of Syracuse. A new compact self-contained camera, comparable in weight to a silent Mitchell camera, and requiring a light 12-v storage battery for its operation, was delivered to Movietone cameramen. It had the first of the popular *D*-type intermittent, a rack-over arrangement for critical focusing through the objective lens, and a right-side-up finder. This camera could be used with a 400-ft. magazine as well as the 1000-ft. type, an important weight decreasing factor. All of the restrictions imposed upon cameramen by the use of the old-type sound camera equipment were eliminated with this new camera. The sound equipment, too, had become very portable and movement became almost as unrestricted as with the silent camera. Another important improvement was the Akeley gyrotripod permitting smooth "pam" and tilts coupled with ruggedness of construction. For nearly all types of stories this tripod is still unsurpassed.

Newsreels today show the result of 50 years of progress. No small tribute to the newsreel institution is the record of combat coverage in the last war. The pool of war correspondents of the five major producing companies was responsible for much of the documentary film which will provide the motion picture history of the war. Combat cameramen attached to the Armed Forces rapidly acquired the newsreel technique under the tutorship of many oldtimers in the business. In fact, at this office and at the *March of Time* Newsreel Cameramen School operated during the first year of the war, hundreds of fighting cameramen were put through these two institutions. The graduates in turn trained the great body of fighting cameramen who have given us the complete history of World War II in motion pictures.

In October, 1929, in the pioneer days of sound newsreels, I was given an assignment to go to India on a tiger-hunting expedition. Before leaving, a rush call came for a lightweight outfit to make pictures with sound aboard the dirigible *Los Angeles* on a test run over Philadelphia and New York. We took off at 5:00 p.m. and made pictures of the crew's quarters and other interiors. Approaching New York approximately at 8:30 p.m., with the light not too good, we took a chance and made some night shots of the City. The Commander of the *Los Angeles* was good enough to describe the time and



ACHIEVEMENT AWARDS FOR OUTSTANDING ACCOMPLISHMENT in production of "Best Years of Our Lives" were presented last month by editors of Look Magazine to handless war veteran-actor, Harold Russell, left; producer Samuel Goldwyn; and Director of Photography Gregg Toland, A.S.C. Bob Hope, extreme right, made the presentations last month in Hollywood.

(Continued on Page 110)

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COLOR cinematography opens up a vast new field of possibilities to the advanced amateur and semi-professional film producer—but like all other effective techniques, it also introduces certain special problems that must be solved in order to achieve the best results.

The color emulsions available to the 16mm. film-maker include standard Kodachrome (Outdoor and Type A), the new Kodachrome Commercial, and Ansco-color. All of these stocks are similar in general make-up, but have their separate differences in quality and in processing procedure. Kodachrome rather flatters colors and gives a rich, vibrant rendition. Ansco-color, is slightly softer and gives a very natural rendition of colors.

All color emulsions are slower in speed than the more widely used black and white emulsions. They also have a narrower latitude, which means that exposure must be precise in order to get a faithful recording of the scene.

#### The Nature of Kodachrome

Kodachrome thus far has proved to be the most popular and practical color film for 16mm. use. Whether it will continue to be in the face of new materials now in development remains to be seen—but for now, at least, it is the emulsion we mean when we speak of 16mm. color production, so let us consider some of its characteristics.

Kodachrome is a subtractive mono-pack stock having three different color-sensitive emulsions superimposed successively upon one base. So finely distributed are these layers that their combined thicknesses scarcely exceed that of the single emulsion on conventional black and white film. Located between the surface layer (blue-sensitive) and the second layer (green-sensitive) is a yellow filter layer which holds the blue rays back from affecting the layer below.

When the film is developed, most of the silver salt is dissolved out, leaving a negative image in each layer which is dyed the color *complementary* to that to which it was sensitive. Because the silver salt washes out, Kodachrome film is almost grainless in character.

Outdoor Kodachrome is balanced for the color of "average" sunlight. Indoor, or Type A, has an excess of blue sensitivity which compensates for the reddish rays of Tungsten light. These two emulsions can be used interchangeably by using the correct compensating filters.

The new Kodachrome Commercial stock, a film developed exclusively for use as a master positive in making duplicating prints, has just been placed on the market. The film is balanced for Tungsten light, so that it is necessary to use a filter when shooting it outdoors. The original has an extremely soft, pallid quality which makes the image appear flat when it is projected. However, when duplicates are made from this original, they pick up just enough

# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 9. Color Cinematography

By CHARLES LORING

sparkle and flattery of color to provide a perfect rendition of the color values of the scene. There is none of the harsh contrast and exaggerated color usually found in duplicates made from straight Kodachrome originals.

According to the manufacturer, the new Kodachrome Commercial has the same speed as the conventional type. However, in actual practice, it has been found that the Commercial stock runs almost a full stop slower than the other emulsion. This is a draw-back that will probably soon be overcome. For the moment, however, it will be necessary to flood the set with light—but the excellent results available more than justify this added exposure difficulty.

#### Principles of Color Exposure

As we have already pointed out, color stocks are slower and have a narrower exposure latitude than most black and white emulsions. In black and white cinematography, the latitude of the film is such that an error of as much as 3 or 4 stops can be satisfactorily compensated in printing. Not so with color. A variation of  $\frac{1}{2}$  stop either way can be noticed by a discerning eye; and a variation of a full stop is usually sufficient to make the scene unsatisfactory for exacting uses. There is, of course, some possibility of correction in dupping, but even so, the margin for error is slim.

Generally, it is recommended that Kodachrome be shot in even light for best results. Certainly this is the easiest way to get a pleasant quality—and if the film is to be duplicated it is especially important because shadows tend to go black in this process.

However, this rule is not iron-clad, and very satisfactory results can be achieved with more contrast lighting if special care is taken during filming. In side-lit scenes without reflector fill, you must allow one full stop more exposure. In back-lit scenes, allow two full stops. In both cases, such compensation will cause the sky background to go very light, so that the scenes will not intercut with other scenes filmed in the same locale with average exposure. Therefore, such shots should be

heavily *filled* with reflected light in order to more evenly balance the contrast.

Since the exposure latitude of Kodachrome is limited, it is often impossible to hit an average exposure that will be satisfactory for every element of the scene. In this case, one must expose primarily for the most important element in the scene. This may be the area that is most prominent, such as sky or sea. In scenes where people appear prominently, you will, of course, expose primarily for flesh tones. In such scenes having a sky or sea background, there is always an abundance of stray light, so take your principle reading very close to the subject's face.

In overall long shots of sunlit sea or snow, your exposure will have to be cut down from one to two stops less than for a normal sunlit scene. If people appear in such scenes, therefore, they will be under-exposed unless you pour in a great deal of reflected light to build up the brightness of their faces. Always use silver reflectors; never gold, as these give too warm a tone to faces.

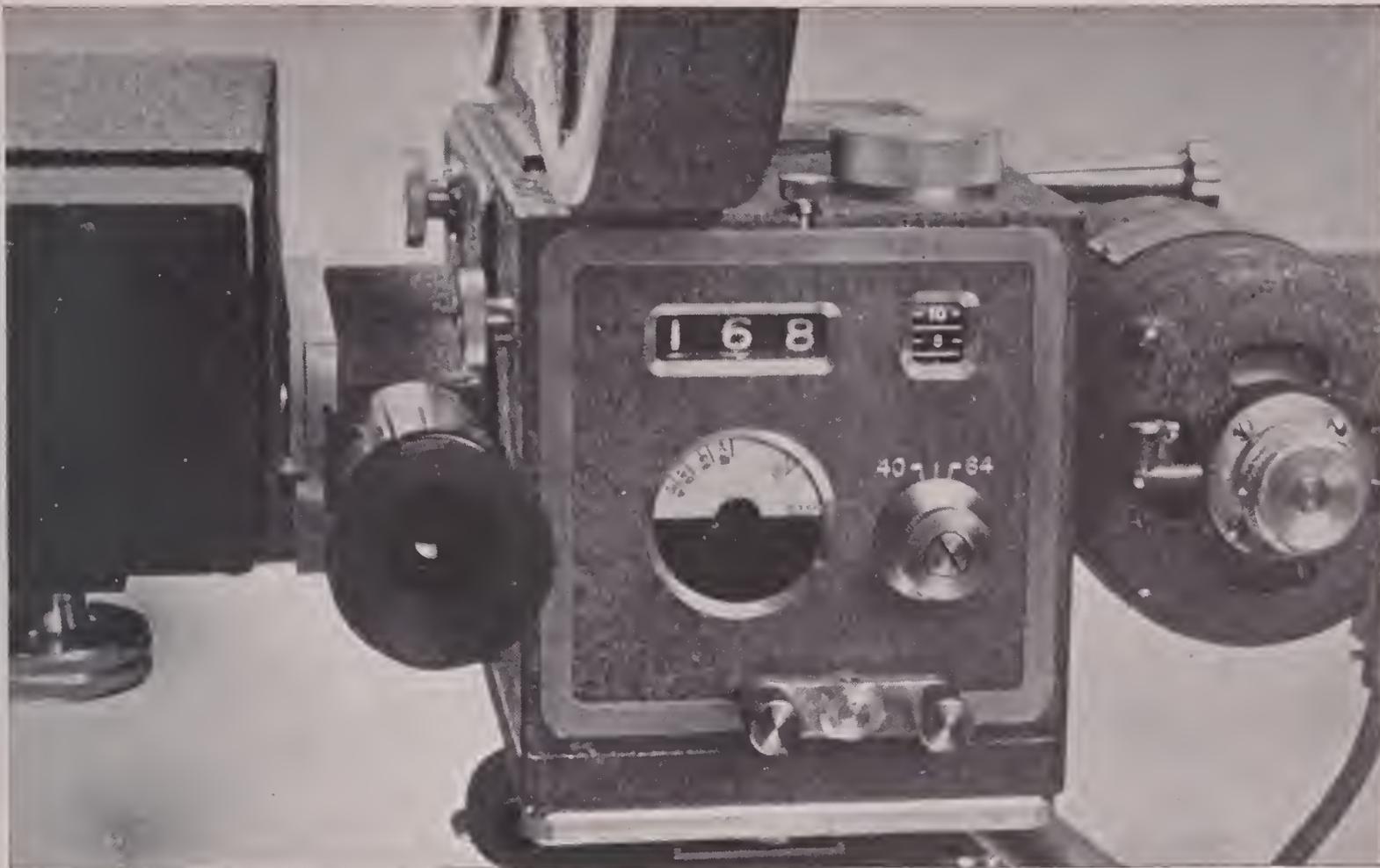
Many times in a scene, there exists a great difference in brightness between sky and foreground. In this case, rather than exposing for the foreground and allowing the sky to "burn up," as might seem logical, it is wiser to use a pola-screen filter which will darken the sky, but leave the other color values of the scene unchanged. This device is also useful in eliminating harsh reflections from water, glass, or other reflecting surfaces.

#### Color Temperature

In color cinematography, one must be concerned, not only with having *enough* exposurable light, but with having the right *quality* of light as well.

In exterior photography, the quality or *tone* of the light varies greatly with the location, the season, and the time of day. This variation in "color temperature" is measurable in units known as *degree Kelvin*. The temperature of so-called "average" sunlight is in the neighborhood of 6000 degrees Kelvin, and

(Continued on Page 96)



From a picture taken with a Maurer 16-mm and enlarged from the 16-mm frame

## YOU CAN SHOOT *with 1/3 less light* WITH THE NEW MAURER

A wide-angle shutter, with maximum opening of 235°, combined with an *automatic* dissolve mechanism operating at two speeds, is one of the unique features of the new Maurer 16-mm Professional Motion Picture Camera.

At 235° opening the camera gives an exposure, at 24 frame speed, of 1/36 second. This increased exposure is equivalent to opening the lens 1/2 stop, or reducing the light requirement by one-third.

In outdoor work where the light is varying, the shutter may be used to control exposure. A manual control knob makes available any desired opening between the completely closed position and the full

235° opening. A small circular dummy shutter on the rear of the camera shows the shutter opening at any instant. This indicator is calibrated in degrees at intervals of 1/2 lens stop.

*Automatic* fades of 40 frames duration are made by turning the fade control knob to the left; *automatic* fades of 64 frames duration by turning the knob to the right. The shutter closes at a non-uniform rate that produces a smooth effect over the entire fade. At the end of the fade the control knob snaps back to neutral position.

Smooth manual fades of any duration may be made by using the shutter control knob.

**16mm**  
**maurer**

This advertisement is the second of a series explaining the features of the Maurer 16-mm

**J. A. MAURER, INC.**

3707 31st Street, Long Island City 1, N. Y.

Professional Motion Picture Cameras and Recording Equipment for the Production of Industrial, Educational and Training Films

## GEORGE MEEHAN, JR.

George Meehan, Jr., A. S. C., passed away on February 10th, following an illness of several weeks. Born in Brooklyn 56 years ago, he came to California in 1910 and started as an assistant cameraman for comedy producer-director Henry Lehrman at Fox in 1916. He served with the photographic division of the Signal Corps in World War I, being assigned as official photographer for the U. S. Army General Staff.

Upon release from service, he returned to Fox studios, where he was promoted to first cinematographer on comedies a few years later, and shortly thereafter graduated to Director of Photography on feature productions. For the past 15 years, he has been associated with Columbia Studios. He is survived by his widow.

## ASC Technical Meeting

Another in the monthly series of technical meetings of the American Society of Cinematographers will be held at the ASC clubhouse on evening of March 3rd. "Flash Tubes—A Potential Illuminant For Motion Picture Photography?" will be presented by Donald W. Prideaux, associated with the Lamp Department of General Electric Company. The topic and demonstration will include the characteristics and application of repeating flashtubes—developed prior to the war and since greatly improved—which are considered important new photographic light sources with potential use in professional motion picture photography.

Gregg Toland, ASC, also expects to disclose information on a new crankhead and parallel recently designed and built by the Samuel Goldwyn Studios as aids in production.

Dinner meeting for ASC members at the clubhouse on January 28th had several prominent directors present as guests of individual members. Hugh Brill and Pat Patrick enlivened the proceedings with fine entertainment for the large gathering—the former with some intriguing card tricks, and Patrick with excellent comedy monolog routine.

**Complete 16mm Laboratory  
Service  
Black-and-White  
and Kodachrome  
Reproductions**

**Acme Film  
Laboratories, Inc.**

**GUS BARTH WILSON LEAHY  
1161 N. Highland Ave.  
Hollywood 38, Calif.**

## New Victor Animatograph 16mm Projector Model



**H**AILED as a great improvement in the design, performance and economy of 16 mm. sound motion picture projectors, the new Victor Model "60" has been announced by S. G. Rose, president of the Victor Animatograph Corporation, Davenport, Iowa.

"We are especially proud to announce this projector," commented Mr. Rose, because we are able to offer greater value in a 16 mm. sound projector with many mechanical refinements at a price which is only a three per cent increase over prices prevailing at the time of federal decontrol of the photographic industry. "Further," continued Mr. Rose, "our low price is only 10 per cent over 1941 figures which we believe, in view of tremendously increased labor and material costs, is an outstanding accomplishment in the industry. Victor will continue to strive for better products at fair prices," he concluded.

The new projector which Mr. Rose announced is housed in streamlined, aluminum cases and contains many mechanical improvements which are the result of 36 years of precision engineering by Victor.

This machine is a multiple-purpose unit for use with either sound or silent film and includes jacks for use with a record player or as a public address system. It includes reverse operation and has the advantage of still picture projection.

Among the many new features is the Instantilt—a device which centers the picture on the screen at the touch of a finger. Replacing the outdated knurled knob, this unique improvement utilizes a counter-balance which causes the front of the projector to rise merely

by "pinching" a conveniently-placed lever.

Another outstanding improvement is the new Duotrol. This provides separate controls for both bass and treble tones which permits emphasizing of high and low frequencies independently of each other. This produces full harmonic value of sound and is instantly noticeable in music of extremely high and low pitch. Acoustical problems are minimized by this dual tone control.

Of interest to all users will be the new Clutch-Controlled Rewind. This feature permits fast, safe, convenient rewinding of film without the need for shifting belts or reels.

Still another new feature is a leveling device which compensates for uneven projection surfaces.

Compact and portable as today's luggage, the Model "60" retains the many features of former Victor 16 mm. sound projectors. The exclusive safety film trip, 180-degree swing-out lens mount, exclusive framing screw adjustment, spira-draft lamphouse and duo-flexo pawls are all time-tested Victor projector features that are included on the new Model "60". The use of either 750 or 1000 watt projection lamps is optional.

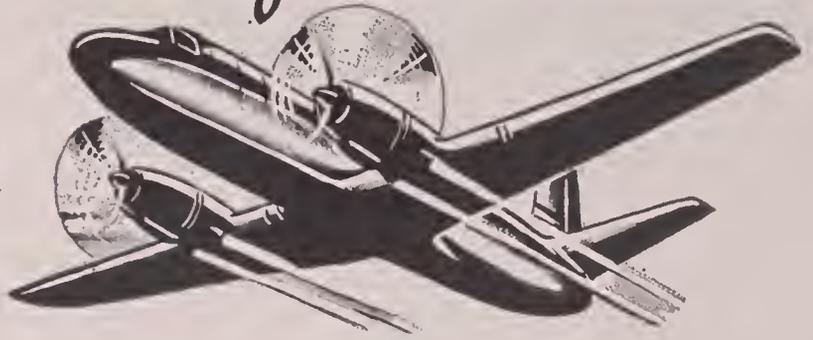
The optical system on the Model "60" is straight-lined, permanently aligned at the factory and includes a coated two-inch F:1.6 projection lens as standard equipment. Other lenses up to four-inch are instantly replaceable.

The sound system contains a stationary sound drum with a micrometrically set sound lens. It provides equally sharp response from regular or reverse prints, black and white or color. The exciter lamp is rated at 100-hour life instead of the customary 50 hours.

# Lektro BATTERY DRIVE

## 16mm Magazine Load MOVIE CAMERA

*Out of the Skies!*



### A Postwar Development

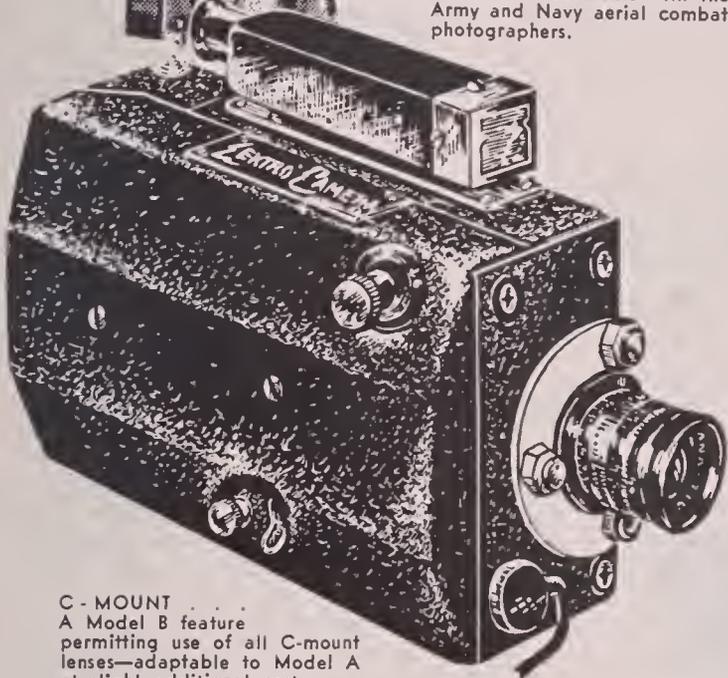
#### AMERICA'S FINEST 16mm MOVIE CAMERA



DO YOU REMEMBER those thrilling epic motion pictures—

*"The Fighting Lady"*  
*"Memphis Belle"*

This is the famous camera that helped screen those famous film documents with the Army and Navy aerial combat photographers.



C-MOUNT . . . . .  
A Model B feature permitting use of all C-mount lenses—adaptable to Model A at slight additional cost.

CONTINUOUS SWITCH—Permits operator to get into the picture—available on either model at slight additional cost.

Out of the skies—ingenious engineering has brought this marvelous camera "down to Earth." Originally made by Bell & Howell, Fairchild and Morse to operate smoothly and dependably alongside aerial combat photographers—this camera operated dependably and accurately under incessant pounding and punishing vibration of War's engines and guns. Apco engineering laboratories have *thoroughly and extensively* redesigned this camera into the *finest 16 mm. magazine-loading movie camera ever offered!*

#### No Winding

your touch—a foot or 50 feet.]

You'll never need miss any of the action of that important scene because your spring motor ran down. Powr-Pak battery drive responds to And the long-life battery unit will run dozens of film magazines.

#### No Film Threading

chamber—in three seconds you're ready to "shoot".

The LEKTRO takes standard Eastman Kodak 50-ft. film magazines in Black and White or Color. Simply slip the film magazine into the camera

#### POPULAR SPEEDS

Model A—8, 16 and 32 f.p.s.  
Model B—16, 32 and 64 f.p.s.  
Sound Model, 12 and 24 f.p.s.

#### SMART FEATURES

Optical view finder; enclosed footage indicator; fine f3.5 lenses—plus Yellow Filter for fine detail outdoor shooting.

#### MODEL A— For Practical Shooting

All the smart features of a *finest* movie camera . . . Complete with luxurious luggage-leather carrying case . . . . . **\$128<sup>00</sup>**

#### MODEL B— For Advanced & Commercial Fans

Add these *super* features to Model A  
• Super Powr-Pak battery—lightweight . . . runs over 50 magazines . . . . . **\$139<sup>50</sup>**

- C-mount to accommodate all c-mount lenses
- *Deluxe* leather carrying case—for battery, LEKTRO, accessories, spare magazine

#### SOUND MODEL— Shooting For "Sound"

Speeds of 12 and 24 frames for those who wish to later synchronize sound to film. With features of Model A . . . . . \$128 Model B . . . . . \$139.50

#### AUTHORIZED *Parts* AGENCY

Do you own an AN (Army-Navy) type gun camera? Convert your camera to LEKTRO specifications in your home workshop—we have all the necessary accessories and parts. Write for list and details!

**FREE DETAILS ON REQUEST!**

## FOTOSHOP

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NAME . . . . .  
ADDRESS . . . . .

## Cinema Workshop

(Continued from Page 92)

the outdoor Kodachrome is balanced for this average.

However, in the early morning there is an abundance of blue rays in the light; whereas, in the late afternoon the red rays predominate. These red rays sometimes add warmth to landscape scenes, but are quite unflattering to skin tones. Best color temperature uniformity can be maintained by shooting Kodachrome between the hours of 10 a.m. and 3 p.m., although an hour either way during the summer months is permissible. It is well to remember that when shooting color out of sequence from day to day, it is best to record the time of day that each scene was shot and try to duplicate that time in consecutive shots.

For the color cinematographer who wishes to be especially exacting, a *color temperature meter* has been developed to measure the quality of light, plus a set of 22 matched Harrison filters for use in correcting inconsistencies in color quality. Aside from normal compensation, these filters may be used to subtly "heat-up" or "cool-down" a scene for special effect.

In indoor color cinematography, also, the color temperature factor is important. The new Type A Kodachrome emulsion, as well as the Commercial stock, are balanced for a light of 3200

degrees Kelvin, and it is possible to purchase spotlight bulbs especially corrected to that temperature. Photofloods are a bit warm in tone, but the variation is usually not enough to cause trouble.

However, there are certain other factors that may cause a substantial variation in the color quality of interior light. The fluctuation in house current voltage, for instance, is important. Photofloods, as they become used, become warmer in tone. But, perhaps most important, is the fact that walls and costumes of a certain color reflect an abundance of that color to the extent where it may substantially influence the quality of the flesh tones of the players.

Therefore, color temperature cannot be ignored. For best results it should be measured and the correct filters used to insure overall consistency.

Concerning other types of filters for color, there are two marketed by Eastman for converting Type A film for outdoor use, and vice versa. There is also a haze filter which is effective in screening out the invisible ultra-violet rays which are abundant at high altitudes. We have already mentioned the type 1A Pola-screen filter for eliminating reflections and darkening skies. In no case (except for occasional special effect) should conventional black and white corrective filters (K2, G, 23A, etc.) be used with color film.

## Using Color Effectively

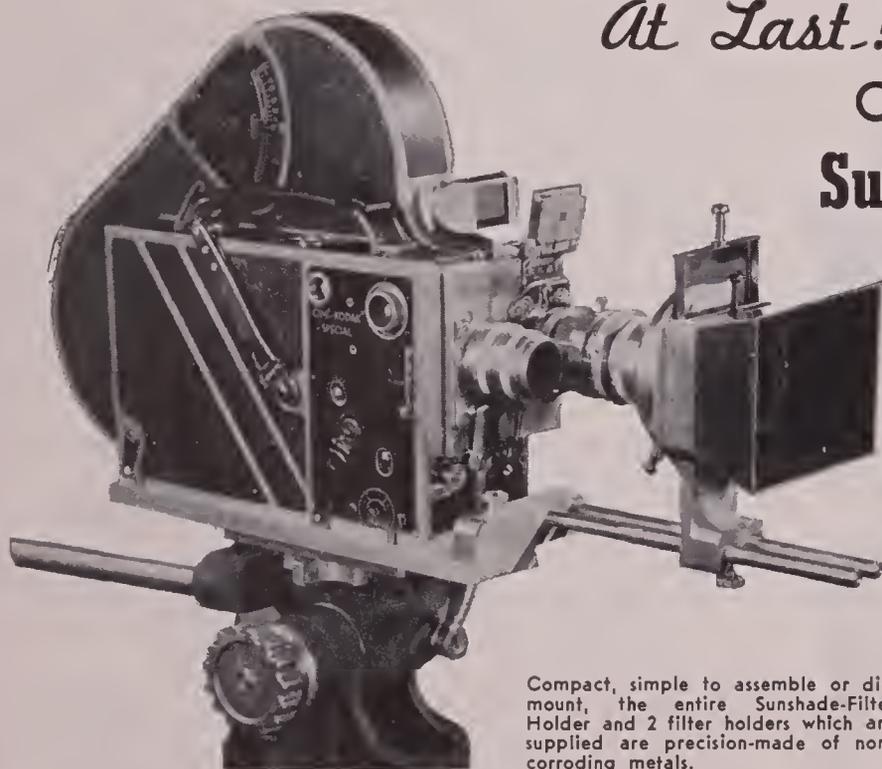
The use of color in cinematography vastly increases the film-maker's opportunity for gaining forceful audience reaction and emotional response to the action of his film. It also provides another powerful artistic medium for the expression of screen ideas. The possibilities are practically unlimited, but, as in all such cases, there is a great temptation to go overboard and use color just for the sake of using color.

This should be avoided, since it is only by careful selection that any device gains force. A composition which too sharply calls attention to its *color*, loses attention from its *action*. A relatively neutral setting in which only one or two small areas show bright color will be much more effective than a scene in which many brilliant colors battle for attention.

In close-ups, for instance, natural flesh tones should set the key for the scene. Exaggerated make-up or jewelry will detract more than they add. Close-ups outdoors should be filmed in open-shade or on a cloudy bright day, as direct sunlight is rather harsh for such close-ups. Sufficient reflectors should be used to fill the shadows, and the direct rays be diffused by placing a scrim of netting between the sun and the subject. In such close-ups, it is also wise to

(Continued on Page 104)

## At Last! — A Professional Type COMBINATION Sunshade & Filter Holder



Compact, simple to assemble or dismount, the entire Sunshade-Filter Holder and 2 filter holders which are supplied are precision-made of non-corroding metals.

For E. K. Cine-Special, Bolex, Filmo and other fine 16mm cameras. It resembles the professional 35mm type Sunshade-Filter Holders and Matte Box generally used with professional 35mm cameras.

Designed for use with all popular types of 16mm cameras, the "Professional Junior" Sunshade & Filter Holder holds two 2" square glass filters, also a 2½" round Pola Screen with handle which can be rotated for correct polarization. By using our "Professional Junior" Sunshade & Filter Holder you will not require filters of various sizes as the 2" square filter will cover all lenses from 15mm to 6" telephoto.

The Sunshade-Filter Holder is supported by a double arm bracket. This attaches to a plate which you can fasten on to the base of your camera where it can remain at all times if you desire. The Sunshade-Filter Holder is demountable into 3 small units which, when not being used, fit into your camera carrying case.

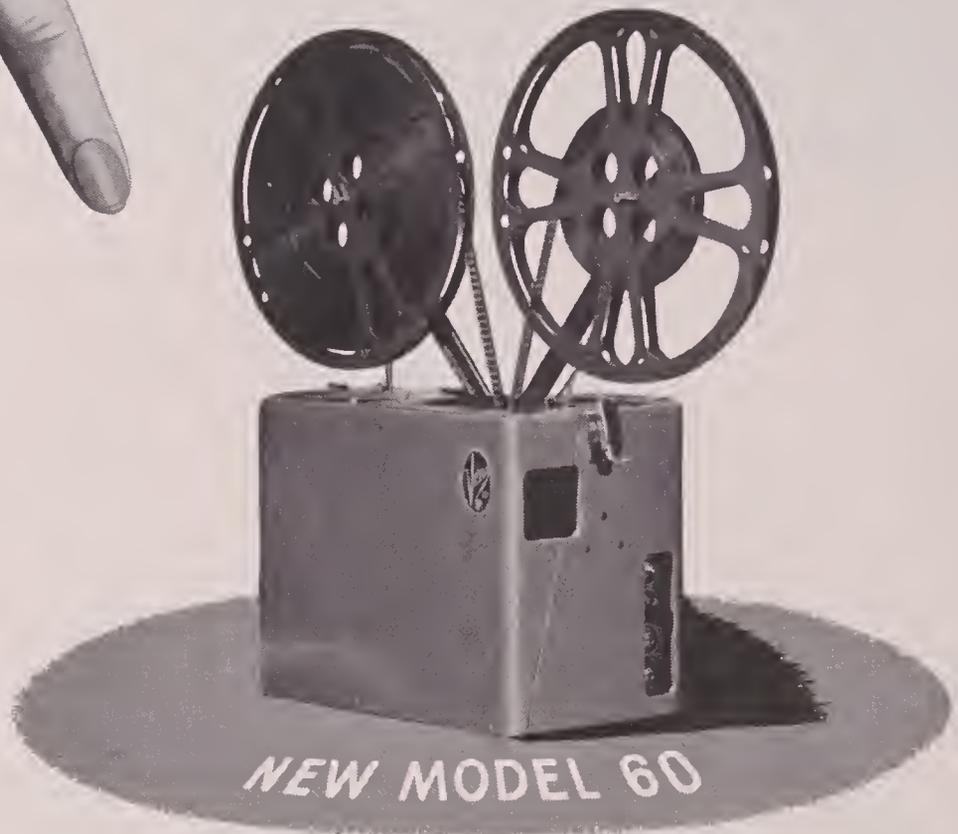
Manufactured exclusively by the makers of "Professional Junior" Tripods and other fine camera accessories. Order your Sunshade & Filter Holder today. Ask for our complete catalog.

FRANK C. ZUCKER

**CAMERA EQUIPMENT CO.**

1600 BROADWAY NEW YORK CITY

# 1947 Victor Triumph



## 16mm sound motion picture projector

AN INNOVATION in 16mm sound projector development . . . the new, sleek Victor "60" combines modern design and many new mechanical improvements. It is truly the finest 16mm sound projector today.

As smart in appearance as today's airplane luggage—with its light-weight, aluminum case and matching speaker — the Model "60" further affirms Victor leadership in the 16mm equip-

ment field. As far ahead as its striking appearance are the new engineering refinements which provide greatest simplicity of operation and peak performance.

You'll want to be up-to-date on this newest and greatest development in 16mm sound motion picture projection — truly a 1947 VICTOR triumph. Write today for details on the new Victor "60".



## VICTOR

### ANIMATOGRAPH CORPORATION

A DIVISION OF CURTISS-WRIGHT CORPORATION  
Home Office and Factory: Davenport, Iowa  
New York • Chicago  
Distributors throughout the World

MAKERS OF MOVIE EQUIPMENT SINCE 1910

# Sea, Sand and Summer

By James R. Oswald



The popular daydreamer.

**O**BSERVATIONS among groups of serious-minded, but less advanced home movie enthusiasts, usually reveal that the one thing most sorely lacking in the average amateur screen production, after the basic fundamentals of good movie photography have been grasped, is *continuity*, or the careful *knitting together* of otherwise seemingly unrelated shots to form an interesting sequence or story-telling series of pictures. Taken for granted, then, that the essentials of proper exposure, composition and lighting technique have been fairly well mastered, we are sure to be confronted with the question by the novice cameraman, "Well, just what constitutes good continuity?"

The answer is almost as simple as the question, when one stops a minute to think about it. Life, itself, is continuity. Borrow a few pages from life's diversified progression of events, film them as they are *lived*, and you have continuity in the finest form. It's as easy as that.

Let me cite a typical example, which might well be a part of anyone's daily diary.

A favorite source of diversion, for instance, and I dare say a universally accepted one, is that little outing so often hastily gotten together on the spur of the moment. You know the kind, I'm sure. You glance out of the open bedroom window some bright, sunny morning upon arising, take a deep breath of the fresh, invigorating outside air, get that feeling the world's not such a bad place after all, and decide it's a swell day for a picnic. Without much hesitation, you dash over to the telephone, call up a few old friends, and maybe a few new ones, ask them how they'd like to join you in a little fun fest, and they enthusiastically agreeing, things are started humming. If it's a real old-fashioned basket picnic you delight in, you're sure to enter into the spirit of the occasion wholeheartedly, making it "Dutch Treat," each one bringing his

own lunch, the movie minded members of the party not forgetting their cameras, of course.

After everybody has been rounded up, with the roll call taken, you board a streetcar or bus, or perhaps the family auto, and begin the short jaunt into the country. Even while traveling, your photographic eye can't help interpreting that beautiful blue sky, sprinkled with fleecy white clouds, in terms of color on your own movie screen, long after this day of days has become but a memory.

Arriving at your destination, it's just about lunch time, and since even an ambitious cameraman can't put forth his best filming efforts on an empty stomach, you quickly hunt up a secluded spot of your very own, and proceed to lay out the victuals, which all are anxious to partake of. (Funny how the country air always gives one such an appetite!)

After the last cup of steaming hot coffee has vanished, followed by the cus-

(Continued on Page 100)



Summer day—brisk breeze—pretty girl.



The typical sun bather.



Annoying sand in shoes.  
(Posed by LaVerne Meyer)

## Acme Installs Latest Film and Sound Printers

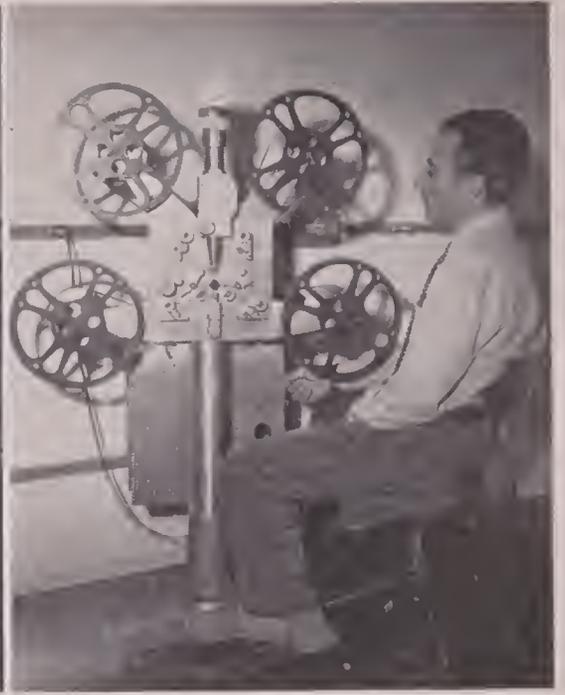
Acme Film Laboratories of Hollywood, specializing in 16 mm. film processing and color printing, has applied two new pieces of laboratory equipment to the field, which it is felt will radically improve the quality of narrow gauge movies.

The first of these is a new type automatic picture printer. This instrument is a fully automatic production printer, which has the additional and very desirable feature of allowing each scene of a cut color original to be color corrected. The movement of this printer is of conventional design, transferring the negative and print stock from feed to take-up continuously and in contact past the printing aperture. The control of the intensity and color quality of the light passing through the aperture are design features which show marked deviation from current engineering practice.

An opaque disc which revolves immediately before the fixed light aperture meters the amount of light which reaches the film. Slots of varying depth are cut in the periphery of this disc, and thus the volume of light passing through the aperture is changed. The disc is rotated by a solenoid which is energized through a microswitch that is closed or opened by notches placed in the negative.



Non-slip sound printer.



Picture printer.

Color correction of individual scenes is achieved by placing a transparent disc upon which correction filters are mounted and matched to the proper scenes behind the opaque exposure disc. Both discs revolve together, thereby placing the right slot and filter combination in front of the light aperture for each scene.

The second piece of equipment which is now in use at Acme is a 16 mm. non-slip sound printer.

The design of this printer is based upon well established principles that have brought 35 mm. sound reproduction to such high standards of quality. The actual printing is done by contact over a freely rotating drum, whose motion is filtered by a flywheel action. This avoids slip and flutter caused by printers that employ sprocket wheels.

Early tests show that this printer

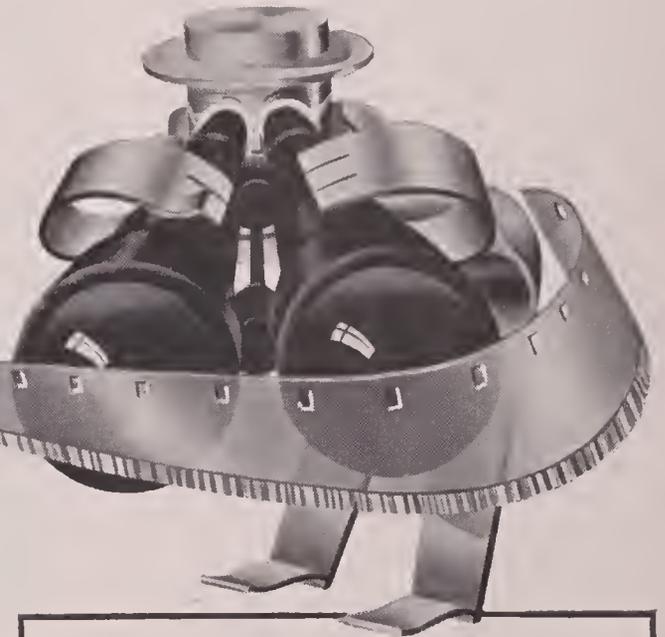
(Continued on Page 100)

# TAKE A GOOD LOOK\* AT THE FONDA DEVELOPER

\* Especially the Fonda Driving Principle

When you are in Hollywood stop at 6534 Sunset Boulevard for a good look at the Fonda Film Developer. Ask every possible question about the patented *Fonda driving principle*. That's the vital part of any film processing equipment, and we welcome comparison of Fonda's unsurpassed method of regulating film tension.

When you own a Fonda you are equipped to process any type of film at almost any speed range :- 35 mm, 16 mm, color, black and white, positive, negative, reversal or microfilm. Write for details.



FONDA FILM PROCESSING  
EQUIPMENT DIVISION

# SOLAR

## STAINLESS PRODUCTS

Sales office: 6534 Sunset Blvd.,  
Hollywood 28, California • Factory: San Diego

## Sea, Sand, Summer

(Continued from Page 98)

tomary smoke or Coke while enjoying the serenity of the surroundings, you're ready for a little afternoon fun, be it a quiet hike through winding woodland trails, a refreshing swim in cool, challenging waters, or a hearty gallop on horseback, inspired by that real rural atmosphere. The beach is near by, all in favor say "aye," and, unanimously, you start the short trek over to the sun baked sand of the lake shore. On the way, however, you stop off long enough to change from leisure togs to bathing suit, and you're all set for a whirl of merriment and movie making.

For the alert cameraman there's plenty of action, lots of thrills and excitement in swimming, itself, to be sure, but today you're out for something *more*. You've tired of that old run-of-the-mill routine, and this time want to liven up those films with a new slant on things, a true *human interest approach*. So, turn your attention away from the water for awhile. Over there on top the hill, for example, a pretty and vivacious young feminine member of your party is making her appearance. What a shot for a camera loaded with color film . . . that maroon bathing suit she's wearing, white towel overhead flapping vibrantly in the breeze, golden sand sprouting with sprigs of green wild growth at her feet, all contrasted by Nature's own velvety blue sky backdrop!

And 'tis the wise movie maker, indeed, who will recognize the possibilities in featuring such a comely young miss throughout his filming activities for the day, now that she's been so amiably introduced to his future screen audiences. (The professionals are well aware of the importance of having a leading character, or characters, to "show" the fans through what might otherwise be just a mediocre miscellany of unrelated sequences. Who is more capable of tying such shots together than a lovely young lass, like the one you are already acquainted with?) Quickly, then, you ask her to accept this leading role. Modestly at first, and perhaps with a blush, she agrees to accommodate, for what girl doesn't secretly feel flattered to be the spotlight of attraction?

With inquisitive bystanders taking in every move, camera crew and "cast" nonchalantly go about their business of making better movies. Donning costumes to fit the occasion, the talented lady friend portrays with equal finesse the typical sun bather on a sultry day, the annoyance of sand in a beach walker's shoes, and the popular "daydreamer," sprawled out full length, drawing in the sand.

See how easy it is? One thing just naturally leads to another, and before you know it, you've got ideas galore. And for a superb climax, as evening shadows fall, if Fate provides one of those picturesque sunsets, be sure to top off the reel with a shot of your beautiful young glamor girl.

## Acme Printers

(Continued from Page 99)

can resolve 16 mm. sound track of better than 6,000 cycles without loss of sharpness. This, of course, far exceeds the frequency range of contemporary commercial projectors but it is hoped that these will be improved in the near future.

Other features of the non-slip printer include reversible running direction, photoelectric light intensity control, and a variable width printing slit which may be used for handling color or dye sound track.

## Victor Special Training For Service Men

Victor Animatograph Corporation is providing factory training for service and repair men of its distributors throughout the country in order to provide most efficient servicing of Victor projectors and equipment. Course, covering two weeks period at the factory, embraces detailed instruction on all steps in manufacture and assemblage, and proper methods of servicing equipment. For maximum results, trainees are enrolled in small groups at various intervals.

# Cameraflex

announces

## The All-Purpose 35mm Camera

THE CINEFLEX, a light, compact, motor-driven, hand-held or tripod-mounted 35-mm camera for every motion picture use.

Ideal for location work, the camera, including 24 volt motor, 200 foot film magazine, film and three lenses, weighs but 12 pounds.



JAMES SEELEY, A.S.C.  
*Directory of Photography*

For further information write for your free copy of

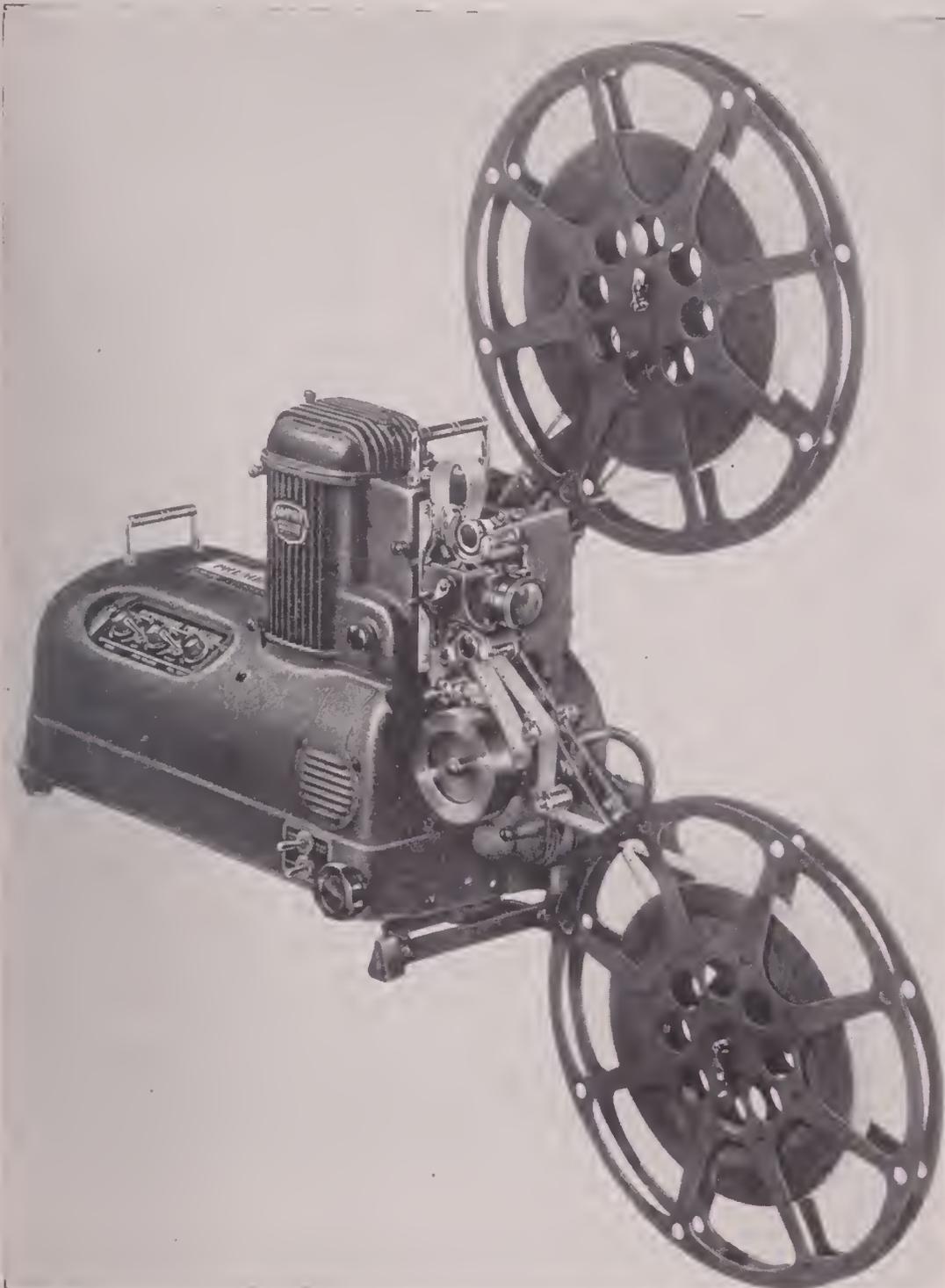
*The Cineflex Camera*

# CAMERAFLEX CORP.

630 Ninth Avenue  
Cable Address: Photoments

New York 19, New York  
Circle 5-7240

## Premier 20—New Ampro 16mm Sound Projector



A new sound-on-film 16 mm. projector, compact and easily portable for home use, as well as for classrooms, industry and average sized auditoriums, is announced by Ampro Corporation of Chicago, a subsidiary of General Precision Equipment Corporation of New York. It is the "Premier-20," heralded as the finest sound-on-film projector employing an incandescent lamp as a light source to come from Ampro, an impressive introduction in itself, considering the company's decade of pre-war experience in building 16 mm. sound projectors, plus their war record of supplying the armed forces with many thousands of projectors.

One of the exclusive new features singled out for particular emphasis is the new swing-out gate. It permits easy inspection and cleaning of aperture plate and pressure shoe without disturbing the focus of the projection lens. Other convenient features incorporated in the

extremely simplified design are: Long-wearing roller sprocket shoe assembly . . . opens and closes automatically with the film gate for easy, quick threading . . . also can be operated individually without disturbing the film gate . . . quick-centering tilting control knob . . . fast automatic rewind.

Ampro "Premier-20" is equipped for both silent and sound film speeds, still picture and reverse operation, with switches readily accessible on a centralized control plate. Coated super 2-inch Fl. 6 lens is standard equipment, easily replaceable by either 1, 1½, 2½, 3, 3½, or 4 inch coated super lenses. This sound projector gives brilliant illumination with standard prefocused lamps, up to and including 1000 watts.

The sound optical system projects light from the exciter lamp directly through semi-cylindrical lens, eliminating mechanical slit and mirror. Amplification is of high quality, with tone control for

crisp speech reproduction. Latest design 12-inch Jensen permanent magnet dynamic speaker has wide tone range and adequate capacity for moderate sized auditoriums.

Amprosound "Premier-20" operates on 50-60 cycles, 105-125 volts A.C. Use with converter on D.C. current for amplifier only. Projector motor operates on either A.C. or D.C. Complete unit includes projector, speaker, lens, lamps, 1600 ft. reel and standard accessories. New luggage type projector case and speaker case are also supplied.

### SMPE Spring Convention in Chicago April 21-25

Society of Motion Picture Engineers will hold its 1947 spring convention at the Drake Hotel, Chicago, April 21st to 25th. It will be the first midwest convention of the organization for several years due to the restrictions prevailing during wartime.

The Chicago location will enable many members and others interested in professional and amateur motion picture photography and related techniques to attend the technical sessions. A fine program of technical papers is being arranged by the Papers Committee comprising Gordon A. Chambers, chairman, and vice chairmen Herbert Barnett, N. L. Simmons, and R. T. Van Niman. A. Shapiro functions as local arrangements chairman, while W. C. DeVry will take charge of luncheon and banquet arrangements.

### Golf Events Filmed For Television

Camera crews of Telefilm studios of Hollywood recently filmed highlights and stars of the several major golf tournaments held on the Pacific coast via 16 mm. After speedy development and editing, the reels were planed to New York for broadcast over various eastern television stations.

#### 35MM CAMERAS

Arriflex Cinephon, Bell & Howell Standard and Eyemos, Akeley, Debie, Neumann-Sinclair, Mitchell, Cineflex.

#### 16MM CAMERAS

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# AMONG THE MOVIE CLUBS

## New York Metropolitan

Regular February meeting was held on the 20th, at which time contestants' films in the 1947 Novice Contest were screened for voting by the members present.

In addition, film program included: "The High Sierras," by Alice Burnett; "El Turista," by F. C. Embshoff; "Along Our Western Trails," by H. Hensel; "El Rancho," by Mary Jessop; "Honeymoon Wanderings," by Joseph Laxer; "Holland," by Frances Mussett; "Aquarelle," by Marshall Nutt; "Vermont Calls," by C. L. Spaulding; "A Sap's Fable," by John P. Steele; and "Mexican Bull Fight," by Jacob Weiser.

Supplemental meeting, on February 5th, was designated as an Open House session. Instead of the usual procedure of having general session, several separate groups huddled around the room for general discussions on specific problems and subjects. Joseph Harley displayed his new Cine Kodak Special, and answered general questions; with Joseph Hollywood attracting a group to look over a Bolex 8. John Hefeles also attracted members who wished to get the lowdown on lenses, and shoot questions about the new Norwood exposure meter. This idea of small discussion and question huddles seems to be a fine one which might be adapted from time to time by the larger clubs which have a number of experts who can preside at the individual huddles around the room. Looks like many members would be inclined to ask more questions in such small huddles, rather than in general meetings.

## Los Angeles Eight

Talk and demonstration of sound recording on paper strips, with sound track tape accompanying a member's film, was the outstanding attraction at the February 10th meeting of Los Angeles Eight mm. Club, held at Arden Farms Clubhouse. The paper sound recording method, because of its inexpensiveness, holds promise for adding sound accompaniment for 8 mm. subjects. In addition, several of the 1946 annual contest winning pictures were shown.

## San Francisco Cinema

Cinema Club of San Francisco held its regular monthly meeting on February 18th at the Women's City Club, at which a splendid program arranged by Ben Nichols was presented. Highlight was a talk on coated lenses by Rudy Arfsten, which was followed by film program including: "Yosemite in Winter," by Nichols; "Flowers of Exotic Beauty," by Leon Gagne; and "Handweaving," by M. L. Dreyfous.

## Southern Cinema

Eighth annual banquet of Southern Cinema Club of Los Angeles County was held on evening of January 25th at Knott's Berry Place, with 88 members and guests attending. Installation of officers for the coming year took place following dinner—the new officers being: president, John McCollum; vice president, Zenon Bonowic; secretary, Paul Moscoe; and treasurer, Gladys Van Winkle.

Club contest pictures, which were judged by members of the Montebello Camera Club with Estelle Gratay as chairman, resulted in the grand sweepstakes award going to Zenon Bonowic for his "A Bum in Yosemite." First prize in the 8 mm. division went to George Wellington for his "Summer—1946."

In the 16 mm. group, John McCollum won second prize for "Grand Canyon," and John Berkey drew third award for "Mail Call." Second prize in the 8 mm. division was awarded Walter Cummins for his "Christmas, 1946," while Doris Wellington took third with "Nature's Miracles." All winning entries were filmed in kodachrome, and the first two prize winners in each group were shown to top off the evening; along with sound-color films of the Bikini atom bomb tests.

## Lumms Camera Club

Pierre Lambert has been elected group chairman for the re-activated movie group of the Lumms Camera Club, New York. Membership of the latter is composed of camera enthusiasts associated with the Lumms Company. The club's movie division will be held separate from the others—on the fourth Thursday of each month, with initial session slated for February 27th when "Camera Equipment and Technique" will be discussed. Initial contest is set for June 5th, with subject of "How I Spent My Week-end." Edited lengths of 75 to 125 feet are required from all entries.

## Los Angeles Cinema

Capacity crowd of 400 attended the February meeting of Los Angeles Cinema Club held at the Ebell Club. Member Stanley Midgely showed his "Free Wheeling in Utah Parks," a prize winning entry in the Union Pacific amateur photographic contest of last year. Midgely detailed the personal experiences of a bicycle trip through Zion and Bryce Canyons, and his comments during the unreeling provided plenty of laughs.

"Treasure Trove of Jade," produced for the National Geographic Society, and Pare Lorents' "The River," were also shown at the meeting—latter two for member study of the technique of travelogue and documentary films.

## Brooklyn Amateur

Winners of the 1946 film contest of Brooklyn Amateur Cine Club are: 16 mm. division; "Safari," by Charles Benjamin; "Vacation With Pay," by Irving Gittel; and "Virginia," by Fred Ursini. 8mm. division; "Barbara Sue Goes Camping," by Harold D. Cahn; and "Nutmeg Rambles," by Horace Guthmann.

Return visit of B. Erle Buckley—and an honorary member of the club—featured the meeting of February 5th, which was held at 1218 Union Street. Mr. Buckley spoke on "Composition," and illustrated by commenting on Charles Benjamin's "How Green Is the Earth." Also shown was an ACL library film, "Never Say Diet."

February 19th meeting was "guest night," and a splendid program of films was shown, including: "Indian Summer," by new member Bert Seckendorf; "Squeaky Kittens," by Walter Bergmann; "Life of a Fireman," by Harold Cahn; "Sketches From Colorado and Utah," by Charles Ross; and "Kaleidoscopio," by Dr. Robert Machado. "Squeaky Kittens" and "Kaleidoscopio," were "ten best" winners of 1946.

Announcement is made that the club's annual "Gala Night" will be held on April 25th at the St. Felix St. Playhouse, with program chairman Herbert Erles in charge of selecting the films to be shown on the program.

## La Casa, Alhambra

Fred Evans, member of the Los Angeles 8 mm. Club, presented his "How to Win Friends and Influence People" at the February 17th meeting of La Casa member, C. H. Thompsen, who Sharing honors of the evening was La Casa member, C. H. Thomsen, who showed his "Rambling Through British Columbia." Latter began in Vancouver in a trip north, and includes a forest fire, salmon run, regatta at Kelowns, and visit to a British Columbia trout hatchery at Girrad to display the world's largest rainbow trout.

## Philadelphia Cinema

Program of members' films featured the February 11th meeting of the Philadelphia Cinema Club, held at Franklin Institute. Pictures exhibited included: "New York World's Fair," by Elmer K. Esser; "Spring and Summer Plants," by Irwin P. Boeshore; "The Effect of Dye Stuffs on the Temperature and Rise of Fabrics Exposed to Light," by Richard B. Stehle; "Yellowstone Park," by Belford Neff; and "Canadian Rockies," by A. E. Nichols.



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**Ciné-Kodak Eight-25**

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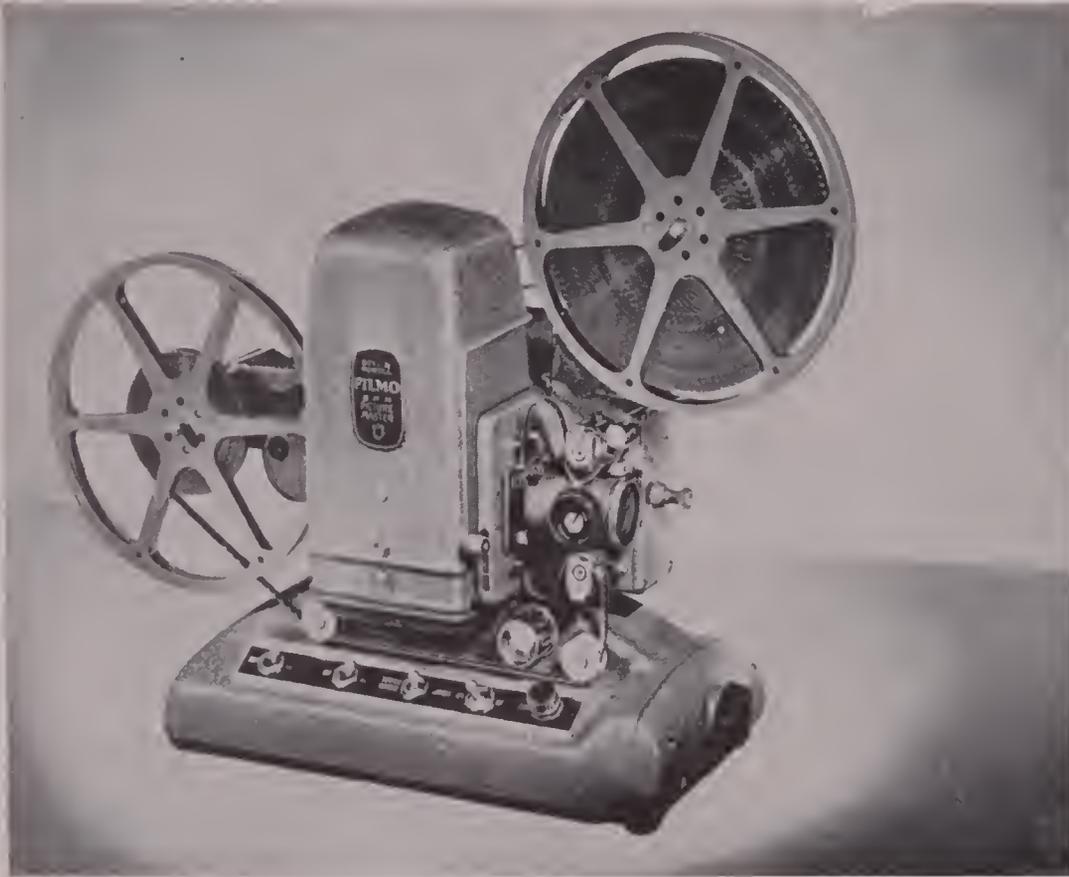


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## Bell and Howell's New 8mm Picture Master Projector



Promises of a rosy postwar era for 8mm. movie-makers have been fulfilled with the announcement of Bell & Howell's brand new Picture Master 8mm. projector, which embodies features never previously offered to movie amateurs. Tests have proven the new model to be unequalled in the 8mm. field for picture brilliance, it is claimed. Uninterrupted production has been achieved, and a steady supply—limited at first—will reach the market from now on, according to Bell & Howell production officials.

Appearing in the Picture Master for the first time in any movie projector is a base-up projection lamp. This design, it is claimed, results in maximum lasting brilliance. "A blackening deposit is formed during the operation of any tungsten lamp," explains B&H, "and in the base-up design, this substance is carried upward, out of the beam, before being deposited. Thus the side walls remain clear for the life of the lamp, and the full power of Picture Master's illumination always reaches the screen." Further, B&H states, the base of the lamp remains even cooler during operation than that of the readily-replaceable lamp of present Filmo projectors.

Another feature is the near-achievement of "light without heat" for single-frame projection, it is claimed. A new heat filter protects the film, yet permits single frames to be viewed with several times the brilliance obtainable with any other 8mm. or 16mm. projector.

Among the Picture Master's newsworthy assets are the following:

**750-Watt Base-Up Lamp.** Non-blackening. Slips into place easily—no screw sockets. (500-watt lamp can be used if desired.)

**Safe-Lock Sprockets.** Long exclusive with Bell & Howell, now available to Filmo 8mm. owners for the first time. Error-proof, positive threading; protection for the film.

**Centralized Control Panel.** Affords fingertip activation of motor, pilot light, lamp, speed, reverse, and rewind.

**Rewind.** A newly-designed take-up and rewind mechanism permits effortless re-winding of a 400-ft. reel in less than a minute.

**Reverse Projection.** Instantly available, for comic effects, or "back-tracking," so dear to the hearts of home movie audiences.

**"Stills" Shown With 40% of Running Brilliance.** Single frames are projected with new brilliance, in complete safety.

**Positive Focusing.** Needle-sharp pictures at the turn of a knob. Easy, instantaneous compensation for change between color and monochrome film.

**Hinged Lens Mount and Aperture Gate.** Entirely new design facilitates threading, makes aperture plate and gate readily accessible for thorough cleaning.

**All-Gear Forward Drive.** positive action, built for a lifetime.

**"Wind-Tunnel" Cooling.** Cool air is forced in:

- (a) Around the film, at the aperture.
- (b) Through the motor.
- (c) Between inner and outer lamp-house walls.
- (d) Downward around the lamp.

Side-position exhaust blows hot air away from operator.

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made, designed especially for the Picture Master.

**Die-Cast All-Aluminum Construction.** Can't warp. Light to carry.

**Self-Locking Tilt Mechanism.** Easily adjusted to the right angle—and it stays set.

In addition to the foregoing, the Picture Master has fixed-axis framing, hardened-steel sprocket teeth, and a superior optical system. Main bearings and encased gears are packed in lubricant and sealed. Three-point "metered" lubrication of other moving parts is simple.

The Filmo Picture Master comes complete with 10-ft. cord, 400-ft. reel, streamlined carrying case, and choice of 750-watt or 500-watt base-up lamp.

## AnSCO's Employee Bonuses

The 4,500 employes of AnSCO participated in distribution of a year-end bonus totalling \$260,000, according to announcement of E. Allan Williford, AnSCO general manager and vice president of General Aniline and Film Corporation. Amount is part of the \$625,000 fund voted as bonus for all General Aniline employes by the company's executive committee of the board of directors.

## Visual Aids Catch Attention of Educators

Unprecedented interest of educators in audio-visual aids is being shown by educators at various state teachers' conventions. This information is disclosed by Ampro Corporation, which has set up exhibits and demonstrations of 16 mm. equipment at various gatherings of educators.

## Cinema Workshop

(Continued from Page 98)

use a lens of sufficient focal length to throw the background somewhat out of focus, so that background colors and objects will not intrude into the main subject.

Color emphasis is important. The most brilliant color should be located at the most important point of action in the scene. If an unimportant element is brilliantly colored, it will steal emphasis of the scene away from that which is truly important.

It is a well-known fact that colors exert a powerful emotional influence. Yellow, green and blue are considered "cool," while purple, red and orange are considered "warm." Using colors with this factor in mind will help gain the desired emotional response from the audience.

In closing, it should be pointed out that color harmony is much to be desired in screen design. Complementary colors, such as red with green, blue with orange, etc., usually harmonize well, as do light and dark shades of the same hue used together.

NEXT ISSUE Part 10—Using Sound Effectively.

## B&H Owners Protected by Lifetime Guarantee

Believed to be one of the most liberal and specific in the industry, the lifetime guarantee on all Bell & Howell cameras and projectors is of genuine importance to those who own Filmos or who contemplate buying motion picture equipment. Regardless of the age of the equipment, it is pointed out, replacement parts will be supplied gratis if performance is affected by actual defects in material or workmanship. Furthermore, within 30 days after the equipment is purchased the company will absorb all labor costs involved in repair work covered by the guarantee.

Engineering officials of the company state that the liberal policy outlined has been made possible by careful choice of materials, meticulous training of shop personnel, and the application of quality control throughout the manufacturing process. The lifetime guarantee, it is emphasized, is part of the company's campaign to underscore the slogan, "That's What We Mean by Precision-Made."

## Fox Joins Radiant

John W. Fox has joined Radiant Manufacturing Co. as district manager for the southern states. Previously, he was a visual aids specialist with the government and a naval officer in charge of training and entertainment film distribution.

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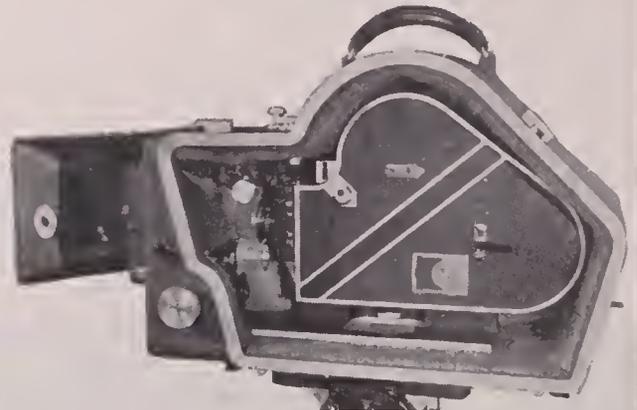
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This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The blimp has these exclusive features:

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- arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp
- pilot lights to illuminate lens calibrations and film footage indicator.

Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

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Tripods and Other Fine Camera Accessories.*



## Academy Nominations

(Continued from Page 83)

the final voting by Academy members, marks a change in procedure over practice of the past several years. Previously, five productions in each division were selected for the final selection whereby the ones receiving the highest number of votes were adjudged winners of the Academy Oscars. In limiting the candidates to only two in each division, Academy officials feel those voting will be able to concentrate consideration more closely.

As in the past, the two final candidates in each division were selected from all of the releases of 1946 by the entire group of Directors of Photography and members of the American Society of Cinematographers. Special screenings of productions nominated for cinematographic consideration were staged by the Academy during the past two months to provide each voter with an opportunity to make his own selections for the primary balloting.

### Outstanding Cinematographers

To those interested in the art of cinematography around the world, it is ad-

vised that these four productions be viewed and studied carefully as best examples of motion picture photography. Arthur Miller, ASC, whose "Anna and the King of Siam" is a finalist in the black-and-white division, is a veteran Director of Photography on Hollywood productions, and the winner of the Academy Award on two previous occasions—for outstanding photography on "Song of Bernadette" and "How Green Was My Valley." "The Green Years," by George Folsey, ASC, also was photographed by one of the topnotch Directors of Photography in the industry.

Charles Rosher, ASC, who shares joint credit as Director of Photography on "The Yearling" with Len Smith, ASC, and Arthur Arling, ASC, is a veteran of many years, and won an Academy Award designation in 1928 with Karl Struss, ASC, for "Sunrise." Smith is also a veteran of prominence, and last year was in the finals for his color production of "National Velvet." Arling, the junior in the group spotlighted, was an officer in the Navy during the war.

Joseph Walker, ASC, who gains recognition for Photographic Direction on "The Jolson Story," is also an outstanding cinematographer with many important productions to his credit.

## Heffernan's 10 Commandments of Movie Making

Leo J. Heffernan, of New York, whose accomplishments in amateur film making are nationally known, was recently asked by a movie group to outline his 10 commandments of amateur movie making. His most pertinent "10" are detailed for the guidance of those many movie enthusiasts who are continually striving to improve their films. Here they are:

Think in terms of movies, forgetting still photography. It is futile and wasteful to make color slides with your movie camera.

Have a central theme or plot, and strive to get a new or fresh approach to the subject.

Start your theme or plot with an idea that is thoroughly understood, and make each succeeding scene carry the story just a little further along a planned course. Do not let the interest lag even for a moment, and bring the story to a satisfying climax.

Avoid static shots unless their presence on the screen can be explained by the action of the plot. For example, a closeup of a flower is meaningless unless one of the persons in the film happens to come across it during a stroll or while visiting a greenhouse.

Do not spread your cine ideas too thin. Better a short movie than a weak theme dragged out for a full reel.

Never go over the same ground. If you show a particular kind of subject matter or develop an idea by means of a movie sequence, complete the sequence then and there. Don't jump around from one idea to another and then back again or your audiences will become bored and confused.

Keep your movie ideas neat—every sequence like a package. Present each bit of subject matter or incident, through intelligent photography and editing, so clearly that little is left to the imagination.

Surprise your audience once in a while, with a little unexpected twist in the theme or plot—but avoid hackneyed material or situations. Here is where the personality of a moviemaker shows up in his work.

Frame your movies in interesting titles.

Edit your movies to show the least interesting shots first, building up the interest-per-foot value until—at the end—your best shots are shown; and keeping in mind at all times that brevity is the soul of wit.



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**H**ERE'S a suggestion for getting better, more lifelike outdoor movies.

Pictures that tell your audience: "Here's a person who really knows how to handle a motion picture camera."

See how much brighter, more natural, your pictures are when you take them on Ansco Hypan Film.

There are reasons why they should be.

Hypan has a bright-contrast emulsion that just naturally puts glorious, sparkling brilliance in your pictures.

Furthermore, Hypan has fine grain—to give you clearer, sharper screen images. And Hypan's panchromatic sensitivity brings you richer tone values.

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8 and 16 mm

**HYPAN FILM**

# Current Assignments of A. S. C. Members

As this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A. S. C. were engaged as Directors of Photography in the Hollywood studios as follows:

## Columbia

Charles Lawton, Jr., "The Lady From Shanghai," with Rita Hayworth, Orson Welles, Glenn Anders.

Edward Cronjager, "Three Were Thoroughbreds," (Technicolor) with Robert Young, Willard Parker, Marguerite Chapman, Akim Tamiroff.

Burnett Guffey, "Assigned to Treasury," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vladimir Sokoloff.

Henry Freulich, "Major Denning's Trust Estate," with Gloria Henry, Paul Campbell, Harry Davenport, Mark Dennis.

## Eagle-Lion

L. W. O'Connell, "Repeat Performance," with Louis Hayward, Joan Leslie, Richard Basehart, Tom Conway, Benay Venuta.

## Metro-Goldwyn-Mayer

Hal Rosson, "The Hucksters," with Clark Gable, Deborah Kerr, Sydney Greenstreet, Keenan Wynn, Ava Gardner, Adolphe Menjou, Edward Arnold.

Charles Rosher, "Song of the Thin Man" with William Powell, Myrna Loy, Keenan Wynn, Jayne Meadows, Leon Ames, Patricia Morison.

## Monogram

Paul Ivano, "The Gangster," (King Bros.-Allied Artists), with Barry Sullivan, Belita, Joan Lorring, Akim Tamiroff, Henry Morgan, Fifi Dorsay.

## Paramount

Leo Tover, "I Walk Alone," (Hal Wallis Prod.) with Elizabeth Scott, Burt Lancaster, Kirk Douglas, Wendell Corey, Kristine Miller, George Rigaud.

Ernest Laszlo, "The Road to Rio," with Bing Crosby, Bob Hope, Dorothy Lamour, Gale Songergaard, Frank Faylen, Joseph Vitale.

Fred Jackson, Jr., "Albuquerque," (Clarion Prod.-Pine Thomas) (Cinecolor) with Randolph Scott, Barbara Britton, George (Gabby) Hayes, Russell Hayden, Lon Chaney.

## PRC

Jackson Rose, "Stepchild," with Brenda Joyce, Donald Woods, Terry Austin, Gregory Marshall.

Jack Greenhalgh, "Too Many Winners," with Hugh Beaumont, Trudy Marshall.

## Republic

John Alton, "The Trespasser," with Dale Evans, Janet Martin, Warren Douglas, Adele Mara, Douglas Fowley, Grant Withers.

## RKO

Frank Redman, "If You Knew Susie," with Eddie Cantor, Joan Davis, Allyn Joslyn, Sheldon Leonard, Douglas Fowley, Sig Ruman.

Robert de Grasse, "Indian Summer," with Alexander Knox, Ann Sothorn, George Tobias, Myrna Dell, Florence Bates, Sharyn Moffett.

Harry Wild and W. Howard Greene, "Tycoon," (Technicolor) with John Wayne, Laraine Day, Sir Cedric Hardwicke, Anthony Quinn.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Prod.) with Cary Grant, Loretta Young, David Niven, Monty Woolley, Marsha Anne Northrop.

## Selznick

Lee Garmes, "The Paradine Case," with Gregory Peck, Ann Todd, Charles Laughton, Charles Coburn, Ethel Barrymore, Louis Jourdan, Joan Tetzl, Leo G. Carroll, Colin Hunter, Valli, Lester Matthews.

## Twentieth Century-Fox

Leon Shamroy, "Forever Amber," (Technicolor) with Linda Darnell, Cornell Wilde, Richard Greene, Glenn Langan, George Sanders, Leo G. Carroll, Margot Grahame.

Charles Clarke, "Miracle on 34th Street," with John Payne, Maureen O'Hara, Porter Hall, Philip Tonge, James Seay, Edmund Gwenn, Gene Lockhart, William Frawley.

Joseph LaShelle and Arthur Arling, "Captain from Castile," (Technicolor) with Tyrone Power, Jean Peters, Cesar Romero, Lee J. Cobb, John Sutton, Antonio Moreno, Thomas Gomez, Alan Mowbray.

Charles Lang, "The Ghost and Mrs. Muir," with Gene Tierney, Rex Harrison, Edna Best, Robert Coote, Natalie Wood, Isobel Elsom, Victoria Horne.

## United Artists

Karl Struss, "Heaven Only Knows," (Nero Films) with Robert Cummings, Brian Donlevy, Jorja Curtright, Marjorie Reynolds, Bill Goodwin, John Litel, Stuart Erwin.

Franz Planer, "Vendetta," (California Pictures) with Domergue, George Dolenz, Hillary Brooke, Nigel Bruce.

James Wong Howe, "Body and Soul," (Enterprise) with John Garfield, Lilli Palmer, Hazel Brooks, Ann Revere, William Conrad.

## Universal-International

Stanley Cortez, "Secret Beyond the Door," (Diana Prod.) with Joan Bennett, Michael Redgrave, Natalie Schafer, Rosa Rey.

William Daniels, "Brute Force," (Mark Hellinger Prod.) with Burt Lancaster, Hume Cronyn, Charles Bickford, Sam Levene, Jeff Corey, Ann Blyth, Ella Raines, Yvonne De Carlo.

## Warners

Ernest Haller, "The Unfaithful," with Ann Sheridan, Zachary Scott, Lew Ayres, Steven Geray, Eve Arden, Peggy Knudsen, John Hoyt.

Woody Bredell, "The Unsuspected," (Michael Curtiz Prod.) with Joan Caulfield, Claude Rains, Audrey Totter, Constance Bennett, Michael North, Hurd Hatfield.

Karl Freund, "Wallflower," with Joyce Reynolds, Robert Hutton, Janis Paige, Edward Arnold, Barbara Brown, Don McGuire.

## Lenten Films Available Through United World

United World Films, which recently acquired the Bell & Howell Filmosound library for distribution of 8 and 16 mm. films, reminds that a number of special Lenten subjects are available for bookings through its offices.

List includes: "Journey Into Faith," "First Easter," "Crown of Thorns," "Jesus of Nazareth," "Passion Play"; and the "I Am the Way" series of 13 silent subjects edited from "The King of Kings."

## New! TELEFILM'S "Lok-On" Flange



Used by Leading Hollywood 16mm Editors and Producers for Editing and Re-winding

It's Telefilm's latest 16mm. time saver! Sides are of heavy gauge clear plastic. Engraved footage scale on inside surface shows amount of film on spool. One side removable--so you save time by slipping on film without winding. Nothing ever like it for winding short lengths of film into coils quickly, without endangering emulsion surfaces. Outer side has specially-made locking device, allowing removal of film by means of a simple lock. Core takes standard lab pack spools, fits a standard 16 or 35 mm. rewind.

### TRY IT 10 DAYS - MONEY BACK!

May be purchased complete, 8 inch size \$17.50 or 9 1/2 inch size \$18.50, or the face side with spool may be purchased separately at half above prices. Immediate delivery. Use it 10 days then money back if not delighted.

## TELEFILM INC.

**HOLLYWOOD 16mm HEADQUARTERS**

6039 Hollywood Blvd., Hollywood 28, Calif.

## The Zoomer Lens

(Continued from Page 87)

which later could be matched to the sound track without the need of special editing. The Zoomar lens has proved extremely useful in other fields also.

It is easy to imagine the difficulties of a cameraman covering a session of the United Nations Assembly, or any other formal meeting, from the press and film gallery. Very often, long sequences of one speaker are required and with only one camera available, the exchange of lenses on a turret-camera head is not rapid enough to assure an uninterrupted flow of pictures of the speaker.

A variable focus lens fitted to the camera will guarantee an absolutely continuous picture flow and achieve the vividness and variety of closer and wider shots which up to now were only a cameraman's dream. The same goes for the filming of any official functions, such as the inauguration of a president, the celebrating of High Mass in a cathedral, or of any scene where the solemnity of the occasion makes it impossible for the cameraman to weave around for closer or wider shots. In such situations, one cameraman has the possibility of filming from one fixed position, both the main celebrities of the event and the public as the use of the Zoomar lens makes it unnecessary for him to change the position of his camera.

While filming great sports events the newsreel cameraman may find himself in a similar situation. The exchange of lenses or the turning of the turret head of the camera often requires refocusing or resetting of the stop, which means considerable loss of time. A football or a fast tennis game can be filmed in a more vivid, more interesting, and more satisfactory way if the Zoomar lens is used. Thus one focusing gives a sharp definition of the picture for any position of the focal lever and no changing of the stop is necessary because the relative aperture remains unchanged throughout the zoom.

In spite of its versatility the Zoomar lens was by no means designed to replace the other camera lenses now in use. Its main purpose is to serve in situations where other lenses or other technical means would fail; or where their performance would be inferior to that of a varifocal lens. A cameraman specializing in the travelogue field will encounter many such situations. Filming historical buildings he will want to show architectural details such as the interestingly sculptured capitals of columns, antique clocks, weather vanes on interestingly sculptured columns of capitals, antique clocks, weather vanes on church steeples, or gargoyles, etc., but for obvious reasons it would be impossible to make such close-ups. Abrupt

transition from an ordinary overall view to a telephoto shot would make the whole thing confusing as these details are generally too small to be detected on overall shots. The gradual transition by a zoom shot not only guides the attention of the spectator to that particular detail, but it also shows him where this detail is located. A 36 times enlargement of a detail will generally be sufficient even if the building to be filmed is across a river, or situated upon an inaccessible hill top.

The same problem arises in educational pictures of all kinds. It is a standard practice to draw attention to important details by close-ups. But such a close-up tells only half the story if it does not show how this detail fits into the whole.

In industrial pictures another factor has to be considered. The customer who commissions these pictures usually does not wish to incur the additional expense of stopping the work in his factory and having the workers pose for the cameraman. The latter, therefore, usually has to work while work at the plant is in full swing and is thereby greatly handicapped in his movements. It is certainly a boon if he can zoom from long shots to close-ups of machinery and processes without getting too close to the workers, endangering himself, or obstructing the flow of work.

In the production of geological and other nature films, situations may occur in which it would be desirable to show the inside of a crater, the bottom of the Grand Canyon or similar inaccessible spots. The Zoomar lens, with its telescopic extension, makes it possible to render in large size any desired close-up of a geological formation.

The spectator of such scenes will permanently keep in mind the exact location of such a detail and will be conscious of its proportions, its correct size and its relationship to the whole phenomenon.

The Zoomar offers nearly unlimited possibilities in the field of trick-shots and special effects. A rapid zoom taken from a high roof top with a camera tilted downward gives the impression as if the cameraman were falling from great heights, an effect which can hardly be achieved otherwise. On one occasion the script required a pilot's view of a dive bomber going into a dive. The shot was first taken from an actual aircraft, the cameraman sitting beside the pilot. These pictures proved to be a complete flop because during all the tries the cameraman either "blacked out" completely or got so excited that he forgot to operate his camera properly and at the right time. Finally, the shot was taken from the top of a high stationary structure and the dive simulated by co-ordinated tilting of the camera and operating of the zoom lever;

the result could not be distinguished from the real thing.

The foregoing example shows a deviation from one of the basic rules of orthodox camera technique, namely, that every camera movement has to be slow and steady; this rule was broken to simulate the impression of falling, diving and so on. But the unorthodox, rapid, even hasty zoom itself is a powerful tool to express dynamic definite emotions like fear, terror, anxiety, etc., especially in the field of the modern artistic films. These films try not so much to give a photographically faithful record of actual happenings but to convey the mood and impressions of the protagonists.

In animation and cartoon work the Zoomar lens will be greatly appreciated for the many shortcuts which it offers.

The same problems which confront the motion picture cameraman are also encountered in another field which is still in its infancy; television. Here, the situation is aggravated by the fact that the video equipment is much clumsier than the motion picture camera and cannot be as easily moved around. Everything previously said about motion picture work, especially newsreel and documentary reporting applies to an even greater extent to telecasting. A varifocal lens similar to the motion picture Zoomar but adapted to the special needs and conditions of television work is now in preparation.

Thus, when video takes its rightful place beside stage, screen, and radio it will have the necessary tools not only electronically but also optically to live up to any situation which may arise.



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## "13 Rue Madeline"

(Continued from Page 89)

of No. 1 photofloods rigged off a battery were set up inside the car to boost interior illumination. During the scene, the car actually went rolling down the street with the cameraman grinding away at the scene. The result was perfect, and there was not an actual process shot in the whole picture.

Night scenes were filmed mostly in the day time, being heavily filtered and later printed down in the lab. The climatic chase sequence, however, was actually filmed at night, contrast being achieved through the use of small arc lighting units.

Throughout most of the picture, Plus X negative film stock was used. In sequences where not enough light was available, however, Super XX was substituted. 20th-Fox's New York lab, which developed all of the negative, effectively balanced these two emulsions so that they could be freely intercut without any fluctuation in quality.

The success of the three *news dramas* which have thus far applied the documentary style to feature films has inspired Twentieth Century-Fox to use the technique on strictly fictional themes as well. There are several such stories on the current schedule, notably the novel, "Spoonhandle" which will be shot in New England locations this spring.

From this start, and through the continued efforts of producers like Louis de Rochemont, we may hope to see a new forceful realism added to the glossy technique of the American photoplay.

## 35 mm. Film Found

Three cans of 35 mm. film, consisting of a 2,000 foot can of negative, and two 1,000 foot cans of positive—all claimed to have been found in a lot—are in possession of the Camera Mart, 70 West 45th Street, New York 19, N. Y. The positive comprises scenes of American Indian country in Arizona or Montana, in addition to shots of a rodeo. Possible owners of the film should contact Camera Mart, properly identifying ownership of reels in hand.

## Newsreel Cameraman

(Continued from Page 90)

places we were passing over; his voice recorded exceptionally well, considering the drone from the motors. We were later complimented on the quality of the negative and sound, and were informed that these were the best night shots made over New York up to that time.

Our first jungle assignment was in Hyderabad, where our camera was placed on a platform built in a tree at a 15-ft. elevation. The microphone was set where we hoped a tiger would make an appearance to kill a water buffalo or cow. This continued for nearly three months with only partial success—the tiger refused to co-operate.

We then moved to the native state, Cooch Behar, north of Calcutta. The Mahareni of Cooch Behar was very co-operative and we made several tiger hunts from elephants. In all we had 32 elephants. We were more successful on this enterprise. On our first trip into the jungles the two elephants mentioned before had quite a battle over a maiden elephant, and that nearly ended our hunt before we even got to our jungle location, but the mahouts appeased the elephants.

About 20 elephants would form a large circle and drive in any tigers or other animals that were encircled in the ring toward the fire line where we, the Mahareni, and her guests were set up. Our first drive netted a huge black bear with two cubs clinging tightly to their mother's back. The huge bear came out of the jungle so close to my camera elephant that he became startled and reared back on his hind legs, and in turn gave me quite a scare not knowing whether he would crash back on me and the equipment. The elephant finally settled down and surprisingly enough we had some very good pictures with sound of the elephants trumpeting wildly and loudly. The Mahareni's guests made no attempt to shoot the bear because it is not considered sportsmanlike to shoot a mother bear with cubs.

In our next beat-in, we rounded up a leopard, and the following day we rounded up a large tiger weighing nearly 400 lbs. This is really a sport of kings as one has to be an invited guest to take part in a hunt of this nature.

In April, 1930, we returned to Calcutta. The city was in an uproar. The Ghandi riots had started so instead of returning to New York we shot a lot of material in Calcutta, and then proceeded to Bombay where the fighting was more intense. We made thousands of feet of riot pictures.

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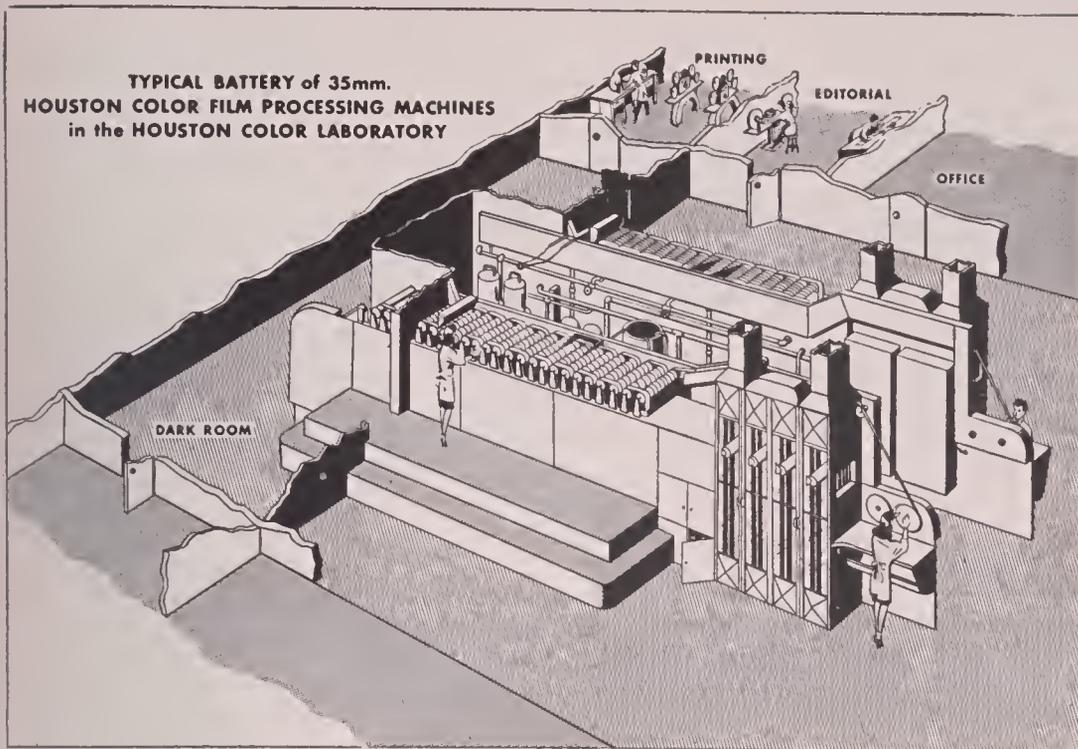
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## New Houston Laboratory for Ansco Color Processing



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The pent-up demand by the public for more major film productions in full color is now closer to realization with the announcement that Houston Color Laboratories are now equipped to render complete Ansco Color Film processing, printing, editorial, and duplicating services at the Houston Color Laboratories in Hollywood. Houston is the first and only laboratory to qualify to do the complete service job for the motion picture industry on Ansco Color Film. Judged in terms of new volume of full color release prints available for national and world-wide markets, this announcement is of major significance to the film world.

Arrangements have been made through Ansco for a large quantity of raw film to be available to Houston for high quality production of release prints for motion picture producers. H. W. Houston, president of The Houston Corporation, has announced that the new laboratory facilities include a complete service of printing and processing to be made available to professional, amateur, industrial and educational film users.

Firms which may wish to place large orders for duplication of slides, advertising films and advertising projection strips, are assured rapid duplication in any quantity desired. In an interview at the color laboratory, executives outlined this complete service now available to the motion picture industry. Camera material can be processed rapidly and prints made therefrom. Intermediate editorial special effects such as lap-dissolves, wipes, fades, and blow-ups are among the services to be rendered by Houston. Development of a special printing machine makes it possible for Houston to deliver high quality color release

prints complete with sound. The service will be augmented by blow-ups to 35mm. from 16mm. original color film which can be made and duplicated in quantity for general release.

The color processing service on Ansco 35mm. for amateurs will be continued

at Houston Color Laboratories, together with mountings of all finished transparencies in the popular plastic slide holder developed and manufactured by Houston. Reproduction of slide films is available in either 35mm. single or double frame size. This duplication of 35mm. mounted transparencies is being done relatively inexpensively as compared with previous methods because of the refinements in processing and printing equipment, and therefore becomes an important factor to both professional and amateur color film users.

Houston has invested over 2½ years in experimentation and refinements in color printing and processing in close collaboration with Ansco Color technicians. Much credit is given by the industry to the high quality Ansco Color processing technique developed at Houston, and much is anticipated as a result of this new facility for the motion picture industry. A broad section of the film industry is expected to take advantage of this new source of color reproduction. This marks the beginning of a new era for both professional and amateur fields.

The accompanying illustration shows a typical battery of 35mm. color processing machines in the Houston Color Laboratories.

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## Composition

(Continued from Page 86)

the line of a woman's back: "A curve in which the most perfect beauty resides is one midway between the swelling curves which are pompous and extravagant, the flatter ones which produce an effect of stiffness." This ideal curve is also termed the "Calypgian Line."

True beauty in composition does not lie in the practice of extremes. We should be warned against swinging into an easy curvilinear composition. The basis of the scene should lie in the straight lines which a succession of interrelated spots can suggest. Gentle curves, not violent ones, may then be inserted to temper harshness.

### Direction of Line in the Frame

A line in motion pictures may traverse the screen *vertically*, *diagonally* and *horizontally*. Direction in most composition is not achieved from a single line, but rather from the *average direction* of a group of lines.

### Vertical Line

Vertical line can stand alone in composition. It requires no support to maintain balance. It embraces those qualities upon which we treated in our discussion of the sides of the frame. We do not believe that this beautiful and architecturally solid line is used in modeling

as much as it might be. The straight shadow of almost every wall and door in most picture productions is angled with a chopper, meat axe or gobo.

### Diagonal Line

This line is essentially one which conveys movement. If we treat this line statically and without support it challenges our sense of gravity and leaves one with a feeling of falling and unbalance.

### Horizontal Line

This line we associate with reclining and restfulness. Connected usually with the bottom of our frame it is basic, stable.

### Tricks with Line

We may give almost any direction to our composition by varying the camera angle. Shooting from overhead, tilting to one side, shooting from a very low position, all manipulate line in our frame in any manner we may desire. *Why* we assume these angles and the motivation for this manipulation is discussed in a later section dealing with dynamic composition. At present we are concerned only with the pictorial design of the single static shot.

### Composition in General

Balance in motion pictures is a bit more complex than balance in still photography. In pictures involving move-

ment we may have static unbalance, but because of the action in the scene and the direction it may take in the frame we have dynamic balance to offset this seeming discrepancy. Balance is derived from correct distribution of tone areas, or quality elements, from line and direction of line, and from placing and spacing in the frame.

Variety may be termed the "spice of life" in the world of reality. It is also the spice of the picture in the cinematic illusion. It is the little detail in the shot which has been given a modicum of attention. It is the piquant lighting of some doorway, or arch. It is the halation of a glass or a pool of water. These seemingly insignificant things add pleasurable interest.

Conversely, we must not have too much variety or divertimento. We must adhere to a certain sense of order, rhythm and symmetry. We must project a certain continuity of line and accents.

Last but not least, we must restrict ourselves to principality of theme. The artist Reynolds, in his discourse, on painting, propounded: "Every man that can paint at all can execute individual parts; but to keep these parts in due subordination as relative to the whole, requires a comprehensive view of art that more strongly implies genius than any quality whatever." There must be no doubt as to the principal unit of the picture. Give the audience no competition for its attention.

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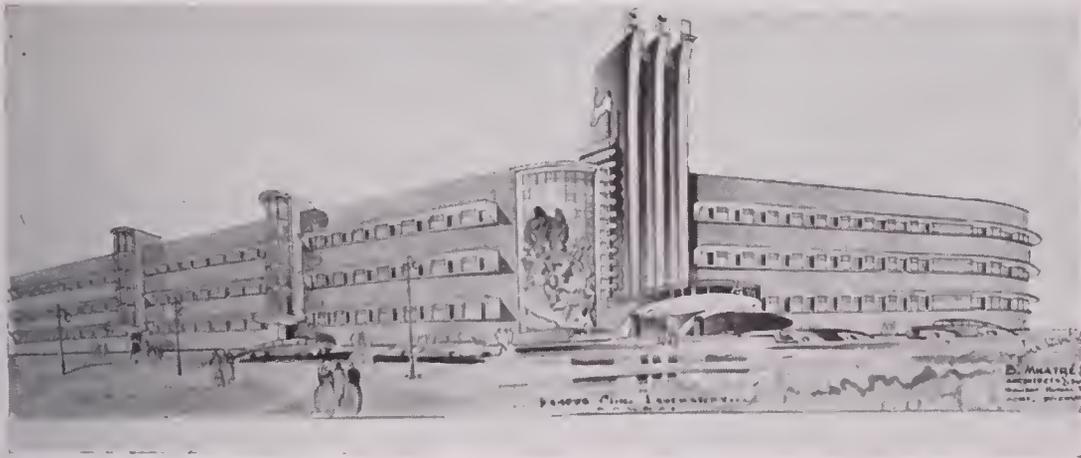
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# Modern Laboratory and Studio at Bombay



Indication of the progress of the film industry in India, and the large amount of American film processing and production equipment used, is contained in description of the Famous Cine Laboratory and Studios of Bombay. Technical advisor D. R. Billimoria of Famous Cine, who has been in the United States for some time studying latest production methods and purchasing modern equipment, supplies the information on the Bombay plant.

Fireproof building, three stories in height, covers an area of 1,005,000 square feet. It contains stages, 200 rooms, six projection rooms, 36 film editing rooms, and complete roster of general production departments. Building is completely air-conditioned by Westinghouse.

Printing room contains six Bell & Howell printers, two DePue sound reduction printers, two DePue picture reduction printers, 12 DeBrie French-manufactured super matipo 35 mm. printing machines. RCA sound recording equipment is used throughout.

Camera equipment includes three Mitchell BNC and two NB Mitchells, five Bell & Howells, two Super-Parvos (French), and background projectors made by Mitchell Camera Co. All lights, wire junction boxes and high-intensity arcs were supplied by Mole-Richardson Corp.

There are four 35 mm. equipped projection rooms, all equipped with RCA projectors; and two 16 mm. projection

rooms having Bell & Howell high-intensity arc lamp equipment.

Laboratory, with processing capacity of 3,000,000 feet weekly, contains eight 35 mm. positive developing machines, four 35 mm. negative developing machines, four sound developing machines, two 16 mm. developing units—all of which are of American manufacture. In addition to processing film for 42 Indian producers, Famous Cine handles dupes and prints for several major American distributors to cover the Indian print requirements.

## New RCA Recording Studios Opened in New York

RCA Film Recording Department has opened enlarged and renovated scoring and recording studios at 411 Fifth Avenue, New York City. Added studio space will allow for dubbing of foreign language versions of American productions; in addition to narrative, sound effects and music scoring of both 35mm. and 16mm. films.

## Long Service for Victors

During the past two years, two Victor Animatophone projectors have run a total of 6020 hours for showings of entertainment films to British troops in India. This information is provided by Sergeant C. Edwards, serving with British forces in Panagar, Bengal, as a motion picture operator.

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## New Officers Elected By Victor Animatograph

Samuel G. Rose, associated with Victor Animatograph Corporation since latter's formation in 1910, has been promoted from executive vice president to president of the company. He succeeds Alexander F. Victor, who resigned the presidency and its attendant executive and administrative responsibilities to devote his full time to supervising and directing the development of new products included in the company's recently-adopted expansion program.

Victor Animatograph, purchased last year by Curtiss-Wright Corporation, has long range plans for the design and manufacture of new and improved models of 16 mm. projectors and cameras to meet increased demands for such equipment. Horace O. Jones, with the organization since 1932, has been promoted to vice president.

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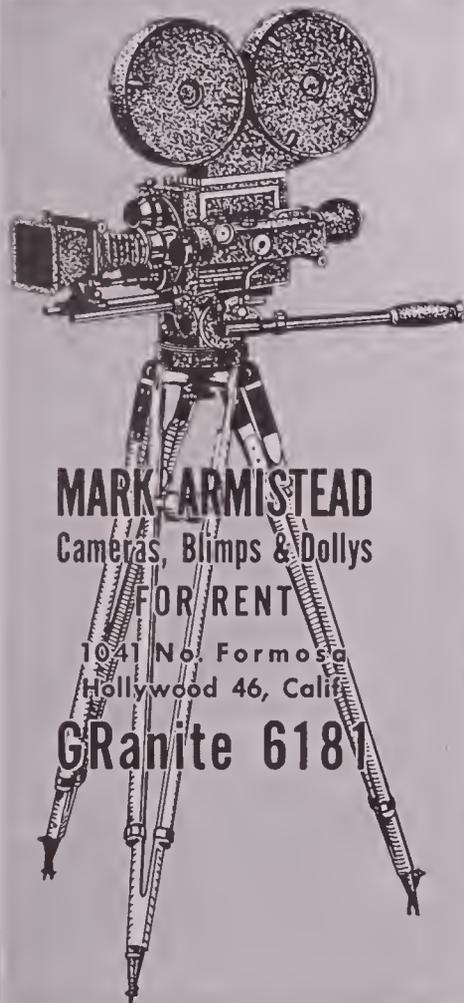
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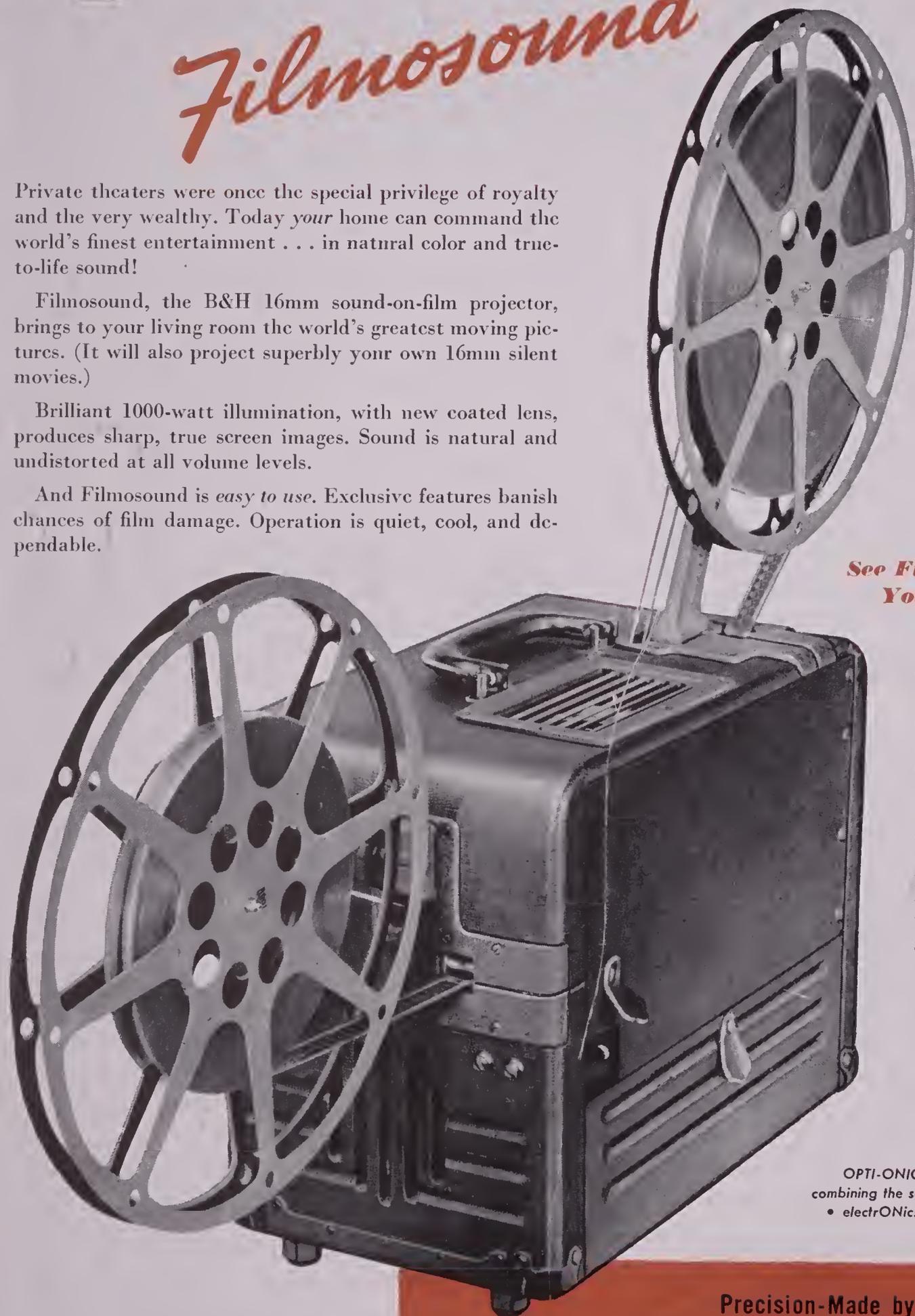
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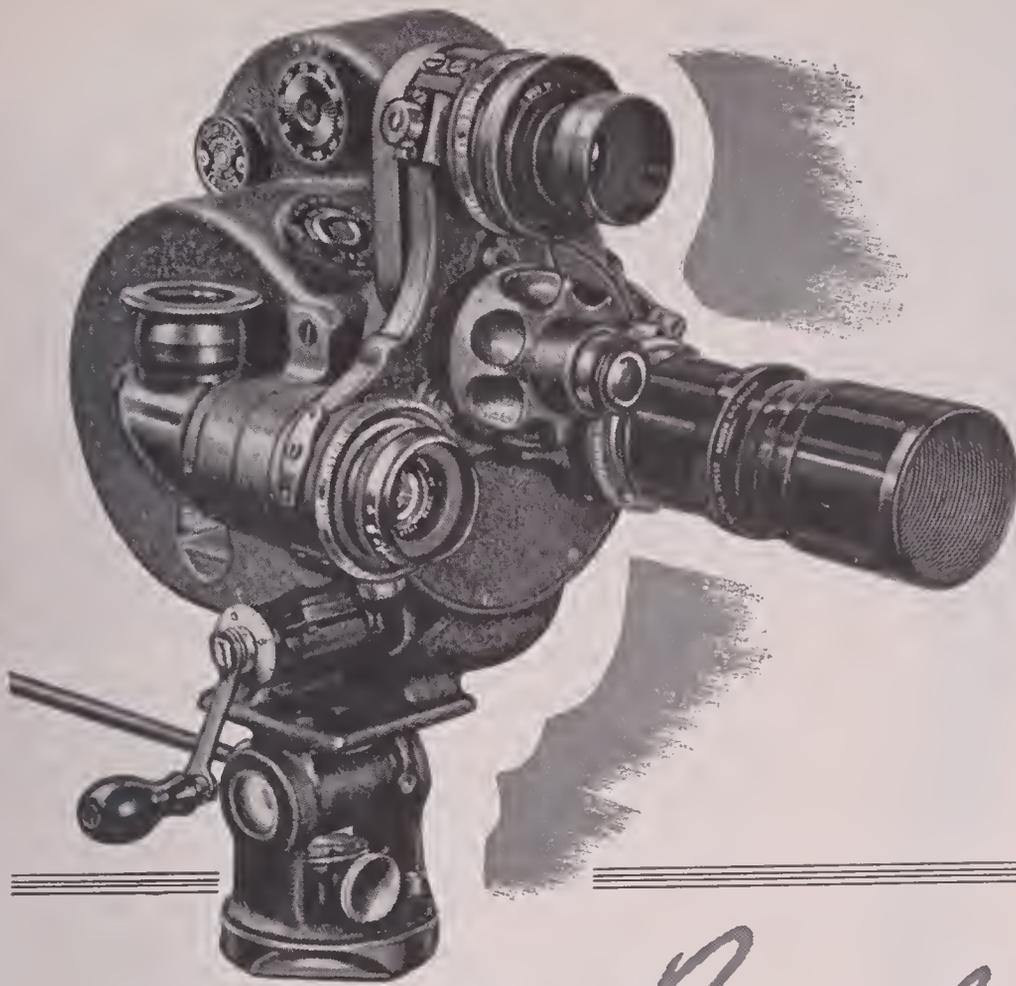
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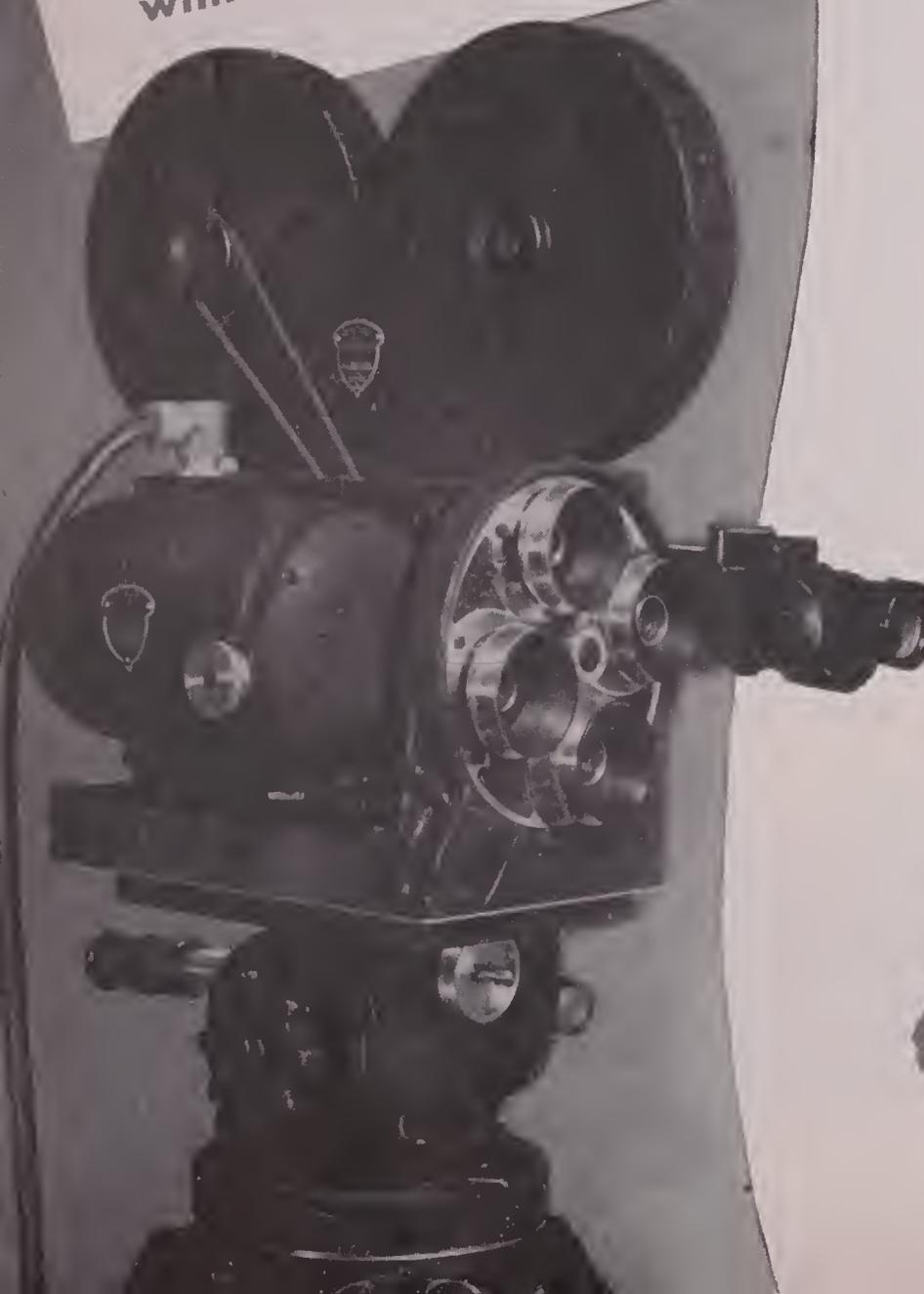
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

APRIL, 1947

NO. 4

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ON THE FRONT COVER—On location at Jasper National Park, Canada. Director of Photography George Barnes, A.S.C., and Director Billy Wilder atop an electric camera crane for an overhead shot for the Paramount production, "Emperor Waltz," starring Bing Crosby. Photo by G. E. Richardson.



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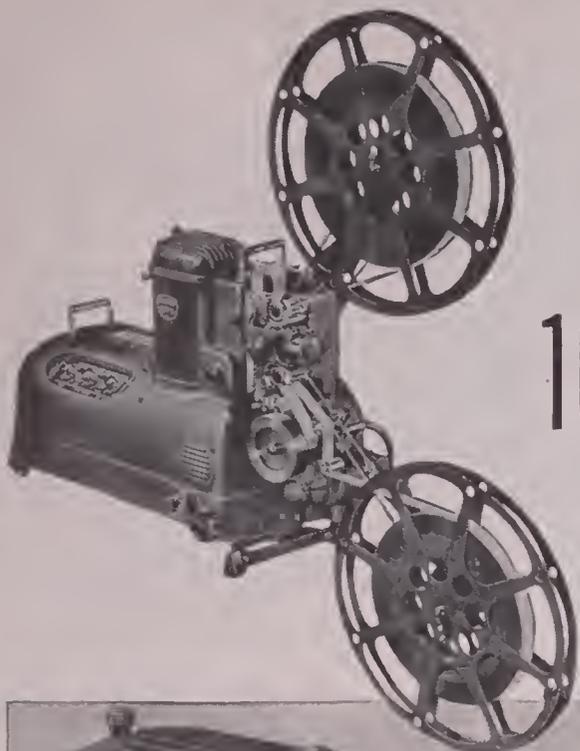
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AUSTRALIAN REPRESENTATIVE  
McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

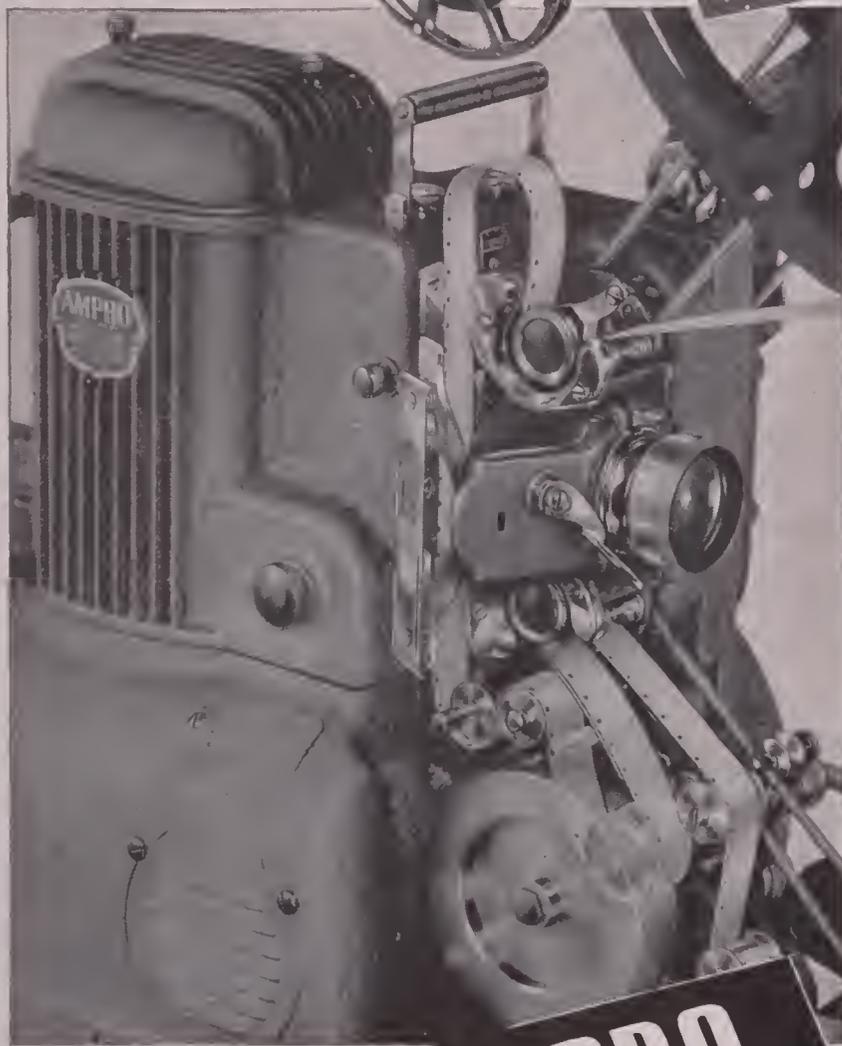
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**W**HEN Wilfrid Cline, A. S. C., joined the Technicolor camera staff late in 1934, he had no idea that the association would project him into the most important development of motion picture photography since the inception of the industry.

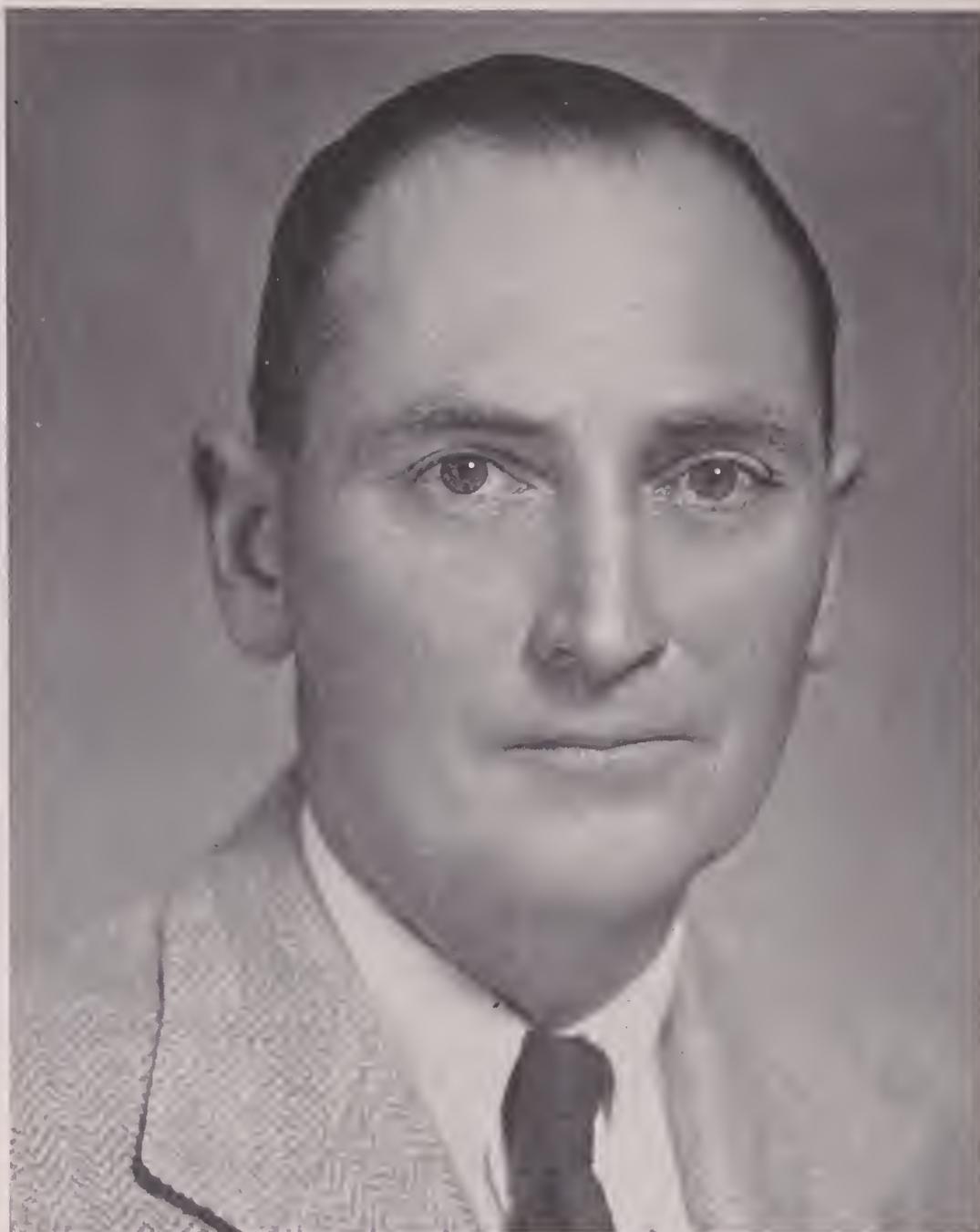
At the time, Technicolor had perfected a three-color method of motion picture photography, in contrast to the previous two-color systems. As a marked advance in engineering and technique, it opened new and broader fields for the men delegated with the responsibility of photographing the initial productions turned out by the tri-color process. But the challenge was successfully met by Ray Rennahan, A. S. C., veteran cinematographer on the Technicolor staff, who handled the job of Director of Photography on "La Cucuaracha," the first live-action featurette produced by the three-color Technicolor process. Will was operative cameraman on this picture, and the first Technicolor feature, "Becky Sharp," which also had Rennahan as Director of Photography.

But in the middle of the latter production, he was drafted to hike out to Guatemala and Mexico to photograph a group of James Fitzpatrick Traveltalks for Metro release. During the next several years, and in between his feature assignments on Hollywood productions, Will photographed about 20 additional Technicolor reels for the producer in Japan, Hawaii, Mexico and in various parts of the United States. Group of such pictures produced in 1941 by Fitzpatrick gained him a special citation from the Mexican government.

Following return from his initial trip to Mexico, Will mainly handled second units on feature productions, including "Garden of Allah," "A Star Is Born," "Robin Hood," "God's Country and the Woman," and "Nothing Sacred." for the latter, he handled the first Technicolor camera for shooting from the open cockpit of an airplane. As a result of the success achieved on this assignment, he became virtually the aerial camera expert on the Technicolor staff, handling the flying camera work on numerous productions—most outstanding of which was Paramount's "Men With Wings." On the latter, Paul Mantz and his camera-wise pilots carried Will through hair-raising dives and turns to photograph the scenes required by the sometimes too-imaginative script writers.

As a result of his ability to take off for far places with film, camera equipment, and one or two assistants, and return with footage to meet the requirements of the producer, Will has traveled and flown extensively. In fact, he keeps a bag packed at home continuously for a quick pickup on dashes to the train or plane for photographic assignments in any part of the world.

This propensity for photographing pictures away from Hollywood and the conveniences of the studios, started early in Will's career as a cinematographer. He was headed for college upon gradu-



## ACES of the CAMERA

WILFRED M. CLINE, A. S. C.

By ROE FLEET

ation from high school when a summer vacation stint as assistant cameraman on several westerns so intrigued him with the art of cinematography that he decided to pass up college and study photography by practical experience. He caught on as an assistant cameraman at Universal, where the chores were mainly manual labor of lugging the camera, tripod, and other equipment over the hills and desert for the shooting of westerns and serials. In those days, the cameraman loaded his own film, and started out at seven in the morning for a 12 to 16 hour day. But Will's apprenticeship paid dividends, as he was shortly promoted to the post of second cameraman—set-

ting up his camera beside the regular one to grind off a negative for foreign release purposes.

Later, he grasped the offered chance to take charge of the Akeley camera to add to his education in proper maneuvers of the gyro-headed instrument for running and quick pan shots which, at the time, could not be secured by the regular cameras of those days. Universal had acquired the Akeley No. 45 and No. 47 machines, which had been used by the U. S. Signal Corps in World War I; which were used mainly for location work on westerns and serials; and one highlight trip of Will's was to the Pen-

(Continued on Page 149)

# Cameraman's Director

By Herb A. Lightman

**T**O a world of American moviegoers, Alfred Hitchcock, British-born director of hair-raising drama, is known as the "Master of Suspense"—creator of such fine film fare as "Rebecca," "Foreign Correspondent," "Shadow of a Doubt," "Spellbound," and "Notorious." But to the even more critical audience behind the camera: the technicians and grips and electricians, he is known respectfully as a *cameraman's director*.

This is no small distinction. In an industry where temperament is standard

equipment and directors are portrayed as fire-breathing monsters, it is somewhat refreshing to find one who not only is the personification of calm, but is also recognized by his fellow technicians as an especially co-operative co-worker.

Ever since cinematographers stopped cranking their own cameras, isolated director-cameraman relationships have been something that Hollywood would rather not talk about, due to the fact that several notorious feuds have arisen out of what should be a sweetness and light amalgamation of talents. Very

often, a domineering director with inadequate technical background will insist that the camera be handled *his* way, chewing on the backdrop if the cameraman dares to move the instrument as much as a foot either way for better composition.

There is no such hanky-panky on a Hitchcock set. "Hitch" (as his associates call him) is the kind of director who considers the camera first, and then plans his action to match. If he finds that the mechanics of the camera are limited in achieving the effect he has in mind, he will restage the action to conform to these limitations, rather than force a strained camera approach. Yet, he remains one of the industry's outstanding camera experimentalists. The reason why he so often manages to place pure cinema on the screen is that he designs the layout of each scene mainly from the standpoint of what is required for good camera presentation.

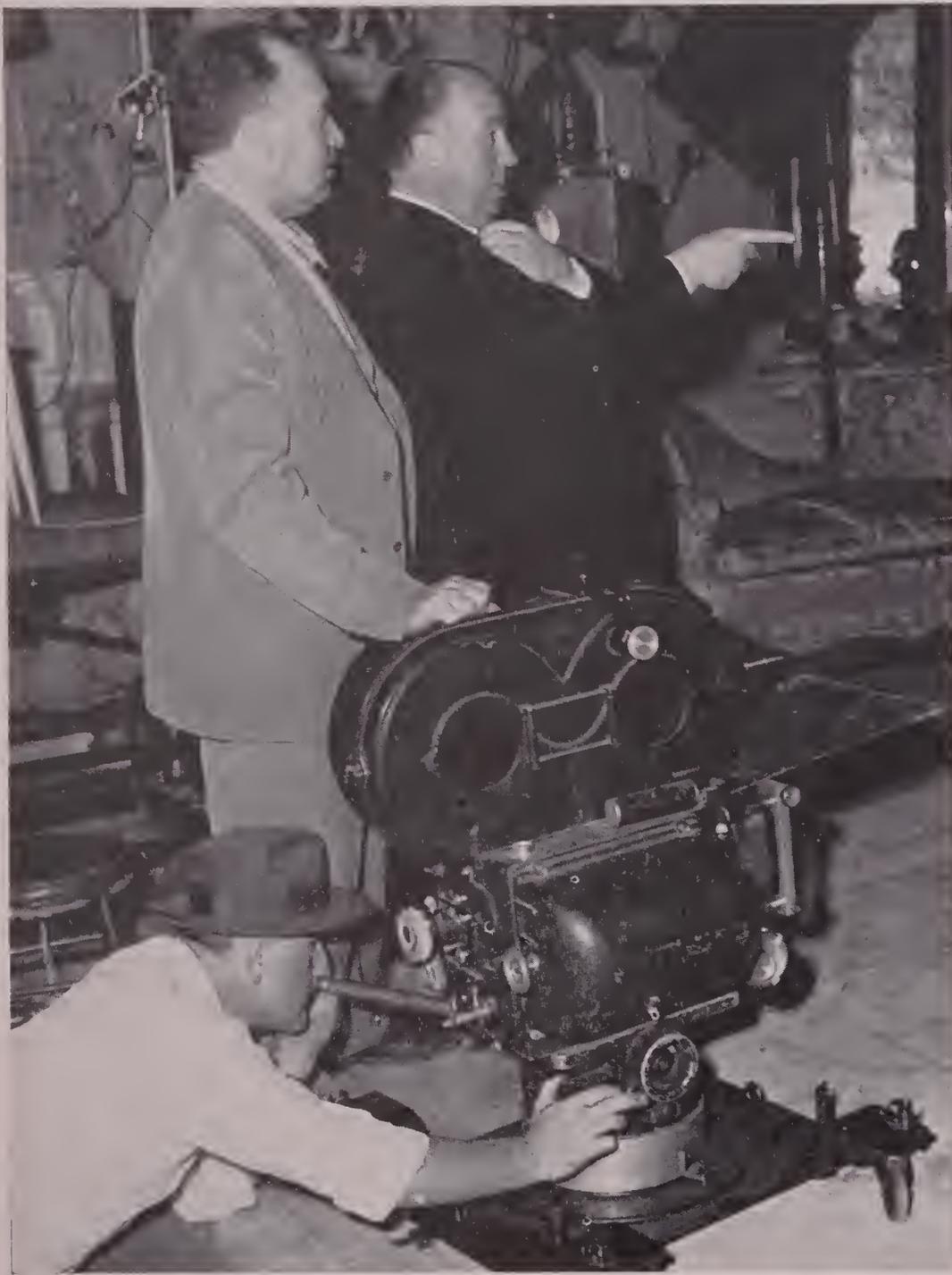
## A Matter of Background

Hitchcock's acute sense of camera is the blended result of his early training in art and engineering. The "art" side of his education developed a keen consciousness of pictorial composition, whereas the "engineering" phase trained him to express dramatic action in terms of a mechanical medium.

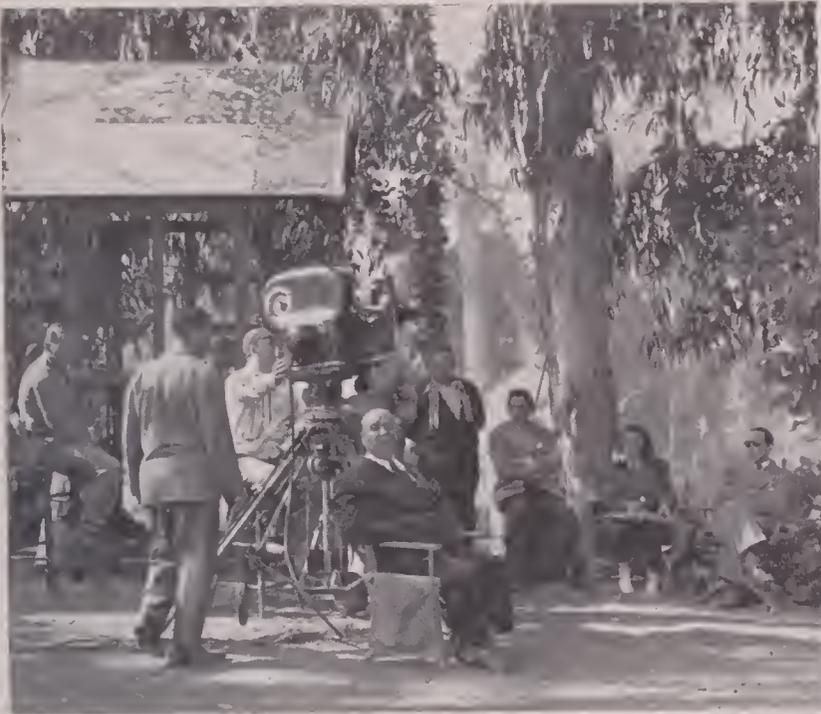
His first job in the British film industry was as designer of art titles. By 1923 he was performing the triple task of art director, script writer, and assistant director. He had no particular ambition to assume directorial reins, but he was often asked to coach second units, and was finally sent to Munich to direct a film in German. He toiled away on the continent and ten weeks later returned to England with eight cans of film which he carried in his luggage sandwiched in amongst shirts and socks.

It was on this German picture that he met his future wife. Alma Reville. A pert young assistant director with a background as script girl, writer and cutter, she had entered the film industry before he did. Finding that they made beautiful movies together, Hitch proposed and thus became the only director on record to marry his assistant director. When asked if his courtship had been a whirlwind sort of affair, he responded dryly, "Well--no. It was rather like a long *lap-dissolve*."

Before coming to Hollywood, Hitchcock had become the undisputed top director of the British screen. He had shocked the usually calm English audience into a state of pleasurable pins and needles with such suspense thrillers as "The 39 Steps," "The Lady Vanishes," and "Secret Agent." It was inevitable that Hollywood should beckon—and so,



Director Alfred Hitchcock (right) discusses a camera set-up with Director of Cinematography Lee Garmes, A.S.C., on the set of David O. Selznick's "The Paradine Case," now in production. The operating cameraman, flat on the floor in the foreground, jockeys the camera into position for a super-low angle shot. Garmes' "mood" photography in this film is outstanding.



In the midst of the usual chaos before the "take." At least one unruffled soul, Director Alfred Hitchcock (seated, center) sits calmly by waiting for last minute preparations. "Hitch" never raises his voice, directs the most violent action as if he were ordering tea and crumpets in a cafe.



Director Alfred Hitchcock, British-born "Master of Suspense" lines up a camera angle on the set of his current production. So well does Hitchcock know the mechanics of camera and lens that he never has to look through the viewfinder to check the photographic field that is being covered in the shot. Training in art and engineering helped develop his fine sense of camera.

in 1939, under contract to David O. Selznick, the "Master of Suspense" discovered America—and vice versa.

#### Films Without Tears

The Hitchcock approach to picture-making is a monument of thoroughness. While the film is still in the planning stage, he works out camera treatment with the cinematographer. Together they decide what kind of mood is to prevail in each sequence, and what visual techniques will be used to point up the action.

"It is the task of the director in cooperation with the cameraman to arrange the elements of the scene into the most dramatic possible composition," he points out, "But the real chore is to constantly change compositions without the audience realizing it. This calls for a mobility of camera keyed to the action, so that the elements of the scene can be shifted around in a changing pattern."

On the set, just before a new set-up is made, Hitch checks with the cinematographer on the camera approach to the scene. He may make one of his famous quick compositional sketches if he has a particular effect in mind—but he stops right there, and lets the camera crew go about setting up the scene. When they have made their set-up, he glances at the camera position and gives his O.K. for rehearsal. There is no fuming and fretting about camera angle. So perfectly does he know the mechanics of camera and lens that he never has to look through the viewfinder to check the field that is being covered.

The calm way in which he goes about making pictures is in sharp contrast to the nerve-shattering suspense which he manages to produce on the screen. He sits calmly in his canvas-backed chair, quietly surveying the scene and making casual suggestions to the Director of

Photography and the actors from time to time. He speaks in a low British-accented voice, directing the most violent action as if he were ordering tea and crumpets at *Claridge's*.

But all of this seemingly *blasé* calm on the set is the result of the most exhaustive preparation. It takes Hitchcock 8 to 10 months to prepare a picture. He memorizes the entire script. So perfectly does he have the overall production in mind that the shooting phase is almost routine. When asked by the author how his current production was progressing he replied, "Oh . . . we're grinding it through the machine."

#### The Camera and Cutting

Hitchcock considers camera movement part of the cutting or *montage* of the film, and uses it forcefully when the dramatic situation calls for a fluid approach—but he insists upon proper motivation, being distinctly opposed to camera movement merely for the sake of movement.

In "Rebecca" he included a variety of follow shots in order to emphasize the lonely vastness of Manderley. In "Foreign Correspondent," a somber spy drama, he let the camera move about and peer into out-of-the-way places in order to let the audience in on situations purposely withheld from the characters. In "Notorious" he *zoomed* from a long shot of a crowded ballroom into a super close-up of a key held in a character's hand.

He considers each scene, not only from the standpoint of composition, but with a definite eye for how smoothly it will cut into the rest of the picture. Having his overall continuity so well in mind, he can photograph only what he really needs and thus reduce the editing job to a minimum.

"I feel that, by and large, the film should be cut in the camera," he ex-

plains. "Every cut should be as smooth as possible so that it does not intrude into the dramatic situation. Chopping in close-ups every moment is a distracting sort of thing, and leaves you with nothing emphatic to use when you really want to make a sharp statement."

So successfully does this *cutting in the camera* work out, that one of his editors once remarked, "There's no such thing as editing on a Hitchcock picture. You merely have to cut off the *slates* and splice the scenes together."

#### The Radical Camera

Because of his kick-over-the-traces attitude toward trying new photographic approaches, Hitchcock is looked upon by even his co-workers as a kind of camera revolutionary—and the record more or less bears this out. In "Rebecca" he pushed the camera into a fiery inferno for the *fade-out*. In "Saboteur" he adopted an angle shooting straight down from the torch of the Statue of Liberty. In "Lifeboat" he dared to shoot an entire photoplay within the cramped confines of a single lifeboat set. In "Spellbound" he used the subjective treatment in such a way that the camera drank a glass of milk and ultimately shot itself with a pistol. In "Notorious" he turned the camera *upside down* to simulate the way Cary Grant looked to a reclining and somewhat tipsy Ingrid Bergman.

Conservative critics frequently sail into Hitch for his use of such extreme camera tricks, but this bothers him very little. "Some camera tricks," he explains, "are the last remaining vestiges of pure cinema."

Admittedly, he sometimes thinks up a special effect and then develops a story situation to fit it. But such tricks are never merely thrown into the script. They are always well motivated and keyed to

(Continued on Page 151)

# SCREEN MAKE UP

By Alice Evan Field

SCREEN make-up is concerned with portraiture in a form not possible in any other medium. The still portrait, whether it be a painting, a piece of sculpture, a drawing or a photograph, may be a mere likeness or it may be in the tradition of the great masters, Raphael, Titian, or El Greco. But when the portrait has fluidity of motion under changing lights and shadows so that we see the swift turn of the head, watch the deepening lines of laughter or sorrow in the face, look deeply into eyes that reflect the inner thoughts as they come and go, we have an art that overcomes the limitations of the age-long striving of artists to reveal the personality which lies beneath the surface. Nothing in the world holds so much fascination for the artist as does the human face and form, and in other media of expression, nothing is so difficult to portray. Said Ro-

din: "The true artist loves life and action. His own being responds to it and he is ever looking for it in his fellow men."

The enchancement of natural beauty occupies a considerable part of the screen make-up artist's time, just as down through the years the portrait painters have devoted hours on end to the painting of beautiful women at their best. More often than not the result was, and is, simply a charming impression, an exterior bit of loveliness that does not reach down into the life of the subject. Sir Joshua Reynolds and Thomas Gainsborough influenced their contemporaries and those who came later by virtue of their portraits of aristocratic ladies in silken gowns and although their sterner critics accused them of "shop methods" the world still loves to look at their work. Today in like manner the

motion picture public is attracted to beauty of face and form in charming and decorative composition.

*Beauty make-up* is what the studio experts term routine work and, yet, it demands constant study in scientific development of cosmetics in their laboratories and in improvement of techniques that alter with the progress of lighting equipment and camera lens. Increasingly the trend is toward a minimum of powder, mascara, rouge and lipstick and toward a treatment that will bring out the natural skin tones and the interesting, unusual features. The change is sharply noted in comparison of pictures made five years ago with those of recent release. Conscious of an earlier and oft-heard criticism that all young players were groomed to a pattern which destroyed their individuality, the leading make-up men deny the charge as far as they were ever personally concerned, and point to the fact that the general trend today is to emphasize differences. A young actress who fancies she resembles some well known star is promptly advised to forget it and try to be herself. All artificialities, such as the heavily accented mouth, the eyebrows plucked to a thin pencil line, are definitely frowned upon.

*The work* of the make-up departments begins at a very early hour in the morning. If an intricate character portrait is to be achieved the player may be required to be in the chair at five a.m. The simplest, most casual make-up requires from thirty-five to forty minutes, following the daily shampoo and skin cleansing which inevitably precedes it. Seven o'clock is the customary hour of arrival for a player who is to be on stage for the first call at nine o'clock. As one make-up man said this week, "If the women in the audience who marvel at the continued freshness and youthful appearance of their favorite actresses could but realize that absolute cleanliness is the basis of beauty much of the mystery would be solved for them. Good health, plenty of sleep and relaxation are further important items."

Unlike the still photograph the motion picture portrait cannot be retouched. All the retouching must be done before the picture is made. And all the tiny imperfections are magnified many hundred times, particularly in a close-up which fills the screen with an image approximately forty feet in height. Furthermore, because the scenes of a script are not photographed in continuity, the make-up artist must make certain that the work he has done on a certain day can be exactly duplicated for further takes or retakes. He may be required to repeat the fine shadings and highlights for a week or a month in daily succession, and he must be prepared for any changes in set lighting required by the mood or action of the story as visioned by the director.

*True portraiture* of a human being must give us more than the face, for there is much in the hands, in the pos-



VAN HEFLIN, in straight pose (left), and at right in character makeup created by Jack Dawn for role in Metro-Goldwyn-Mayer's production of "Green Dolphin Street."



RICHARD HAYDN, British character actor (left), and with makeup creation by Wally Westmore for role of Emperor Josef I of Austria in Paramount production of "The Emperor Waltz," starring Bing Crosby.

ture and in the movements of the body which express character, age, and temperament. In all of this significant action the make-up artist is particularly concerned today. Sometimes a harness for the shoulders or the knees must be contrived to give the desired rigidity to the muscles in portraying age. Wally Westmore of Paramount, who is now celebrating his twentieth year in the profession, recalls as one of his most difficult assignments the transformation of Barbara Stanwyck into a woman of ninety-six for *The Great Man's Lady*. Together they went out to study the movements of the old, old ladies at the Masonic Home and even then it was necessary to use some artificial devices

to break the natural buoyancy of her step. Extraordinarily fine examples of the change from young womanhood to middle age were portrayed last year by Olivia de Havilland in *To Each His Own*, and by Rosalind Russell in *Sister Kenny*.

Character make-up holds a fascination for the highly trained expert who has a knowledge of sculpture, facial anatomy and highlights, and a real love of the art. Here, he departs from the well-known routine into a realm of imagination and creation that is exciting and rewarding. A revolutionary forward step in screen make-up was taken by Mr. Jack Dawn of M-G-M when he created plastic inlays for the character transformations of *The Good Earth*. So delicate is the material he uses that no slightest movement of the facial muscles is hidden, and so accurately measured and applied are the many little pieces used to change the structure of a nose, a chin or a forehead, that they defy detection. Like the painters of old he frequently uses himself as a model, and if you were to visit his office he would call your attention to four portraits that hang on his wall. One is a striking study of Lincoln seated in a big chair, another is the portrait of a funny little old man with flapping ears, which you would recognize as the character played by Harry Davenport in *Three Wise Fools*, the third bears a striking resemblance to Louis XVI of France, and the fourth is that of a Chinese eunuch, a round warlike face that is completely oriental in aspect. All are portraits of himself, transformed by sheer wizardry from his finely formed, intelligent, American face into something utterly different and completely convincing.

A highlight of Mr. Dawn's recent

(Continued on Page 147)



OLIVIA DE HAVILAND in straight portrait on left, and middle-aged via makeup for starring role in "To Each His Own," a Paramount production.

# Composition In Motion Pictures

## Part 2. — Color

By Howard T. Souther

(Stephens Manufacturing Co., Los Angeles, Calif.)

THE section immediately preceding has dealt with some of the elements of composition in which were discussed the tonal gradations of black and white. Tone, as a tool of pictorial synthesis, is the most valuable medium we possess. However, its precedence in the previous pages is unmerited. It should be a subhead under these pages dealing with color. The miracle of movement in black and white serves only as an indication of the sunstruck beauty and illusion which may be achieved through modeling with the liminism of the rainbow.

Rembrandt was amber and topaz. Velasquez was mother-of-pearl and old rose. Piero della Francesca was lavender and pale blue. Degas is ivory, pale rose and sable. Motion pictures, through the cunning of chemistry of Technicolor, is all of these and infinitely more.

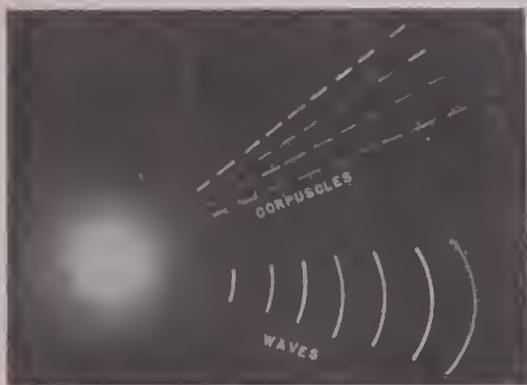
Color is almost synonymous with light. One does not exist without the other. Each is a property of the other. By knowing something of the nature of light, we know also the nature of color.

### Some of the Properties of Light

The constitution of light at the present time defies definite analysis. In this particular it parallels science's attempt to determine the nature of electricity. Whether these phenomena are forms of pure energy or simply matter in motion is not known. In some ways a ray of light or a beam of electricity resemble matter. Both can be weighed, measured, felt and made to do a variety of things in a manner which we attribute only to concrete substances.

### How Light Travels

Two hypothesis have been put forward concerning the manner in which light



travels: the corpuscular theory and the wave theory.

### The Corpuscular Theory

The corpuscular theory (Newton) deals with light as being composed of

infinitely small units of energy traveling from a source.

### The Wave Theory

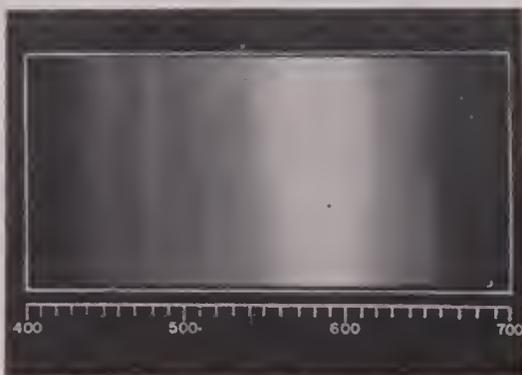
The wave theory, as propounded by Huygens, suggests that light travels in the form of waves from a source by transmitting its energy from one section of the ether to the other. This wave theory, as further developed by Planck, serves to explain some of the more subtle connections between the operation of light with electricity, magnetism, gravitation, et cetera. In the latter theory, all space is supposed to be composed of an elastic substance called the ether. Disturbances set up in this body by light transmission affect the ether in much the same manner of ripples when the surface of a body of water is agitated. In a surface of water, the action takes place in only two planes, forward and to the side. In the ether, this action is given an additional plane, up and down. The wave form is still retained but given another dimension.

### The Speed of Light

According to the latest measurements the speed of light is the same as that of electricity, 186,000 miles a second in free space. This is constant for all frequencies of vibrations or wave periodicity. Through a transparent medium this speed is less and varies with the frequency. This accounts for chromatic aberration, or color separation, in lenses in certain areas.

### Frequency of Light Vibration

If ripples in a pond are caused by agitation from a single source, the rate at which the agitation takes place determines the length between the crests of the ripples. The distance between these crests determines the wave-length. Because the speed of light is constant this distance between crests will at all times be constant in a given medium for a particular rate of vibration. The human eye is capable of perceiving light vibrations whose wave-lengths vary from about 4,000 to 7,000 Angstrom units.



### The Angstrom Unit

Light may be measured in ordinary units of length. One unit is 1/1000 of a millimeter, designated by the Greek letter "mu." .7 mu. is a shade of green in the light spectrum and would be called light of 5700 Angstrom units in wave-length. An Angstrom is 1/1000 mu. The use of this unit is more convenient in differentiating between two closely related colors.

### Method of Color Classification (After Munsell)

The interpretation of colors by the individual seems to be a comparative thing. Certain standards of comparison have been set up in an endeavor to qualify light as closely as possible for working purposes.

### Color in Light

The use of word color implies not only frequency of light vibration, but also its saturation with that color. It includes differences of brightness of luminosity also.

### The Definition of White

White is said to be the color of sunlight passing through a minimum thickness of the earth's atmosphere at noon in a temperate climate. This term is used to designate light of no particular color. All of the color sensory organs of the eye do not respond equally to white light in normal persons. With red and greens as average, the yellow predominates to a marked degree. Blues and violets are darker.

Light of any particular wave-length, or with the absence of any particular wave-length, is said to be a *hue*. If we distinguish between two colors, apart from their brightness or whiteness, the difference in hues is said to set them apart.

### Definition of Black

Black is the negation, or absence of all color.

### Color Notation

Color notation involves the necessity of assigning abstract dimensions to the hues which we wish to classify. A mental image of the world of color includes the conception of a sphere. The presence of any color in relation to this sphere automatically assigns to that color the following:

1. *Hue* — Numerical measurement around a circle.
2. *Value* — Numerical measurement up a vertical pole.
3. *Chroma* — Numerical measurement of a horizontal away from the vertical pole.

In this way we may accomplish a

qualification for any color devoid of such confusing designations as orchid, gold, fuchsia, chartreuse, emerald, etc.

### Hue

Hue is that quality by which we distinguish one color from another. We distinguish red from green, purple from blue, yellow from orange. But this does not disclose to us whether the color is strong or weak; nor does it show whether it is dark or light. It merely refers to some part or point on the spectral scale.

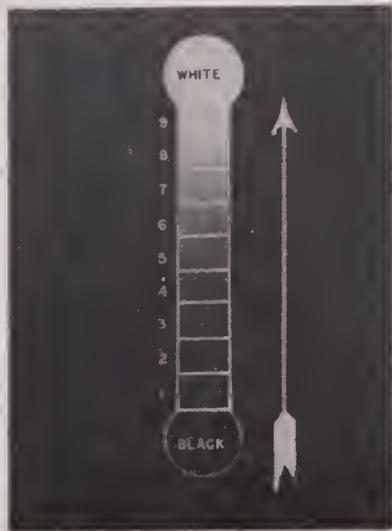


This spectral chart shows that the colors of red, yellow, green, blue and purple follow in the fixed order found in the rainbow, or in the light broken up by a prism. We shall assume these colors to be affixed to a band which forms a circle as shown. In reality these colors merge one with the other by indistinguishable degrees. The band forms our first dimension of color.

### Value

Professor Munsell's definition of value is "that quality by which we distinguish a light color from a dark one." Our first dimension serves to inform us only that a color is green, and not blue. It does not define that green as a light green, or a dark green. It is the function of the dimension of value to tell us how dark or how light a given color may be. For this purpose we may assign a scale to value, which we shall conceive as a vertical pole to the axis of our circle of hues.

At the end of our pole we shall have an arbitrary designation known as "10 white." At the low end of the pole, we have a designation known as "zero black." Since pure white and solid black are unobtainable, these two extreme



points will be slightly outside of our sphere. Therefore, gradation from black to white will include numerical steps from 1 to 9. Consequently, middle value obtains at 5, medium gray. In writing the numerical value of a color, we denote by means of a number from 1 to 9 that point on the scale where the value falls. A light green rests at G7/. A darker green rests at G2/.

### Chroma

As yet, we have by no means described a color completely. Of an emerald, we may say that it is green and that it is light. Also, we may say that certain grapes are green, and that they are light. Still, there is a decided difference in their colors. Both may be green and the same value of light. But the emerald is *strong* in color, and the grape is weak in color, or grayer. This virtue of a color, *chroma*, is represented by a horizontal pole in the color sphere.



As the color progresses toward the center it becomes weaker, or grayer. When it reaches the center it loses its distinguishing color completely and becomes gray.

We designate this quality of a color by a numeral below a line, thus: /3. Emerald green on the third step of value with a chroma of five, would be written: G3/5.

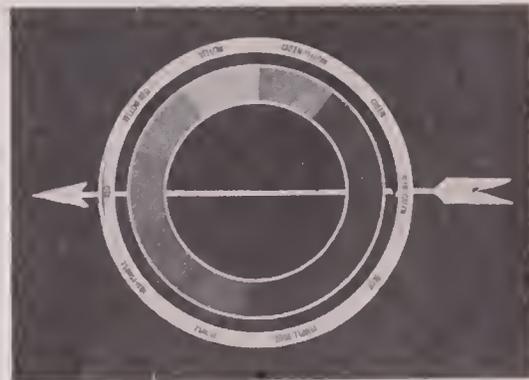
### Complimentary Colors

We shall concede that there are three broad classifications of colors. These are RED, GREEN and BLUE-VIOLET. When lights of these colors are mixed together in equal value and proportion we produce the white sensation. These are known as primary colors. If, for the sake of greater accuracy, we arrange and sub-divide these colors in the manner shown in the diagram, we have an arrangement partaking of the nature of a wheel. If the spoke of the wheel which points to a color is followed through the neutral axis to the opposite side, it will designate the *complimentary color*. This designation is not haphazard. Not only does the complimentary color offer the *greatest contrast*, but the two colors when mixed will produce a shade of gray. When we mix lights of various hues expressed as pale yellow, magenta not only are we mixing red, green and blue-violet, but also composite lights of

hues expressed as pale yellow, magenta, green, et cetera. This mixture in its entirety produces white light. The brightness is additive and increased value is the result of mixing lights of different hues.

### Color Balance

The advent of Technicolor into our work predisposes a working knowledge of color and color harmonies. These harmonies consist of manipulating the color elements of our composition in such a



manner that our effect may be projected to greater purpose and *without irritation*. We eliminate the irritation of color by proper color balance. This may be done in two ways: qualitatively and quantitatively.

### Qualitative Balance in Color

We have stated in a previous paragraph that mixing an equal value of one color with an equal value of its complementary will result in a shade of neutral gray. This is another way of saying that the two hues balance.

But observe this phenomenon:

If we mix equal parts of red at its maximum chroma with its complementary, blue-green, at maximum chroma, we do not get a perfectly neutral gray. We accomplish a color in which the red predominates to a very marked degree. If, instead of taking equal amounts of the two colors, we take equal steps upon the scale of chroma, we find that they do balance and form neutral gray. In this gray neither of the two hues predominate. This will serve to explain why the diameter of our color sphere is limited to the shortest chroma path at middle value. In this sphere all complementary colors balance at each level of value.

### Quantitive Balance in Color

The study of color does not limit the use of color. It serves merely to regulate its use. Sometimes we may wish to use a hue with a weak chroma with the opposite hue in strong chroma. This is done through regulating the area which each hue will embrace. If the weak color embraces an area twice as large as the hue one-half as strong in chroma, we effect perfect balance.

Now, bear in mind that we have been discussing only two hues, and remember that these hues have been equals on the scale of value and have differed only in chroma strength.

It is not often expedient or whole

(Continued on Page 148)

# MAGIC LANTERN COMES HOME AGAIN

By IRVING BROWNING

IN the early 1900's and the late 1800's there was a wide use of the kerosene burning magic lantern in the home. The "Magic Lantern" show dad put on for the family, many of us will remember as the thrill of our lives. Seeing pictures on the wall in the living room as dad drew the slide to change pictures as he explained the different pictures which he projected. Today, besides having movies in the home, dad owns a "magic lantern," under the guise of a "slide projector" which has modern refinements such as electricity, fine optical elements, photographic color slides, compared to the early decalcomania transfers or hand painted picture slides of grandpa's day.

When I was a kid, I owned a small kerosene burning "magic lantern" which cost, with six to ten slides, about ninety-five cents. I recently purchased an old one like it for which I paid \$10.00 which I added to my collection. The magic lantern is back in the home again and dad is once again projecting pictures for junior on the wall or on a screen. Historical subjects and even junior's school lessons can be seen via the "magic lantern" projector. To his personal friends he has a series of "arty" pictures, not meant for junior's questioning stares.

The history of the magic lantern is an interesting historical incident of home entertainment and played as important a part in the development of the motion picture as did other animate and inanimate projection methods. The magic lantern goes back many centuries ahead of photography and as we know the development of photography soon after the coming of the film strip we saw the gradual progress of a picture projected in motion.

The magic lantern became an instrument for projection on a white wall or screen where magnified representations of transparent pictures painted or photographed was a source of entertainment. The invention is attributed to Athamosius Kircher, who described it in the first edition in 1646 of his *Ars Magna Lucis et umbrae*, but it is very probable of even earlier discovery. For a long time the magic lantern was used chiefly to exhibit comic pictures, but in the hands of so-called wizards who practised summoning up of ghosts and other tricks, astonished those ignorant of simple optical principles then employed. The magic lantern moved up to become an instrument used by lecturers who had shown a series of story slides to children and grown-ups. Grimms' and the Lewis Carrol Fairy Tales for the kiddies, and travel pictures for the grown-ups, painted by artists on glass was illustrated, projected and a narrator enacted the characters as the children thrilled at the projected pictures.

(Continued on Page 139)

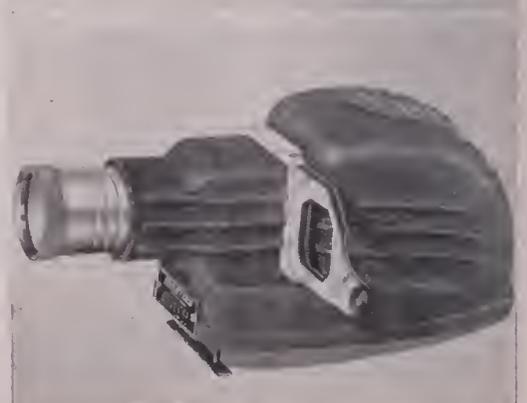
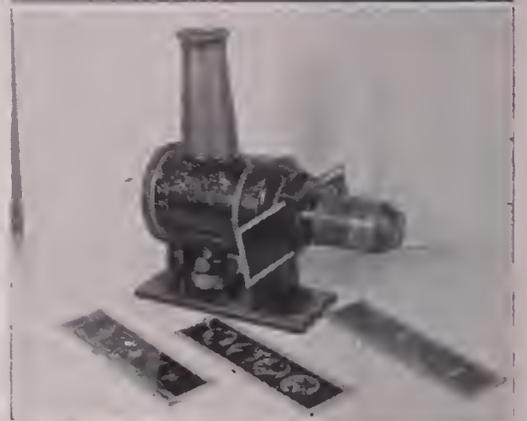
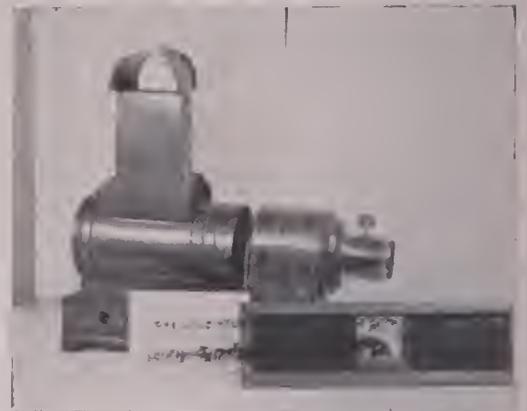
Marcy's Sciopticon, manufactured in 1868. Two wick kerosene-burning magic lantern. Slide has two exposures to provide illusion of motion. One had picture of Noah's Ark; and other a line of animals, birds, and people. Sliding latter over first gave illusion of entering Ark.

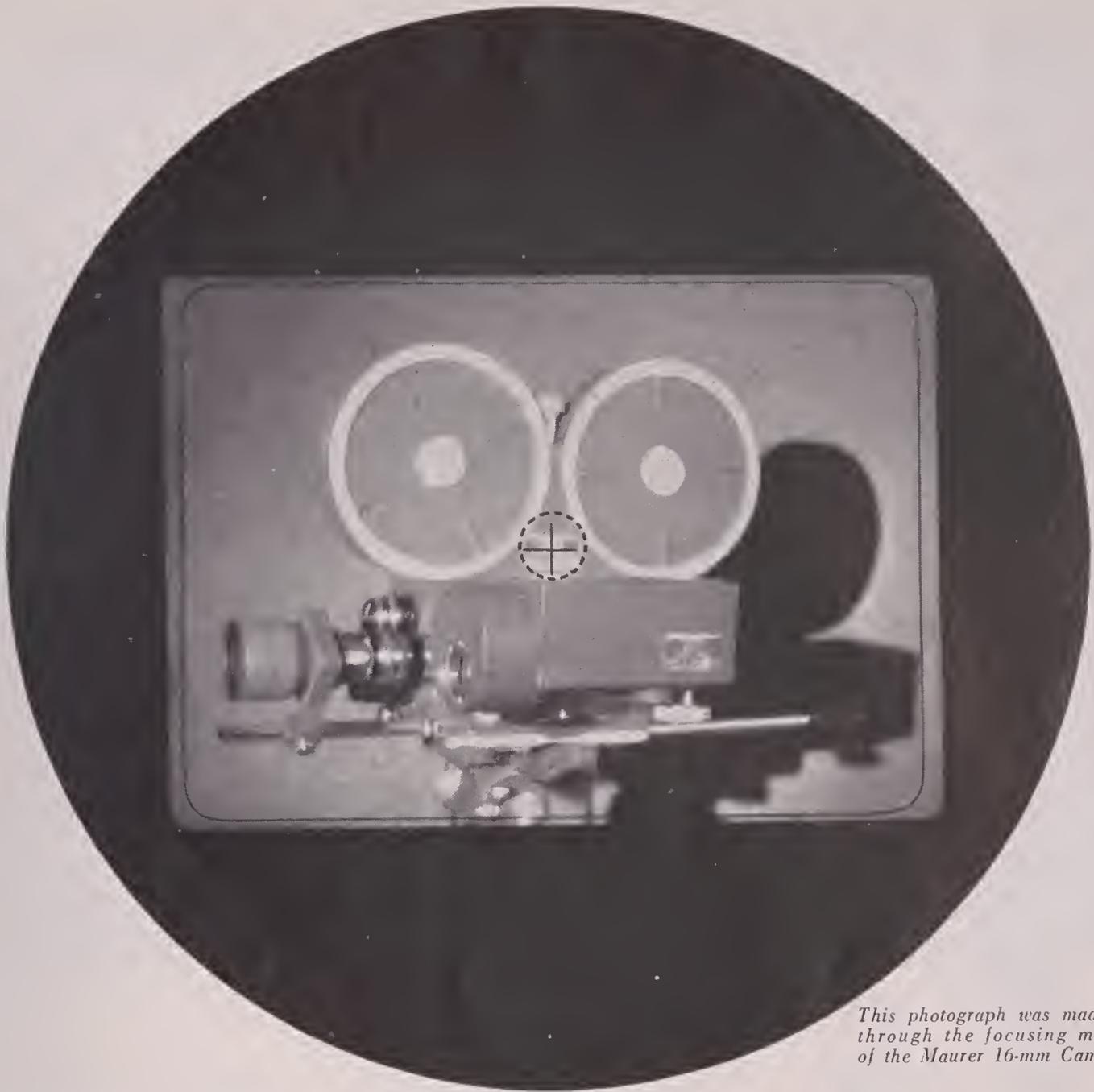
Another magic lantern, English or American make; having three wick kerosene lamp. A lecturer's outfit probably dating back to 1875.

Magic lantern for the home, with small kerosene-burning lamp. Slides are two by eight inches and had hand-painted images. Circa 1890.

Home magic lantern, kerosene-burning type. Had two types of slides—circular and oblong of one by five inch size. Hand painted objects on slides. Circa 1880.

Modern "magic lantern"—or 2x2 slide projector. Electric, with fine optical elements; metal casting, crackle painted. Circa 1946.





*This photograph was made directly through the focusing microscope of the Maurer 16-mm Camera*

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able objective lenses. One gives a brilliant, clear view to the extreme corners of the wide-angle field. The second objective gives the same view of the full field with all other taking lenses.

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“Critical focusing” is given new meaning with the Maurer Camera, as you will see next month.

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This advertisement is the third of a series explaining the features of the Maurer 16-mm

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Professional Motion Picture Cameras and Recording Equipment for the Production of Industrial, Educational and Training Films

# Academy Award Winners Best Cinematography — 1946

*"ANNA and THE KING OF SIAM"*  
*"THE YEARLING"*

**B**EST photographed motion picture production in color released during 1946 — Metro-Goldwyn-Mayer's "The Yearling." Best black-and-white photography, Twentieth Century-Fox's "Anna and the King of Siam." Best photographic effects, "Blithe Spirit," Noel Coward-Cineguild production for J. Arthur Rank.

This is the verdict of the members of the Academy of Motion Picture Arts and Sciences, as announced at the 19th annual Academy Awards presentation event held at the Shrine auditorium, Los Angeles on evening of March 13th,

1947. Every one of the 6,700 seats in the huge auditorium was filled by members of the film industry and the public; and the event was broadcast by radio nationally, and via short wave for overseas listeners.

The Academy Award announcements and presentations for best productions, best acting, writing, cinematography, and other achievements during the previous year in film production; have always been recognized as the verdict of those closest to actual production and its many ramifications and intricacies in Hollywood.

## Awards for Best Cinematography

Arthur Miller, A. S. C., Director of Photography on "Anna and the King of Siam," received the annual Oscar for best achievement in black-and-white cinematography; and has been the recipient of similar honors twice previously—for "Song of Bernadette" and "How Green Was My Valley." In the final voting, Miller nosed out the other finalist, George Folsey, A. S. C., Director of Photography on Metro-Goldwyn-Mayer's "The Green Years."

Charles Rosher, A. S. C., Leonard Smith, A. S. C., and Arthur Arling A. S. C., each received Oscar statuettes for their work as Directors of Photography on the Metro-Goldwyn-Mayer Technicolor production of "The Yearling." Rosher was an Academy Award winner 19 years ago at the initial presentation event; while Smith (President of the A. S. C. by the way) was in the finals for 1945 with his "National Velvet."

In receiving his Oscar from Ann Sheridan, who made the presentations of awards for cinematography, Miller praised his camera crew and extended thanks for cooperation during production. Rosher followed the same thought in accepting his Oscar for "The Yearling" honor; while Smith stated those remarks went double for him and that "Brooklyn will be proud of me." President Smith, by the way, is a native of Brooklyn, and later received a congratulatory wire from the Chamber of Commerce of that city!

"The Yearling" had Columbia's "The Jolson Story" in the finals for the best in color photography. It is interesting to point out that Joseph Walker, A. S. C., Director of Photography on "Jolson Story," was initiated into photographing a color production on this picture; and the fact that it reached the finals for consideration is noteworthy.

## Special Effects to England

Best demonstration of the international consciousness of those engaged in film production in Hollywood was the voting of four Academy Awards to individuals identified with British productions. For best achievement in special



ARTHUR MILLER, A.S.C. accepting the Academy Award "Oscar" for his outstanding photographic direction "Anna and the King of Siam" from Ann Sheridan.

Photo by Harold Mann



LEONARD SMITH, A.S.C. (left), CHARLES ROSHER, A.S.C. (center) and ARTHUR ARLING, A.S.C. are presented with their Academy Award "Oscars" by Ann Sheridan for their noteworthy accomplishments as Directors of Photography on "The Yearling," Metro-Goldwyn-Mayer production.

Photo by Ed Hubbell.

photographic effects, Thomas Howard was signally honored for his work on "Blithe Spirit," the Noel Coward-Cineguild production made in England for J. Arthur Rank. A Hollywood representative for the latter accepted the Oscar for Howard.

Best sound was judged as "The Jolson Story," with John Livadary, head of the Columbia sound department, accepting the Oscar for the accomplishment.

#### Black and White Cinematography

To Arthur Miller, A. S. C., for his inspired lensing of Twentieth Century-Fox's "Anna and the King of Siam," goes this year's Academy award for black and white cinematography.

No stranger to the award, Miller has won this top honor twice before, the last time for "The Song of Bernadette." If anything, his style since then has become even more craftsmanlike, and "Anna" bears evidence of a camera style perfectly suited to the story which it presents.

In this picture, Miller was called upon to produce an atmosphere faithful to the exotic country of Siam. In addition, it was a period film, and a plot devoid of the usual dramatic elements of a love story. On the first count, Miller adapted

his lighting style perfectly, producing effects of authentic and medieval beauty. He managed, also, to capture the spirit of the period, achieving this result through a well-balanced combination of lighting and camera angle.

It is difficult to place your finger on the exact elements which lend excellence to Arthur Miller's photography. His approach is so purely cinematic and devoid of theatrical tricks that no one factor stands out as being obvious in any way. A sincere and modest camera artist, he realizes that the purpose of motion picture photography is to interpret a dramatic story to best advantage, and he bends all his efforts toward just that goal.

Miller has long been regarded as a master of realistic lighting. There is never a discrepancy between source and lighting. The light always seems to fall on the subject in the way that it would naturally fall in the actual situation—yet it is not harsh, as lighting sometimes becomes when made to look realistic in the *documentary* sense. While retaining an authentic feeling of realism, he yet manages to breathe into his photography the quality and finish which critics and public alike have a right to

expect of Hollywood.

If one phase of Arthur Miller's style were to be held up as being unique, it would probably be his "feel" for camera movement. His is a fluid but unobtrusive camera, geared to move with the story. He never trundles the camera about merely for the sake of movement. There is always a strong motivation for such effects, and he seems to sense exactly when and where to use them.

In "Anna and the King of Siam," Miller has produced a film that shows quality in every frame. It ranges in mood from the lavishness of the royal court to the sordid atmosphere of native huts and compounds. His dramatic flair is best exemplified in the sequence where the king's unfaithful wife is burned at the stake. His sense of composition finds expression in the garden sequences showing the king's harem attending school.

Besides adapting his photography closely to the film's theme, Miller also presented the picture's stars to best advantage. Irene Dunne has never been more capably photographed. Rex Harrison, in his American debut, also profited by the expert camera presentation.

To Arthur Miller, this year's Acad-

emy award must seem like a familiar story—but sincere artist that he is, he cannot fail to recognize it as the industry's continued tribute to his superlative skill as a cinematographer.

### Color Cinematography

Charles Rosher, A. S. C., Len Smith, A. S. C., and Arthur Arling, A. S. C., share the triple honor of this year's Academy award in color cinematography for their masterful teamwork in photographing M-G-M's Technicolor production, "The Yearling."

Rarely, if ever, has there been such a happy blending of talents among cinema craftsmen. "The Yearling," an all-around excellent film, owes much of its force to the magnificent exterior photography which consistently arrests the attention of the spectator. It is a treat to the eye as well as a potent factor in advancing this story of struggle and poverty in the Florida marshlands.

Made largely on location in the actual locale of the story, the film deserves double praise because the cinematographers had to work without many of the photographic refinements which are available on a film shot in the studio.

"The Yearling" is a highly dramatic story, and photography was called upon to convey many of the nuances of emotion which lend credence to the theme. While preserving the photographic excellence for which M-G-M is noted, it might have been all too easy to make the camera treatment too glossy, too "Hollywood" in approach. But the three cinematographers responsible for the result restrained themselves admirably. They achieved a beautiful and artistic style of photography while still retaining the authentic flavor of the rustic story and locales presented.

Throughout the film source light was carefully simulated. Firelight looks like firelight. The sun coming through a window has the fresh glare that real sunlight has. The interiors are lighted with a naturalness that lends a realistic, almost documentary, effect to the whole story.

But, by and large, "The Yearling" is an outdoor story, and it is in this phase that the photography reaches heights seldom equalled before on the screen. A great deal of sensitivity was shown in recording the atmosphere of different times of day and different seasons. The cool crispness of dawn, the rosy radiance of sunset, the dismal threat of rain—all these phases of nature are portrayed to perfection.

Composition in the film was held to uncomplicated, story-telling patterns. There was no "art for art's sake." Rather, the approach was straightforward and clean-cut—slanted in such a way as to present a story of basically simple people to best advantage.

One of the best staged and photographed sequences in the picture is that which shows the details of a bear hunt. Here, amongst dense forest, swamp and brush, the camera was called upon to show clearly the details of action that

could scarcely be called predictable—animals bounding in every direction at will. In order to keep up with and emphasize the chase, a moving camera was used. Here the instrument went crashing through the underbrush at top speed recording with astounding precision the movements of several human and animal characters at the same time. Merely to capture the action at all was an almost impossible task—but that the cinematographers were able—in addition, to secure an almost breath-taking photographic quality is little short of a cinematic miracle. This sequence stands out in "The Yearling" as a dramatic and photographic highpoint of the entire film.

Special mention must be made of the effective use of low-key interiors, plus the precision with which studio-made shots were made to match and cut in with scenes shot in the actual locale of the story. Another device used to striking advantage in several outdoor sequences was *silhouette*, especially when used to show action against a sunset sky.

Rosher, Smith and Arling are to be highly complimented for an outstanding contribution to motion picture art, as well as for fulfilling the prime purpose of color cinematography: that of telling a story in the most vivid and forceful manner possible.

### Special Photographic Effects

To Thomas Howard goes this year's Academy award in special photographic effects in recognition of his outstanding trick cinematography for the Noel Coward-J. Arthur Rank production, "Blithe Spirit."

American theatregoers will recall this delightful British film as the story of a young man haunted by the ghost of his deceased wife. The spirit in question is a whimsical, mischievous wraith who appears and disappears at will causing all sort of confusion in the household.

The special effects called for in photography were mainly applicable to situations where the ghost in its invisible state flings bric-a-brac about the room, slams doors, holds overcoats for people, and performs other types of disembodied trickery.

These situations were handled so expertly, that an audience is able to forget that they are watching out-and-out tricks, and are able to become pleasantly absorbed in the fantastic spirit of the whole affair.

The excellence of the special effects in "Blithe Spirit" is one more evidence of the tremendous technical strides which the British film industry has made in the past few years.

### Scientific and Technical Citations

Each year, in addition to recognizing artistic achievement in the motion picture industry, the Academy of Motion Picture Arts and Sciences has honored scientific and technological achievements of outstanding merit through the Scientific or Technical Awards.

Awards for Scientific or Technical Achievement are bestowed "upon recom-

mendation of the Academy Research Council, for a device, method, formula, discovery or invention of special and outstanding value to the art or science of motion pictures."

Toward the end of each Awards year, nominations for Scientific or Technical Achievement are invited from the studios and from manufacturing, development and equipment companies in the motion picture industry. The Research Council carefully reviews each nomination, appointing subcommittees of experts from the various technical fields within which the nominations are made, to investigate the originality and ingenuity connected with the development, and to consider the application of each nomination and its importance to the advancement of the industry.

The final responsibility for bestowing these awards rests with the Research Council. Nominations are considered for possible recognition under the following three classifications, subject to the requirements listed:

Awards in Class I (Academy Statuette) for those achievements which have a basic influence upon the industry.

Awards in Class II (Plaque) for those achievements which have a definite influence upon the industry but merit recognition to a lesser degree than the Class I award.

Awards in Class III (Honorable Mention in the Report of the Research Council) for those accomplishments which are important to the progress of the industry.

The credit for Awards in the artistic classifications is essentially an individual achievement. In the engineering field, this is rarely, if ever, the case. No matter how meritorious or ingenious a development may be, it is necessarily based on prior art and on various earlier developments. Consequently, in these Awards it is usually impracticable, if not impossible, to name every individual who may have contributed to the particular achievement in question. In a report such as this, it is only possible to name the individual or group whose work has led to the final culmination of the development. However, from an industry point of view, this is the important achievement and the Scientific or Technical Awards which have been given since 1930 constitute in effect a historical record of development within the industry, so that the recipients of these awards can feel that their work has become a part of this record.

This year the Academy Research Council reviewed forty-six nominations and bestows Awards for Scientific or Technical Achievement as follows:

Awards in Class III (Honorable Mention in the Report of the Research Council)

To Harlan L. Baumbach and the Paramount West Coast Laboratory for an improved method for the quantitative determination of hydroquinone and metal photographic development.

(Continued on Page 145)

*We Proudly Congratulate —*

**ARTHUR MILLER, A.S.C.**

Director of Photography

For Outstanding Photographic Achievement  
In Black-and-White

**“ANNA AND THE KING OF SIAM”**

20th Century-Fox Production

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**CHARLES ROSHER, A.S.C.**

**LEONARD SMITH, A.S.C.**

**ARTHUR ARLING, A.S.C.**

For Outstanding Photographic Achievement  
In Color

**“THE YEARLING”**

A Metro-Goldwyn-Mayer Production

in

**Technicolor**

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**J. E. BRULATOUR, Inc.**

*Distributors*

FORT LEE

CHICAGO

HOLLYWOOD

*To Our Fellow Cameramen, Thanks*

**CHARLES ROSHER, A.S.C.**

**LEONARD SMITH, A.S.C.**

**ARTHUR ARLING, A.S.C.**



**Best Color Photography Award**

**1946 — “THE YEARLING”**

**for**

**METRO - GOLDWYN - MAYER**



**1946**

*19th Annual Awards*

**ACADEMY OF MOTION PICTURE ARTS AND SCIENCES**

*Leo is Proud!*

*And Congratulates . . .*

**CHARLES ROSHER, A.S.C.**

**LEONARD SMITH, A.S.C.**

**ARTHUR ARLING, A.S.C.**

*for the  
Academy Awards  
presented for the color  
photography of*

**"THE YEARLING"**



**METRO-GOLDWYN-MAYER STUDIOS**

*The Members of*

**The AMERICAN SOCIETY  
of CINEMATOGRAPHERS**

*Extend congratulations to . . .*

**ARTHUR MILLER, A.S.C.**

**CHARLES ROSHER, A.S.C.**

**LEONARD SMITH, A.S.C.**

**ARTHUR ARLING, A.S.C.**

*for their outstanding achievements  
in cinematography during  
1946 which accorded them  
Academy Award recognition.*



# Magic Lantern

(Continued from Page 130)

I have several such magic lanterns, professional types made in 1868 in Philadelphia.

Experimenters always seeking to thrill the public toyed with double exposure projection. A slide of an angel in flight and a slide of clouds which was moved behind the angel giving the effect of motion. Automatic dissolving was practised by blocking out the picture of one projector while another projector lens was uncovered by an ingenious pair of thin metallic shutters terminating in comb-like teeth and movable by rack or lever; in that way, the light could be gradually cut off from one to the other and one view appeared to melt or dissolve into the other. This arrangement was first adopted by Childe in 1811.

One of the tricks of the early days of slide projection was the "Phantasmagonia": In this arrangement the picture on the screen appeared gradually to increase or diminish in size and brightness. To affect this, a semi-transparent screen of cotton or other material is used, the projection was from behind the screen with the audience in front. The magic lantern was mounted on wheels so that it could be rapidly moved up or withdrawn from the screen; an automatic arrangement is provided whereby simultaneously with this the

objective is made to approach or recede from the slide so as to focus the picture on the screen in any position of the lantern. In this way a very small picture appears gradually to grow to enormous dimensions. \*\*\*See L. Wright, Optical Projection (1891): E. Frutat, Traite des Projections (Paris 1897 and 1901): P E Leispegang, Die Projektions—Kunist (Leipzig 1909).

In my own collection of motion picture cameras, projectors, films and magic lanterns, I have a series of home type of motion picture mechanisms, the early development of projection entertainment which today represents one of the world's five greatest industries. The little magic lantern was then just a toy but inventors, experimenters, men of optics, physics, arts and engineering spent their never ending efforts in developing its artistic merit to commercial success; the Nickelodeon became Palaces of projection entertainment, to be enjoyed by every one for a comparative pittance.

The early narrated "Magic Lantern" show antedated such performances as the Burton Holmes illustrated lectures, Fitzpatrick Travelogues, The Disneys and all the others. The magic lantern as the lantern slide illustrates was all of those rolled into one. The narrator dramatized the slides with stories by imitating each character. The better the performer, the more thrilled his audiences. All the early

"magic lanterns" on these pages are of American manufacture and each burned either a single, double and three kerosene wicks for light. Today's electric slide projector is its counterpart. The magic lantern has come home again in a new dress, but with the same old stories.

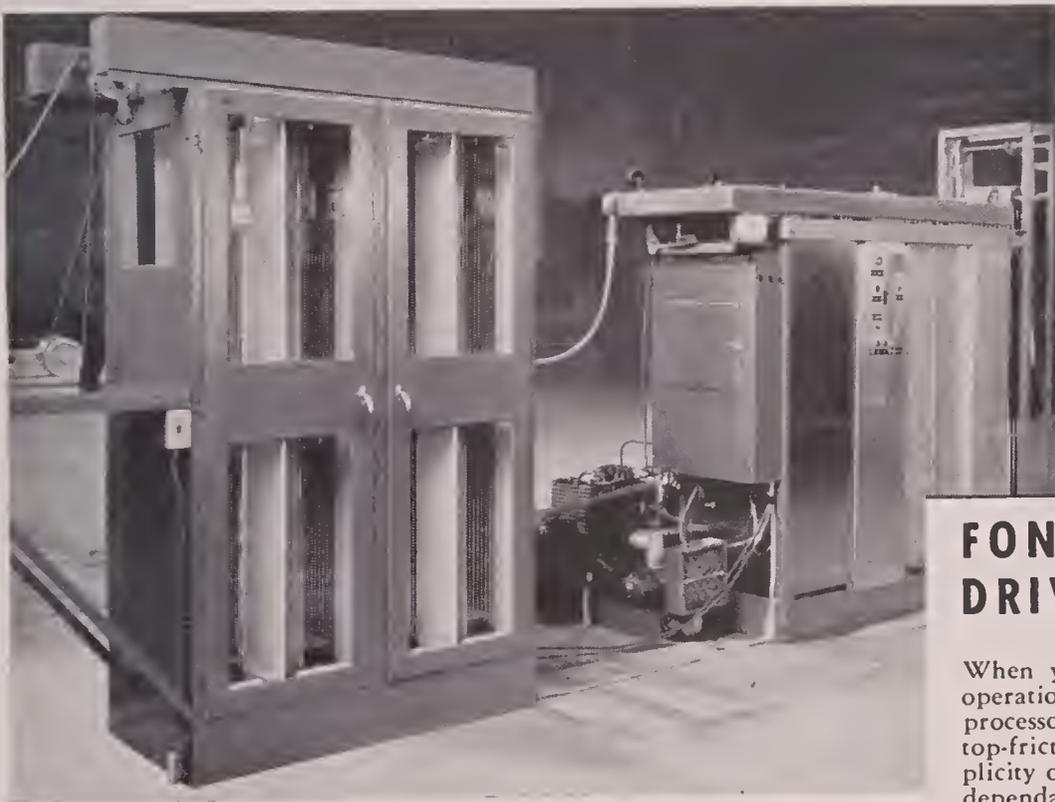
## Kodaflector Senior, Model 2, Announced

An "ambidextrous" lighting arrangement for indoor picture taking, which provides picture takers with two reflectors for flood lamps, both capable of swinging horizontally or vertically on easily adjustable arms, is now available in the Kodaflector Senior, Model 2.

In addition to the greater flexibility of the arms, further improvement is offered over previous models, in that the legs are screwed into the base rather than being held by friction. Kodaflector Senior, Model 2, is applicable to amateur and professional still and motion picture filming.

## Telefilm Technical Service

Joseph A. Thomas, president of Telefilm 16 mm. Studios of Hollywood, has notified the Association of National Advertisers that the company has set up a technical data service for the information of members of the advertising organization with latest developments in 16 mm. production.



"YOU will agree, too..."



## FONDA HAS THE BEST DRIVING MECHANISM

When you see the Fonda film processor in operation you will agree it's America's finest processor . . . because it features a patented top-friction drive mechanism which in simplicity of design and construction is the most dependable and economical film handling method yet devised.

Fonda gives you almost any speed range and processes any type film . . . 35 mm, 16 mm, color, black and white, positive, negative, reversal or microfilm.

FONDA FILM PROCESSING EQUIPMENT DIVISION

# SOLAR

**STAINLESS PRODUCTS SAN DIEGO 12, CALIF.**

# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 10. Sound and Film

By CHARLES LORING

UP until quite recently, sound in motion pictures was considered prohibitive luxury — something only professional film studios could afford. But now that sound recording equipment has become less complicated (and less expensive) and 16 mm. sound has reached a high degree of perfection, sound-on-film is within reach of the advanced amateur and semi-professional movie-maker. In applying this added element to the visual image, however, he must use a vastly different style of direction from that used on silent films.

In a later chapter, we shall delve quite deeply into the technical details of sound cutting and recording; but, for now, let us consider some of the less tangible aspects of applying sound to the visual image.

The era of the silent film has passed and, except for the simplest kind of "home movies," all modern films are shot with the intention of applying sound, either *directly* during filming, or in *narrated* form after the film has been cut.

Whereas in the silent film the audience had to depend solely upon a *visual* impression, sound adds another powerful appeal to the senses and thus makes possible a greater degree of realism on the screen, since action alone is not required to carry the full weight of interpretation of the story. Therefore, it is not necessary to use the exaggerated gestures and broad pantomime that were so obviously a part of the silent film. You can direct your action with a much more subtle touch, depending upon sound to add the little extra nuances of realistic meaning.

### The Role of Sound

There are two principal ways in which sound points up the effect of the visual image: (a) complement and (b) contrast. As a *complement* to the picture, recording adds the sounds that an audience naturally associates with what is shown on the screen, and therefore *expects* to hear. Simply illustrated, a shot of a train rushing toward the camera is much more effective when accompanied by the roar of a locomotive than if it appears silently — because that is the sound an audience associates with a train, and to omit it creates an unreal impression. This means that the film-

maker should record or dub onto the sound track the sounds characteristic of major actions shown in the film.

On the other hand, sound *contrast* is sometimes amazingly effective in sharpening a dramatic or comic situation. For example, if a murder is portrayed as taking place to the accompaniment of blaring jazz on the radio, the horror of the situation is vastly intensified. If a tragic situation is shown accompanied by laughter and the merry sounds of a party off-screen, the pathos of that situation is sharply increased.

In any case, the choice of sound and the manner in which it is used are both dictated by the effect which is desired. In each scene either the visual image or the sound should predominate; in no case should they have to fight with each other for the audience's attention.

### Sound and Psychology

Without meaning to imply that sound-on-film is some sort of mysterious force, it can be said that motion picture sound scores its most powerful effect through the psychological reactions it inspires in an audience; and it is important that this element be clearly understood if a really good film is to result.

Firstly, sound creates an *association of ideas*. Simply stated, this means that if an audience hears a train whistle, it will associate that sound with a mental picture of a train. Thus, if the sound of an airplane is heard over a close-up of a character scanning the sky, the audience will assume that he is watching an airplane, even though none is actually shown. The film-maker can often use this technique to good advantage in creating a visual illusion without even showing the source of the sound, but he must make sure that the sound is an easily identifiable one. On the other hand, dramatic suspense can sometimes be created by presenting an unusual sound and showing the character's reaction to it before identifying the actual source of the sound by a visual cut.

The second major psychological function of sound is the setting of *mood* for a sequence. If, for example, you *fade in* on a close-up of a merchant seaman smoking his pipe on a loading dock, and the scene is underscored by the moaning of fog horns and the eery creaking of

ships' gear, an atmosphere of somber expectation is instantly created. If instead, under the same scene, you dub the sounds of hustling activity, ships' bells ringing, and men running up and down the gangplank, an entirely different mood is set from the very beginning. Thus, a sound background is a versatile instrument for setting the key mood for a sequence; and, as such, it should be carefully considered when the overall approach to the film is being planned.

Sound can be a potent factor in drawing scenes tightly together for improved continuity. We speak of a *sound bridge* as referring to a continuous sound pattern linking several separate scenes. For example, if we were creating a *montage* of New York City, we might show a number of scenes filmed in widely scattered locales; but, underscored with a continuous sound pattern of traffic and crowd noises, these scenes would be sharply drawn together to form a potent unified impression.

Similarly, "stock" shots of an authentic locale can be made to tie in more smoothly with staged shots supposedly taking place in the same locale, if the same background sound pattern is used behind all of the scenes. Hearing the continuous sound bridge, the audience will automatically assume that all scenes which it underscores were filmed in the same place.

### Types of Recording

*Sound-on-film* is recommended to the film-maker in preference to disc recording, because once the sound is actually printed alongside the picture, you have a visual and an aural pattern permanently recorded side by side and in perfect register. However, should sound-on-film prove too costly for the budget, many of the same recording techniques can be used effectively in placing the sound on discs to be played while the film is being projected.

By way of equipment for sound-on-film recording, there are available to the semi-professional film-maker several excellent systems of direct 16 mm. sound—notably the Auricon, Maurer, WE and R.C.A.-Victor machines. All of these are relatively portable and are available on a rental basis in many of the larger cities. However, since direct sound recording is a rather precise business, it is wise to have a trained technician at the controls, and rental establishments usually have such personnel available.

A far simpler and less expensive system of recording is that which utilizes *narrated* sound applied after the visual footage has been cut. This type can be readily combined with any silent footage that has been shot at the standard sound speed of 24 frames per second.

Most large cities have recording services especially equipped to record narration, sound effects, and background music onto a composite sound track synchronized with the action. The fee for this service is nominal considering the extra quality which such sound adds to

(Continued on Page 153)

“Only Carbon Arcs can produce enough of the brilliant white light required for modern color photography.”

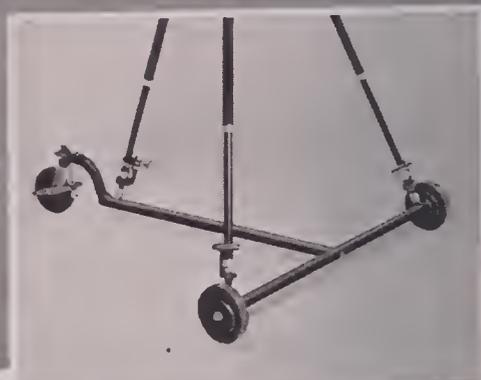
Charles Z. Clarke  
A.S.C.



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Ciné-Kodak Tripod—compact, lightweight, and remarkably rigid—its built-in head “pans” smoothly through the full horizontal circle and from straight up to straight down.



Ciné-Kodak Tripod Truck provides cushioned mobility for camera and tripod . . . makes “dolly” shots easy. The Truck fits many tripods—including the two shown on this page.

# FROM HEAD TO FOOT

## Kodak Tripods are built to fill the special needs of every movie maker

*Ciné-Kodak Tripod*—designed especially for precision shooting with all amateur movie cameras. *Kodak Eye-Level Tripod*—a reasonably priced camera support for movie making with all but the heaviest cameras. *Ciné-Kodak Tripod Truck*—movie mobility under “toe-tip” control. Yes, here’s tripod quality from head to foot.

Better see your Kodak dealer about these aids to better, *steadier* movies. Ciné-Kodak Tripod—\$42; Kodak Eye-Level Tripod—\$16.75; Kodak Turn-Tilt Tripod Head—\$13.25; Ciné-Kodak Tripod Truck—\$55. Tax extra. EASTMAN KODAK CO., Rochester 4, N. Y.



Kodak Eye-Level Tripod, when equipped with Kodak Turn-Tilt Tripod Head, is ideal for movie making with lighter-weight cameras. The Tripod is instantly adjustable for heights from under 2 feet to 5.

Kodal

# AMONG THE MOVIE CLUBS

## Utah Cine Arts

Officers of Utah Cine Arts Club, have taken a dare, and all promise to enter films in this year's contest, or forfeit the entrance fee. Seems like a fine idea to generate member interest in annual contests by having the officers take the lead.

February 19th meeting was held in the Terrace Room of Newhouse hotel, and feature of the evening was Arnold Whitaker's "Adventure South," a 2,000 foot 16 mm. color subject taken of an auto expedition by three men from Detroit to Tierra Del Fuego—the south-most tip of Argentina, South America.

Fifth annual banquet and installation of officers was held in January, with an excellent film program supplied by Al Morton, LeRoy Hansen, Theo Merrill, and Al Londema. Officers for 1947 are: Theo Merrill, president; Al Londema, vice president; John Allein, treasurer; and Helen Christensen, secretary.

## New York Eight

Film program for the February 17th meeting of New York Eight MM. Club, held at the hotel Pennsylvania, included: "Escape," by Harry W. Atwood; "Pinocchio's Jack-O'-Lantern," by Harlan M. Webber; "The Magnificent Accident," by Mr. and Mrs. Raymond Berger; and "Farm Frolics," and "It's All Over," by Terry Manos.

At the January 20th session, films exhibited were: "Baby's Bottle Parade," by Maurice Krakower; "How to Win Friends," by Fred Evans of Los Angeles; "George Washington Slept Here," by the Edward Roeskens; "Stanley Goes to Camp," by M. Frifeld; and a kodachrome oldie of Arizona by Joe Hollywood.

## Alhambra La Casa

The ladies of La Casa Movie Club of Alhambra, Calif. provided the program for the March 17th meeting, with Mrs. Marjorie Conrad as chairman and announcer. Films presented included: "High Sierra, Sequoia," by Mrs. Fred Gill; "Dance of Spring," by Mrs. R. A. Battles; "India," by Miss Lillian Stevens; "Indian Country," by Mrs. C. H. Bodner; "Scenes Along the Highways of the West," by Mrs. Marjorie Conrad; and "On and Off the Highway—Oregon," by Mrs. Nella Stiverson.

## Philadelphia Cinema

Films entered in the annual contest of Philadelphia Cinema Club were exhibited at the March 11th meeting, held in the Little Theatre of Franklin Institute. George A. Pittman, Oscar Rahn, and Frank Heiningner functioned as judges.

Annual banquet of the organization will be held on April 15th.

## Los Angeles Cinema

Typical California rainstorm (high fog to the natives but a deluge to others) failed to dampen the interest of the large audience which turned out for the March 3rd meeting of Los Angeles Cinema Club, held in the Fine Arts Room of the Ebell Club. Highlight of the evening was demonstration of the newly-developed Bardwell & McAllister film titler by Mr. Olson of that company, and exhibition of a color film depicting method of operation of the titler. Magnetic tape recording and its possibilities for economical use by 8 and 16 mm. enthusiasts was demonstrated by Mr. Neely of Magnetic Recordings. Member Dow Garlock then showed his 8 mm. picture with music recorded magnetically.

Charles Ross presented his "V-E Day in New York" to illustrate the value of background music. Other films shown included "Spooks and Sports" and "Trantella," by Mary Ellen Bute; and Leo Caloia's "Young America Rides" and "Hollywood."

## Minneapolis Octo Cine

M. F. Ohnstein heads the Minneapolis Octo Cine Guild for 1947, with other officers comprising: Ralph Mueller, vice president; John Brandon, treasurer; and Bernard L. Altermatt, secretary. Octo Cine Guild, the only exclusive 8 mm. club in Minneapolis, has about 50 members—all males.

At the January meeting, it was voted to place all members in one of four groups—according to district each lives. Plan is for each group to produce one indoor and one outdoor movie during the year, with film to be furnished by the club. In addition, each group is to furnish program for at least one meeting during the year. Looks like a fine idea which can be adopted by other clubs to generate competition and interest among members.

## San Francisco Westwood

February 28th meeting of Westwood Movie Club of San Francisco, held at St. Francis Community Hall, presented film program arranged by Angus Shaw comprising: "Line Steamer Meet," by Larry Duggan; "Base Camp of Sierra Club of 1946," by Barbara and Bill Helm; and "Titling and Editing," an educational film supplied by Bardwell-McAllister.

Committee chairmen who will function during the coming year are: Angus Shaw, program; Don Campbell, membership; Eric Unmack, publicity; Walter Johnson, contest; Jess Richardson, technical; Ray Luck, projection; and Mrs. Shaw and Mrs. Unmack, hostesses.

## Milwaukee Amateur

Fourth annual Gala Show of Amateur Movie Society of Milwaukee was held at the Shorewood Auditorium on March 22nd. Capacity audience witnessed a program of prize-winning amateur films secured from all parts of the country. Among the pictures shown were: "Lake Mohawk Preferred," by Leo Hefferman; "Squeaky," by Walter Bergmann; and "Kaleidoscopio," by Dr. Robert Machado of Havana. Bill Vogel functioned as master of ceremonies, with Bill and Mabel Rheingans supplying the musical arrangement with their new Fidelity turn-tables.

"So You Want to Write a Scenario?" featured the March 12th meeting, at which time the scenario committee explained the fundamentals and technique of preparing a script, and then showed the finished picture. At the March 26th meeting, Arthur Elliott showed his 16 mm. Kodachrome, "North of the Border."

## Los Angeles Eight

Business was held to a minimum at the March 11th meeting of Los Angeles Eight MM. Club, held at the Bell & Howell auditorium, to allow for a full evening of film entertainment. In addition to the Army Air Force 16 mm. soundfilm, "Able Baker," three remaining contest pictures were shown—"The Big Sleep," by W. D. Garlock; "New York, August 1946," by A. Larsen; and Beverly Wilshire July 4th," by R. Beazell.

Additions to the club's film library include: "MacArthur Liberates Manila," "Yanks Smack Truk," and "Yanks Invade Africa." Also Fred Evans' prize film, "How to Win Friends and Influence People" will be copied for the library.

Feminine members are busy lining up entries for the Ladies 50 foot contest which will be judged in June. Outing committee chairman Harold McEvers is lining up interesting locations for several club filming expeditions during the summer months.

## Seattle Amateur

Ralph Lund was selected as vice president of Seattle Amateur Movie Club to succeed Walter Mankowski, who was unable to serve because of other duties.

At meeting of February 11, held at Parish Hall of Church of the Epiphany, film highlight was Raymond J. Hague's "Hunting Big Game on Horseback." This splendid 1,200 foot subject in 16 mm. kodachrome detailed a 24 day trip in the Chilco Lake area of British Columbia hunting deer and moose.

Production of the club's 1947 picture is currently under way, with Mrs. Theodore Bradley and Bill Crock playing the leads.

# That Vacation Picture

By W. D. GARLOCK

Past President, Los Angeles 8mm. Club.

WITH vacation time just around the corner, the next couple of months will find myriad cameras merrily consuming thousands of feet of precious Kodachrome. What sort of a vacation picture will yours be? You alone can answer that question, and the forethought that precedes your effort will be the most important factor in formulating that answer.

It is my belief that the filming of a successful vacation picture is one of the most difficult assignments that ever confronts the average amateur. With his vacation time rigidly budgeted, he is understandably reluctant to spend any major part of this limited time in shooting an elaborate script. And yet, to shoot without a plan is usually little short of a waste of film; not to mention the subsequent crimes we perpetrate on our patient friends who have to view (with polite forbearance) our "so what" vacation pictures.

Of course, if your pictures are for your personal record only, anything that satisfies you will suffice. However, if you wish your film to be something that may be viewed with pleasure by others, you will have to do some planning in advance. Don't let the word "Planning" frighten you. Briefly it means, "Know what you want to shoot." One would think that such an admonition would be unnecessary, but it is a sad fact that most of us shoot too many haphazard "pot shots," only to discover

(when we start to edit our film) that through the lack of a preconceived plan, we neglected to get many important shorts that we find are needed to tie in our continuity or to highlight an episode or sequence.

The suggestions that follow can be applied to any type of picture, but are basic points that usually are overlooked in our personal pictures—vacation or otherwise.

1st. Your picture must arouse the personal interest of the viewer.

2nd. Your picture should incorporate some sort of opposing forces.

3rd. Your picture should have climaxes.

Let us evaluate point No. 1. (Personal Interest). Your film must be of such a nature that the viewer has a personal interest in seeing it. Not because he might happen to know you, but because the subject on the screen is something he *wants* to see. Here are three ways in which audience interest may be achieved,—By filming unusual subjects, by picturing the usual in an unusual manner or by the incorporation of a continuity idea. If your subject matter is unusual, let the audience know *why* it is unusual,—they'll want to know. Otherwise the subject will be as uninteresting as yesterday's hash. In filming the usual,—film it dramatically. Unusual angles, dramatic composition or lighting will always command

attention. Not every subject is adaptable to a dramatic treatment, but when such an approach is possible, take full advantage of it. The commonplace then becomes the usual. If a continuity idea is used, it may be built around the adventures—or misadventures—of some person or persons. Audience interest is maintained through the use of the usual story devices. The story need not be involved or continuous, but may be just a series of interest-compelling situations interspersed through your picture. The elements that develops these situations may arise from—

Point No. 2. (Opposing Forces). Every picture should have some element of opposition which must be overcome. It is the basis of every story (there's always a villain), but the vacation (travel or scenic) picture can also incorporate elements of opposition. The battle to land the big fish, the hazards of the difficult climb up the steep cliff, the race to get the tent up before the storm breaks. Play them up! The audience is interested in seeing you overcome these obstacles. If a continuity idea is used in your picture, the "Hero" can be beset with obstacles calculated to create situations that will arouse and maintain audience interest.

Point No. 3 (Climaxes). Every successful picture must be highlighted by climaxes interspersed at timely intervals as a stimulant to audience interest—saving the major climax for the last sequence. Climaxes in scenic pictures are hard to achieve, and yet they are essential in maintaining interest. A picture may be breathtakingly beautiful from the standpoint of subject matter and photography and yet be disappointing to an audience. The reason being that an unvarying level of pictorial or photographic excellence has introduced no climaxes which, in turn, leads to a feeling of monotony. Pictorial or photographic excellence should never be "played down" in order to "build up" a climax at some particular point, but we should remember at all times that we need climaxes to "point up" audience interest. So be on the alert for subjects to highlight or dramatize as suggested in Point No. 1.

The object of every picture, either movie or still, is to tell a story. Movies are particularly adapted to story telling, but as your camera can't think, you'll have to furnish the brains. Learn to think in terms of continuity. When you shoot a scene, does it suggest a previous or subsequent action or situation? If it does, shoot it. Then you have a sequence that "says something" instead of a pot shot related to nothing, and telling less. Train yourself to recognize the story potential of every scene or situation.

This year "bring back" a vacation that your friends will wish they had gone on. Here's hoping that you have a swell time, and good shootin' to you.

## “PROFESSIONAL JUNIOR”

### 16mm BLIMP

#### for E-K Cine Special Camera

This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The blimp has these exclusive features: • follow focus attachment for changing lens calibrations while the camera is in operation • viewing magnifier mounted on top of blimp for focusing while camera is mounted in blimp • arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp • pilot lights to illuminate lens calibrations and film footage indicator.

Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

Manufactured exclusively by the Makers of "Professional Junior" Tripods and Other Fine Camera Accessories.



FRANK C. ZUCKER  
**CAMERA EQUIPMENT CO.**  
1600 BROADWAY NEW YORK CITY

## Academy Awards

(Continued from Page 134)

This new method for the quantitative determination of hydroquinone and metol is an important improvement in the procedure of one of the basic controls in laboratory processing. By permitting the determination of hydroquinone and metol in the same extract and at only one pH, the method, compared to past procedures, offers a more rapid means of analysis with increased accuracy and safety in that it greatly reduces the fire and explosion hazard.

To Herbert E. Britt for the development and application of formulas and equipment for producing cloud and smoke effects.

The Britt formulas and equipment provide a simple effective method of producing cloud, fog, smoke and steam effects. The density of the vapor resulting from the mixture of the formulas is controllable from transparent to opaque, and the buoyancy is controllable to that the vapor will rise like smoke, float like clouds, or settle like fog. Thus, it allows for very realistic effects in the production of motion pictures and in a manner that is neither unpleasant to personnel nor harmful to equipment.

To Burton F. Miller and the Warner Brothers Electrical and Sound Departments for the design and construction of a motion picture arc lighting generator filter.

This equipment completely suppresses noise from arc lamps, thus removing a recording difficulty which has been encountered on motion picture sets since arc lamps have been used. By its use all combination and individual arc lamp chokes are eliminated, resulting in the saving of time on the set and the saving of labor in transporting, installing and maintaining individual chokes. Thus, it improves the quality and decreases the cost of producing motion pictures and so is important to the industry.

To Carl Faulkner of the 20th Century-Fox Sound Department for the reversed bias method, including a double bias method, for light valve and galvanometer density recording.

This method of bias applied to sound recording, increases the range and prevents distortion in the form of overload. It increases the volume range by reducing the noise level and by increasing the maximum undistorted signal level. The result is an increased dynamic volume range in the theatre, thus enhancing the dramatic value of the sound to the picture.

To the Mole-Richardson Company for

the Type 450 Super High Intensity Carbon Arc Lamp.

This super high intensity lamp is important both photographically and economically. By providing a greater light intensity from a single beam it is possible to create brilliant highlights and deep shadows which heighten the dramatic effect on the screen. It delivers twice the light output of any previous unit and with greater efficiency.

To Arthur F. Blinn, Robert O. Cook, C. O. Slyfield and the Walt Disney Sound Department for the design and development of an audio finder and track viewer for checking and locating noise in sound tracks.

This equipment consists of a sound head to locate noise in sound tracks and a projection viewer, which projects and enlarges the track so that noise which is difficult to locate audibly can be accurately found visually. The use of this equipment results in a more rapid and accurate method of locating noise on tracks in preparation for re-recording.

To Marty Martin and Hal Adkins of the RKO-Radio Miniature Department for the design and construction of equipment providing visual bullet effects.

This new method, accomplished without the use of explosives, realistically produces the effect of glass being shattered or metal being struck by bullets without actual damage to the object. A capsule containing petroleum jelly (with the addition of black or aluminum powder)

is fired by means of a compressed air gun electrically controlled. This equipment produces the desired effect in an extremely realistic manner, yet is simple, safe and economical in operation and accurately controllable, both in aiming and firing the capsules.

To Harold Nye and the Warner Brothers Electrical Department for the development of the electronically controlled fire and gaslight effect.

This equipment electronically controls the flicker and intensity of background and reinforcing lights. Gaslight and fireplace flames must be augmented with incandescent light for photographic purposes. Manual operation of flasher and dimmer combinations produce an artificial effect. This equipment automatically follows illumination of a flickering flame and controls exactly the flicker and intensity of reinforcing and background lights, resulting in a realism on the screen not previously obtainable.

To Burton F. Miller and the Warner Brothers Sound Department for the design and application of an equalizer to eliminate relative spectral energy distortion in electronic compressors.

The exaggeration of sibilant speech sounds produced by electronic volume compressors results in over emphasis of "s" sounds in theatre reproduction. Application of this equalizer accomplishes the practical elimination of this form of distortion resulting in improved sound quality in the theatre.

## HOUSTON . . . to be sure!

All over the World, film technicians make SURE of highest quality film processing when they choose

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## Screen Makeup

(Continued from Page 127)

work has been the portraiture of Franklin Delano Roosevelt required for the picture, *The Beginning or the End*, which tells the human story behind the atomic bomb. In such cases Mr. Dawn prefers to work from life masks, or death masks, but because none was available he used the almost unlimited supply of available photographs and drawings to build the progressive changes that took place in Mr. Roosevelt's face from 1938 to the time of his last public appearance. Godfrey Tearle, the British actor who portrays the role, has many similar features but there were required some alterations in the brow formation and other details. For the same picture a comparative likeness of Einstein was required although here the portrait is "more impressionistic," with emphasis upon the unusual head formation and the halo of gray hair. For the many other living scientists and military men who are depicted in the picture no effort toward portraiture was attempted.

Conversation with Mr. Dawn always leads into illuminating discussion of his varied problems. For instance, our talk relative to make-up for *Green Dolphin Street* turned chiefly to an analysis of the Maori people of New Zealand. One Maori native was found in Hollywood, and Hawaiians similar in type will be cast for the important roles. "The people of the Pacific islands are a strange complex of many races," said Mr. Dawn as he launched into a fascinating discourse concerning their facial characteristics. As a former sculptor, he is vitally interested in the definitive structure of peoples and any new problem is accepted as a challenge to investigate all the fine points which go far beyond the immediate need. Back of his character portraiture lies a structural plan that is similar in accuracy to an architectural design.

The spontaneous play of light on face and form is a factor which must be given great consideration in all artistic screen make-up, and therefore conferences with the director of photography are a matter of course. In this twentieth century the "golden light and luminous shadows" of a Rembrandt are not confined to the great masters of the brush. They are achieved electrically by directing powerful beams of light from any desired source, with resulting deep shadows and highlights to accentuate the work done by the motion picture make-up artists in which portraiture is blended with setting and, in the final analysis, both must be subordinated to achieve a maximum of audience interest in the story.

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## Biological Photo Exhibit

International exhibition of biological photography of interest to photographers in the scientific field will be held September 10 to 27, 1947, under sponsorship of the Biological Photographic Association, in Rochester, N. Y., during organization's annual convention.

The term, "biological," has been considered in its broadest sense; and all aspects of biology—zoology, genetics, osteology, paleontology, entomology, ornithology, ecology, and geology, as it pertains to living organisms, are subjects for exhibition. Scientific record photography is not to be ignored.

Exhibition Committee desires to include all photographic technics in the preparation of black-and-white and color still and motion picture photographic material. Technical procedures desired are those of general photography, photomicrography (electron and visible light), radiography (except as applied in routine roentgenography), autoradiography, microradiography, electron diffraction of animal or plant tissues, high speed photography, infrared, ultraviolet, polarized light records, etc.

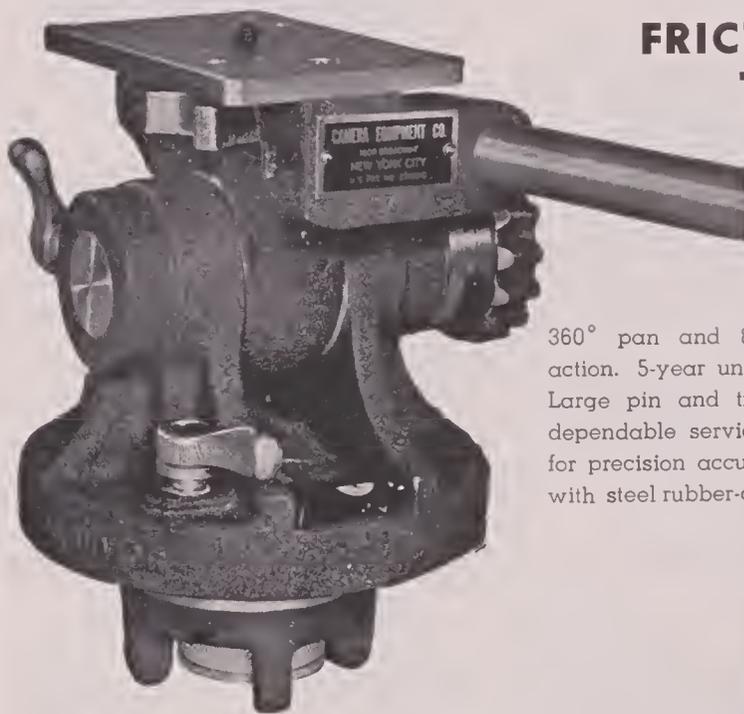
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## Composition

(Continued from Page 129)

possible to photograph a scene which comprises only two colors, and those of the same value. We may wish to use colors not only of different chroma strength, but of different value.

Observe the diagram:

We are combining yellow of high



value and strong chroma with purple-blue, its complementary of weak chroma and low value.

To arrive at the proper determination of the area which should be applied to each color we resort to the simple procedure of multiplying the chroma by the value of each color.  $Y9/3=27$ ,  $P-B 3/2=6$ . Applying these products to the color's inversely will result in our grouping 6 units of area of the yellow hue against 27 units of area of the purple hue. Roughly, the proportion is four and one-half to one.

The conclusion is that the stronger chroma and higher value should occupy the greater area. Circumstances in photographing a motion picture, or design-

ing the set for the scene will, of course, never permit strict adherence to this formula. It will be of inestimable help, none the less, if the preceding theory is employed wherever possible.

For purposes of illustration we have considered designing conditions of balance for only two colors. It is redundant to say that the same rules would apply for three or more colors.

The agreeable relationships which it is our desire to attain in color relations we now see as an orderly sequence of form and interval within our color sphere. In actual practice we do not suggest that a mathematical exercise should be the forerunner of compositional inspiration. Rather, that we keep in mind the sole fact that colors are related in a concrete and positive manner is the purpose of these pages. We suggest that judgment be directed; that choice be governed.

### Recapitulation and Considerations

In the foregoing we have considered only a very few of the points in the laws governing the measurement of color and its various and sundry harmonies. It would be futile to indulge in long discourse on more of them. We have attempted to show that the range of color combinations and values is infinite. More than this, we have attempted to prove that a logical and orderly concept of color manipulation will lead to very worthwhile results, where random selection of tones and tone areas will cause avoidable irritation on the part of the viewer of our finished product.

It is well that we consider some of the direct applications of the study of color to monochrome photography with the commonly used types of film.

Heavy chroma for green and red are unusual. When these occur in actual practice it is necessary to use considerable light to photograph at the desired value. The eye is used to the lighter shades in everyday life.

The elements, i.e., heat, light, weather, tend to a bleaching action, and heavy chroma is an artificial state in most cases. One of the notable exceptions is the color of foliage. For this reason an unusual amount of light must be used on leaves, grass and other verdure to bring them up to pastel shades which cause a greater film exposure. It is necessary at times actually to spray dark reds and greens with lighter pigments in order to gain the effect of high lights.

Blues and violets, which are dark colors, usually have so much white added to bring them up to value for the eye, that the actinic value upon the film is much greater than would ordinarily be assumed. For this reason, the light incident upon blues and violets should be subdued.

Yellow is naturally a light color to the eye. Other colors of equal value appear darker to the eye. To make yellow expose in monochrome photography to the proper intensity, more light must be added than appears natural.

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## of the Camera

(Continued from Page 123)

A roundup of 1925 to photograph events completely with the Akeley. Extensive experience with the latter led to be most valuable in later years. The regulation production cameras adapted for fast follow and pan. With more than a year's Akeley experience, Will was assigned first cameraputies on comedies and serials, and came his first major trip outside the United States.

The late Carl Laemmle, head of Universal, had been promoted by a lecturer on the idea of making a feature based on the life and customs of the Maoris in New Zealand. So the producer, serial writer Lewis Collins, Will, and an assistant cameraman headed across the Pacific. Idea was that the producer would write the story and script entirely, but on arrival at Auckland, the script was not on paper. Weeks went by with costs mounting and no film shot.

Finally, Laemmle had his New Zealand sales manager check on the troupe's expenses, and called a halt to further expenditure. But Collins and Will had reached the back country, and the former had picked up a wild and woolly meller from serial lines, which—with an all-star cast—he promised could be produced for less than \$20,000, and he insisted on the fact that such a picture would recoup the monies already expended which otherwise would be lost. Laemmle approved, and "The Devil's" was made by the three adventurers.

Hollywood, with an all-native cast of amateurs, and several Maoris aiding production assistants. It was quite successful for type, especially in England and New Zealand. Returning to Hollywood eight months after departure most of which time was wasted by the original producer—Will found that he had blasted the Hollywood scene.

But Will, like all other cameramen of the period, jumped into the hot-boxed camera booths to photograph two reelers on features, including handling of one of the several camera units on "The Heart of Jazz." The latter, by the way, was made in the old two-color Technicolor process forerunner of the present method.

Will has functioned as Technicolor assistant in "Direction of Photography on the Adventures of Tom Sawyer," (with Charles Wong Howe, A. S. C.), "Captain of the Clouds," (with Sol Polito, A. S. C.), "Heart of the North," (with V. O'Connell, A. S. C.), "Aloma of the South Seas," and "Happy-Go-Lucky" (both with Karl Struss, A. S. C.) also toured the United States in photographing a group of color shorts for Warners, most prominent being "A Boy Is Born," which received Academy Award nomination.

He had one of his longest picture assignments as Director of Photography on the second unit for Selznick's "Gone with the Wind," and contributed much

of the exterior footage of that picture on various locations.

Shortly after the United States entered the war, Will received commission as captain in the Army Air Force First Motion Picture Unit. He photographed training and indoctrination pictures, including "Wings Up," which had Clark Gable featured. This was released in theatres generally. He requested overseas duties, and his first mission was responsibility for making a photographic brief for the Air Transport Command of the route from Edmonton, Canada, to Fairbanks, Anchorage, Nome and other points in Alaska. This visual project was required to brief pilots on account of the hazardous terrain they later had to travel over on the air supply line to Russia.

In June of 1943, Captain Cline took off for China in command of a photographic unit of 32 men—the 16th Combat Camera Unit which was attached to the 14th Air Force commanded by General Chennault. Captain Cline (who was promoted to Major by General Chennault in the field) and his men photographed all activities of the 14th AAF—and covered virtually all of China outside of areas under Jap control, both in the air and on the ground. His unit was delegated to make films in the China theatre for the American newsreel pool.

Assignments, many of which were solo missions by various members of his unit—including himself—comprised the recording of evacuations, bombing missions, building of airports, destruction of the latter in the path of the advancing Japs, and various strategic events of the 14th AAF. On orders, Major Cline returned to Washington the end of 1944 with 100,000 feet of film made in the China theatre for viewing by top Army and Air Force officials who were mapping the final drive against the Japs at the time. Some of this footage was edited into a five reel documentary, "China Crisis," which was planned for general theatrical release. But the Japs capitulated before the film could be readied for distribution. However, it was shown at the United Nations conference in San Francisco to create wide attention.

In the final months of the Pacific war, Major Cline was sent to the Philippines, Morotai, and Okinawa, in charge of an AAF photographic unit shooting air force activities in both 35 mm. monopack and 16 mm. kodachrome. Shortly after this assignment, he was released from service in early 1946 to return to the Technicolor camera staff.

But, despite his world travels previously, it seems Will could not get out of moving around. One of his first assignments was Technicolor Director of Photography with Sid Wagner, A. S. C., on "Fiesta," an M-G-M production which again took him to Mexico. Recently, he completed a tour of the eastern section of the United States photographing a travel feature for Wilding Pictures in Technicolor monopack.

In mentioning monopack, it might be well to point out that Will was associated with the earliest exhaustive tests conducted by Technicolor on this type of color film stock, which, he admits, gives him plenty of know-how in handling assignments calling for use of that color negative.

Practical experience is the major requisite in motion picture photography, Will observes. And he really has had that in his world travels with a camera. Such episodes, in locations far removed from the supplies and conveniences of Hollywood, naturally require inventiveness, resourcefulness, and an ability to cope with any and all unusual situations that continually arise.

Although the film expeditions to far countries are at best the toughest assignments for production cinematographers, Will has thrived on his many experiences on such jounries. And—at the moment—he is standing by for another trip—it may be to Mexico, South America or the South Seas. But, he admits, the best thrill in travelling is the day you leave and the day you get home.

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# Current Assignments of A. S. C. Members

As this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A. S. C. were engaged as Directors of Photography in the Hollywood studios as follows:

## Columbia

Burnett Guffey, "Assigned to Treasury," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vladimir Sokoloff.

Charles Lawton, Jr., "Her Husband's Affairs," with Lucille Ball, Franchot Tone, Edward Everett Horton, Mikhail Rasumny, Gene Lockhart.

William Snyder, "The Man From Colorado," (Technicolor) with Glenn Ford, William Holden, Ellen Drew, Edgar Buchanan, Ray Collins.

Henry Freulich, "Keeper of the Bees," with Harry Davenport, Jane Darwell, Gloria Henry, Jo Ann Marlowe.

## Eagle-Lion

Jackson Rose, "Out of the Blue," with George Brent, Virginia Mayo, Carole Landis, Turhan Bey, Ann Dvorak.

Tony Gaudio, "Love From a Stranger," with John Hodiak, Sylvia Sydney, Ann Richards, Isobel Elsom, Ernest Cosart.

## Metro-Goldwyn-Mayer

Hal Rosson, "The Hucksters," with Clark Gable, Deborah Kerr, Sydney Greenstreet, Keenan Wynn, Ava Gardner, Adolphe Menjou, Edward Arnold.

Charles Rosher, "Song of the Thin Man," with William Powell, Myrna Loy, Keenan Wynn, Jayne Meadows, Leon Ames.

Harry Stradling, "The Pirate," (Technicolor) with Judy Garland, Gene Kelly, Walter Slezak, Gladys Cooper.

Charles Schoenbaum, "Good News," (Technicolor) with June Allyson, Peter Lawford, Joan McCracken, Pat Marshall, Ray McDonald, Mel Torme.

## Monogram

Paul Ivano, "The Gangster," (King Bros.-Allied Artists) with Barry Sullivan, Belita, Joan Lorrying, Akim Tamiroff, Fifi D'Orsay.

William A. Sickner, "Louisiana," with Jimmie Davis, Margaret Lindsay, John Gallaudet.

Mack Stengler, "Sarge Goes to Col-

lege," with Alan Hale, Jr., Freddie Stewart, June Preisser, Frankie Darro.

Harry Neumann, "The Law Comes to Gunsight," with Johnny Mack Brown, Raymond Hatton, Reno Blair.

Marcel LePicard, "Scareheads," with Leo Gorcey, Huntz Hall, Christine McIntyre, Bobby Jordan, Gabriel Dell, David Gorcey.

## Paramount

Fred Jackman, Jr., "Albuquerque," (Cinecolor) (Clarion Prod.) with Randolph Scott, Barbara Britton, George (Gabby) Hayes, Russel Hayden, Lon Chaney.

John Seitz, "The Big Clock," with Ray Milland, Charles Laughton, Maureen O'Sullivan, Rita Johnson, Elsa Lanchester, George Macready, Lloyd Corrigan.

## RKO

Frank Redman, "If You Knew Susie," with Eddie Cantor, Joan Davis, Allyn Joslyn, Sheldon Leonard, Douglas Fowley, Sig Ruman, Fritz Feld, Paul Harvey.

Robert de Grasse, "Indian Summer," with Alexander Knox, Ann Sothorn, George Tobias, Myrna Dell, Florence Bates, Sharyn Moffett.

Harry Wild and W. Howard Greene, "Tycoon," (Technicolor) with John Wayne, Laraine Day, Sir Cedric Hardwicke, Anthony Quinn, James Gleason, Judith Anderson.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Prod.) with Cary Grant, Loretta Young, David Niven, Monte Wooley, Marsha Ann Northrop, Edit Angold, Sara Haden.

J. Roy Hunt, "Crossfire," with Robert Young, Robert Mitchum, Robert Ryan, Gloria Grahame, Jacqueline White, Steve Brodie.

## Screen Guild

William Sickner, "Killer Dill," with Anne Gwynne, Frank Albertson, Stuart Erwin, Mike Mazurki, Milburn Stone, Dorothy Granger.

Jack Greenhalgh, "Western Barn Dance," with Ernest Tubb, Lori Irving, Helen Boyce, Frank McGlynn.

James Brown, Jr., "The Hat Box Mystery," with Tom Neal, Allen Jenkins, Pamela Blake, Virginia Sale.

## Selznick

Lee Garmes, "The Paradine Case," with Gregory Peck, Ann Todd, Charles Laughton, Charles Coburn, Ethel Barrymore, Louis Jordan, Joan Tetzl, Leo G. Carroll, Valli.

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Cecil Kellaway.

## Twentieth Century-Fox

Charles Clarke, Arthur Arling, "Captain From Castile," (Technicolor) with Tyrone Power, Jean Peters, Cesar Romero, Lee J. Cobb, John Sutton, Antonio Moreno, Thomas Gomez, Alan Mowbry.

Ernest Palmer, "Scudda Hoo, Scudda Hay," (Technicolor) with June Haver, Lon McCallister, Anne Revere, Walter Brennan, Henry Hull, Robert Karnes.

Norbert Brodine, "Kiss of Death," with Victor Mature, Brian Donlevy, Patricia Morison, Coleen Gray, Wendell Phillips, Anthony Ross, Henry Brandon.

Benjamin Kline, "Second Chance," (Sol Wurtzel Prod.) with Kent Taylor, Louise Currie, Dennis Hoey, Larry Blake, Ann Doran, Betty Compson.

## United Artists

Franz Planer, "Vendetta," (California Pictures) with Faith Domergue, George Dolenz, Hillary Brooke, Nigel Bruce.

James Wong Howe, "Body and Soul," (Enterprise) with John Garfield, Lilli Palmer, Hazel Brooks, Anne Revere, William Conrad, Canada Lee.

Karl Struss, "Atlantis," (Nero Films) with Maria Montez, Jean Pierre Aumont, Dennis O'Keefe, Alexis Minotis, Milada Mladova, Russ Conklin.

## Universal-International

Stanley Cortez, "Secret Beyond the Door," (Diana Prod.) with Joan Bennett, Michael Redgrave, Anne Revere, Barbara O'Neill, Natalie Schaefer, Rosa Rey.

William Daniels, "Brute Force," (Mark Hellinger Prod.) with Burt Lancaster, Hume Cronyn, Charles Bickford, Ann Blyth, Anita Colby, Yvonne De Carlo, Ella Raines.

Milton Krasner, "For the Love of Mary," with Deanna Durbin, John Dall, Donald O'Connor, Charles Winninger, Helena Carter, Margaret Wycherly.

Hal Mohr, "The Lost Love," (Walter Wanger Prod.) with Robert Cummings, Susan Hayward, Agnes Moorehead, Joan Lorrying, Frank Puglia.

## Warners

Woody Bredell, "The Unsuspected," (Michael Curtiz Prod.) with Joan Caulfield, Claude Rains, Audrey Totter, Constance Bennett, Michael North, Hurd Hatfield.

Karl Freund, "Wallflower," with Joyce Reynolds, Robert Hutton, Janis Paige, Edward Arnold.

Sol Polito, "Voice of the Turtle," with Eleanor Parker, Ronald Reagan, Eve Arden.

Arthur Edson, William V. Skall, "Two Guys From Texas," (Technicolor) with Dennis Morgan, Jack Carson, Dorothy Malone, Andrew Tombes, Forrest Tucker.

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## Cameraman's Director

(Continued from Page 125)

contribute strongly to the action. He does not like obvious tricks, and his method of working is to select desirable elements of suspense in the form of strong basic situations and then build the story around them.

### Harmony Behind the Viewfinder

Perhaps the main reason that Hitchcock works so harmoniously with Directors of Cinematography is that he is able to talk their language. He thinks in terms of the camera and visualizes every phase of a story as it will appear on the screen. So well does he know his camera, and so fully does he respect the cameraman that he never has to look at the daily rushes to know what is on the film.

During his eight years in Hollywood, he has worked smoothly with many of the industry's top cinematographers. He filmed "Mr. and Mrs. Smith" and "Suspicion" with Harry Stradling, A.S.C., at the camera; "Lifeboat" with Glen MacWilliams, A.S.C.; "Saboteur" and "Shadow of a Doubt" with Joseph Valentine, A.S.C.; "Foreign Correspondent" with Rudolph Mate, A.S.C.; "Rebecca" and "Spellbound" with George Barnes, A.S.C.; and "Notorious" with Ted Tetzlaff, A.S.C.

In all of these films, the camera styles reflected the varied personalities of the individual cinematographers; and yet, they all had a certain kinetic approach that is definitely the Hitchcock "touch."

Lee Garmes, A.S.C., currently at work with Hitchcock filming "The Paradise Case" for David O. Selznick, sums up the reasons why Hitch is so highly respected by cameramen and other technicians. "It is stimulating to work with Hitch because he recognizes and respects the cinematographer as a creative personality, and gives him free rein to use talent and imagination in putting the story on film," Garmes explains, "He doesn't try to do the assistant director's job or the cameraman's job. He directs the action, but he recognizes that making a picture takes the teamwork of the whole crew."

During his sojourn in Hollywood, Alfred Hitchcock has achieved a dual success in that, not only are his pictures artistically good, but they ring up a merry tune at the box-office, as well—a happy combination no matter how you view it.

Such success is based upon an imaginative approach to story development, a comprehensive technical background, an uncanny sense of dramatic timing, and the ability to think in terms of camera and lens. You may add to these a flair for working quietly and smoothly in such a way as to inspire the best from his fellow technicians — for it is this quality more than anything else that has won him the respectful tag of "cameraman's director."

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## BOOK REVIEW

### "Photography by Infrared"

by Walter Clark, Second Edition.

(Published by John Wiley & Sons, Inc., New York; Chapman and Hall, Ltd., London.)

Nothing, in my opinion, has contributed so much to the development of photography as infrared. It has opened new doors for science, medicine, color, art, crime discovery, diseases of the body, astronomy, haze—distance in air—and camouflage of war, and untold avenues too numerous to mention.

Panchromatic emulsions were a great step from the old orthochromatic films, but infrared has reached far beyond what visual light or the eye can see. After reading the marvelous book on "PHOTOGRAPHY BY INFRARED" by Walter Clark (dedicated to Dr. E. K. Mees, F. R. S.), I am more than enthused over infrared and its possibilities and feel no photographer should be without the book.

This book—clearly describing light, heat and radiation known as infrared—treats on all the phases of infrared photography from the sensitizing, construction of lights and lamps, lenses and filters, to the finished product; is printed in fourteen chapters on 472 pages of tough slick paper and in a convenient size, 5½x8½ inches. It is generously illustrated and also contains many understandable graphs and lists of very good reference books.

Because of the knowledge to be gained from this book I am sure that my shelf of books on photography would be incomplete without it.

Glenn R. Kershner

## Nashville Schools Acquire 21 More 16mm. Projectors

Twenty-one new Victor sound motion picture projectors were added to the audio-visual department of the Nashville, Tennessee, city schools recently in a step designed to enrich the curriculum in all fields of study through increased use of visual aids materials. The purchase of the new 16 mm. equipment by the Nashville city board of education was announced by John Forte, Sales Manager for the Nashville Audio-Visual Equipment Company, local distributors for Victor projection equipment.

The acquisition of the new machines brings to 44 the number of sound projectors now in use in the Nashville City schools. Each school in the system has an audio-visual chairman who supervises the projection equipment and orders all films from a central film library maintained by the city schools.

For the present school year, a budget of \$15,000 has been set up for the audio-visual department. About \$6500 of that amount will be spent in the purchase of films, records, slides and filmstrips.

## Milwaukee Amateur

Norville Schield was elected president of the Amateur Movie Society of Milwaukee for the coming year, taking office at the February 12th meeting, held at the Red Arrow Club. Other officers include: Richard Franzel and Mrs. DeLylia Mortag, vice presidents; Fred Domrose, treasurer; and Naomi Gauger, secretary. As Milwaukee is one of the many clubs holding two meetings monthly, the board of directors voted to have business taken up at the initial session only.

Films exhibited at the February 12th meeting included: "Holland Blooms Again," "Music in the Sky," and "Fashions for Americans," all soundfilms.

## Feature Production Resumes at RKO-Pathe N. Y.

Feature production resumed at RKO Pathe Studios, New York City, several weeks ago, when David Selznick dispatched his "Portrait of Jenny" unit starring Jennifer Jones and Joseph Cotten from Hollywood under the guidance of director William Dieterle to make all interiors on the eastern studio sound stages. Joseph August, ASC, will function as director of photography on the production.

## Willard Van Enger Passes

Willard Van Enger, process cameraman for Warners studios for the past 20 years and for many years a member of the A. S. C., died February 22nd following an illness of several months. Funeral services and interment were held at Forest Lawn, February 25th. He is survived by his widow, two sons, and a brother.

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## Cinema Workshop

(Continued from Page 140)

the film. Since rates are usually computed on a per-hour basis for actual recording time, it pays to rehearse the narration quite thoroughly in advance so that the recording session will not be drawn out to overly expensive lengths.

### The Scope of Narrated Sound

In working with narrated sound, even though the dialogue of the characters is not heard directly, their thoughts, words and actions can be interpreted so skillfully through the use of clever commentary that an *illusion* of direct dialogue results.

An especially effective adaptation of this technique, borrowed from radio and often used with striking effect in professional photoplays, is the *stream of consciousness approach*. This is a style in which the main character in the film narrates the commentary in the *first person*, revealing his personal thoughts and ideas regarding the action as the story progresses. It is tremendously effective in lending a strong personal touch to the presentation of the story, and permits the expression of dramatic subtleties that would be impossible to put across in any other way.

In staging the action for a film that is to utilize *narrated* rather than *direct* sound, it is necessary to have in mind a general idea of how the narration is to run, in order to accurately key the pace of the action during filming. However, the actual timing and editing of the commentary cannot accurately be done until the visual footage has been cut and arranged in approved sequence.

Often, when action must be synchronized closely to narration, the commentary is first written and approved, and is then read aloud on the set at the same speed that will be used in recording, so that the action can be timed to fit precisely. To insure perfect matching, the narration is sometimes recorded first (either on film or disc) and played back on the set while the action is being filmed.

Background music can add forcefully to the effectiveness of a film, and should be directly keyed to the mood the picture is supposed to convey. You can often patch together a very acceptable score by using parts of commercial disc re-

cordings, although permission for such use must first be obtained from the disc manufacturer.

The ideal arrangement, of course, is to compose an *original* score, or create one from music in public domain. Such a score, played by a small orchestra, a piano, or the versatile Hammond organ (and skillfully keyed to the action) will give the picture a professional finish and add hugely to its effectiveness as entertainment.

Having established a background for the use of sound with film, we can now go on to other phases of production, returning to the subject of sound in a later chapter for a detailed analysis of the mechanical techniques of recording.

NEXT ISSUE: *Pictorial Continuity*.

### Television Use of 8-16 mm. Features SMPE Convention

Latest developments in the utilization of both 8 mm. and 16 mm. motion pictures for television will highlight the 61st semi-annual convention of the Society of Motion Picture Engineers which will be held at the Drake Hotel, Chicago, April 21st to 25th.

Major emphasis of the program of papers to be presented will be placed on application of narrow films for television and other fields; together with all phases of studio and stage techniques applicable to both the sub-gauge films and television, according to announcement by SMPE president Loren Ryder.

Technical sessions and other activities of the convention will be open to all amateur and professional 8 mm. and 16 mm. film makers, it is pointed out, and the central midwest location of the convention will undoubtedly attract many enthusiasts from the amateur ranks.

### Academic Film Co. Resumes

Milton J. Salzburg and Harold Baumstone, for past 12 years president and vice president, respectively of Pictorial Films, Inc., have severed connections with the latter company to reactivate their own organization, Academic Films which suspended activities during the war. Plans provide for an enlarged program by Academic in all phases of 16mm. production, specializing in educational films.

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## Syracuse Cinematographers

What happened in Syracuse?

A postcard dated March 1st, and signed by Dorothy Warner, Secretary, states:

"This is to advise that the Syracuse Movie Makers Association has been disbanded as of Jan. 1, 1947 and a new club formed under the name of the Cinematographers Club of Syracuse, 153 Lillac Street, Syracuse, N. Y.

"All properties of the old club have been sold at auction. Kindly address future literature to the above new name."

## Lummus Camera

Movie group of Lummus Camera Club, New York met on March 27th for general round-robin discussion of camera operation and technique. Films exhibited included several produced by members, and one subject from the library of ACL.

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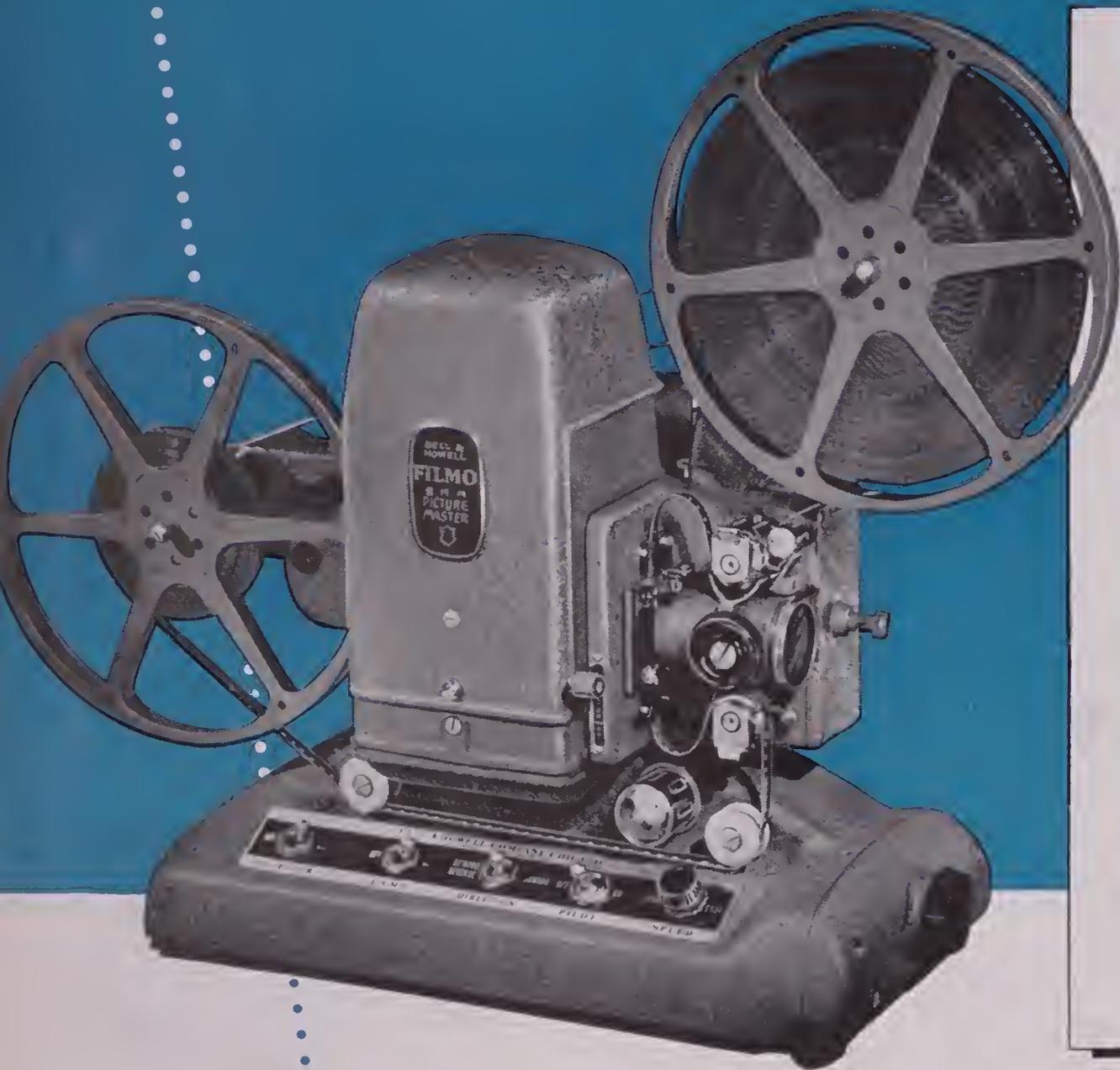
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**Does the camera movement permit high speed photography?** You can photograph at ultra-high speeds with no strain on the mechanism. The movement is typically Mitchell — double pilot pin registration, precision built, rugged, dependable.

**Is the camera adaptable for sound?** The camera functions in exactly the same way as all Mitchell double-system sound cameras. It may be equipped with a variable speed motor for silent pictures or a synchronous or interlocking motor for sound.

**How many lenses does the turret accommodate?** The revolving turret holds four lenses. Lenses from 15 mm. up may be mounted. The small thread pitch on the lens mounts gives greater distance between calibration points and eliminates play—making focusing a quick, positive operation.

**What type of view finder is used?** The full-vision view finder is very similar to that supplied with Mitchell 35 mm. cameras. The image seen is erect and correct as to right and left.

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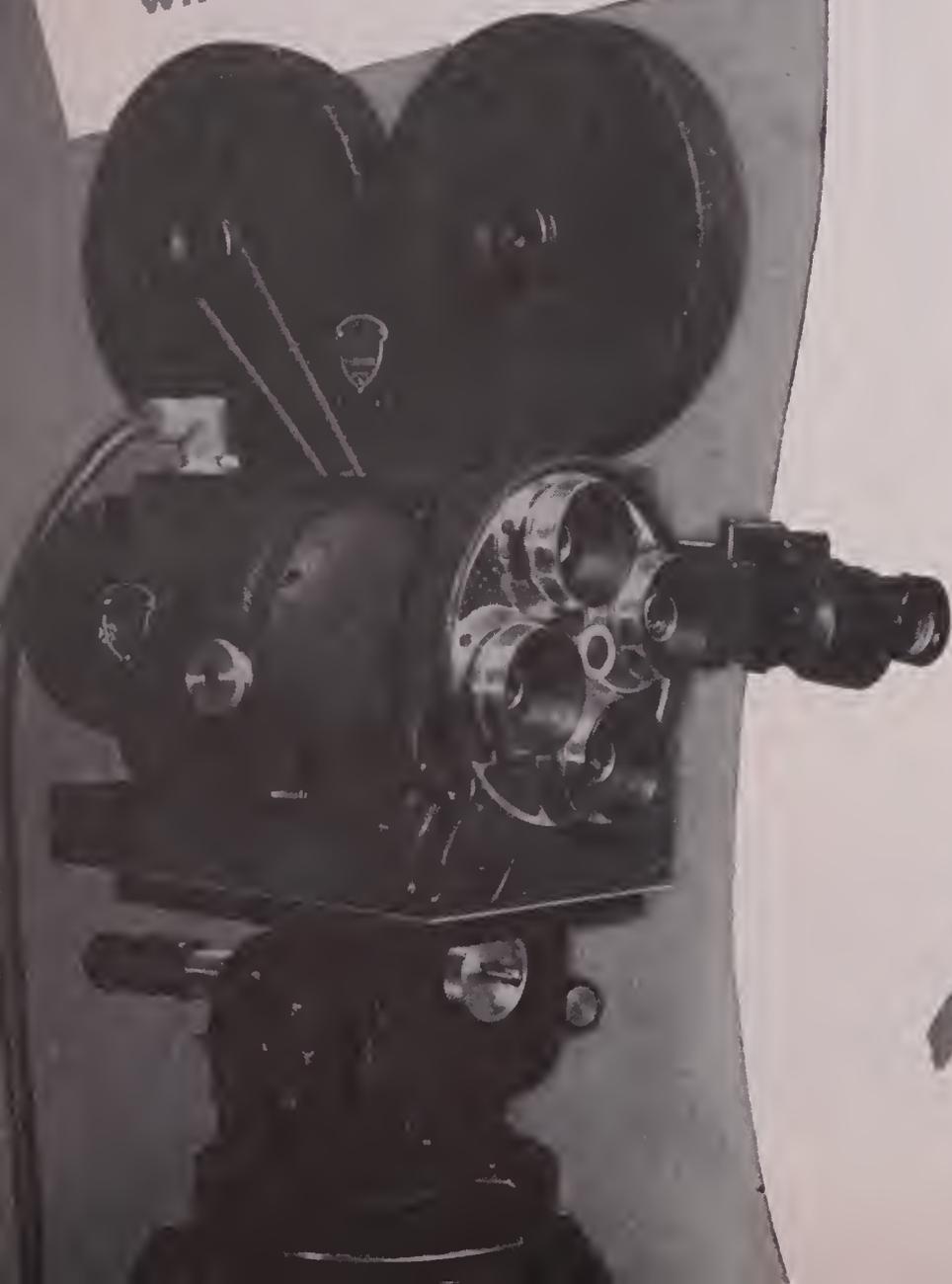
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THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

MAY, 1947

NO. 5

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ON THE FRONT COVER—Exterior setup for scene in the Universal-International production, "The Egg and I," which stars Claudette Colbert and Fred MacMurray. Marjorie Main and Percy Kilbride are shown on the wagon seat, with Director Chester Ersikine on elevated seat at extreme right. Director of Photography Milton Krasner is shown in lower right foreground for best angle to watch the camera action.



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### AUSTRALIAN REPRESENTATIVE

McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

Entered as second-class matter Nov. 18, 1937, at the postoffice at Los Angeles, California, under the act of March 3, 1879.

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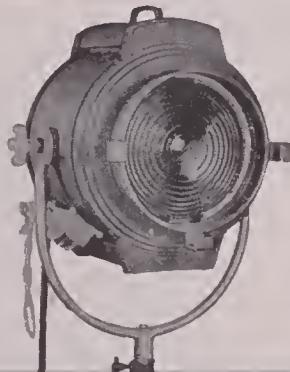


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# Studio Production With Two Color Bipack Motion Picture Film

By JOHN W. BOYLE, A. S. C. and BENJAMIN BERG

*Presented by John Boyle, A.S.C., at the October, 1946 Convention of the Society of Motion Picture Engineers, and Published in the February, 1947 issue of SMPE Journal. Reprinted by permission.*

**Summary.**—The increased use of color in motion pictures has brought about a revival of interest in two-color bipack processes. With proper handling, allowing sufficient production time, and good co-ordination between camera, make-up, art, and wardrobe departments, the results with a two-color process are very adequate.

The entire production program of the Hal Roach Studios is in a two-color process. The technical departments have had the advantage of planning for the limitations of a two-color process. This has enabled the studio to obtain the ultimate possible from such a process. This paper describes briefly some of the problems overcome and techniques developed.

The increased use of color in motion picture production and the inability of the producers to secure sufficient three-color footage for release prints has brought revival of interest in two-color bipack processes. With proper handling, allowing sufficient production time and good co-ordination among all departments, such as camera, make-up, art,

wardrobe, property, etc., the results with a two-color process are very satisfactory.

Since a two-color process can only record a limited range of colors successfully, this co-ordination between the various departments is absolutely essential.

The Hal Roach Studio, upon reopening after the war, is producing all of its pictures in color. With the entire product of the studio in color, the technical departments have had the advantage of planning for the limitations of a two-color process. This has enabled the studio to obtain the ultimate possible from such a process.

While a good deal of the following is common knowledge, we believe no literature is available which has attempted to give practical assistance to the worker attempting two-color photography for the first time.

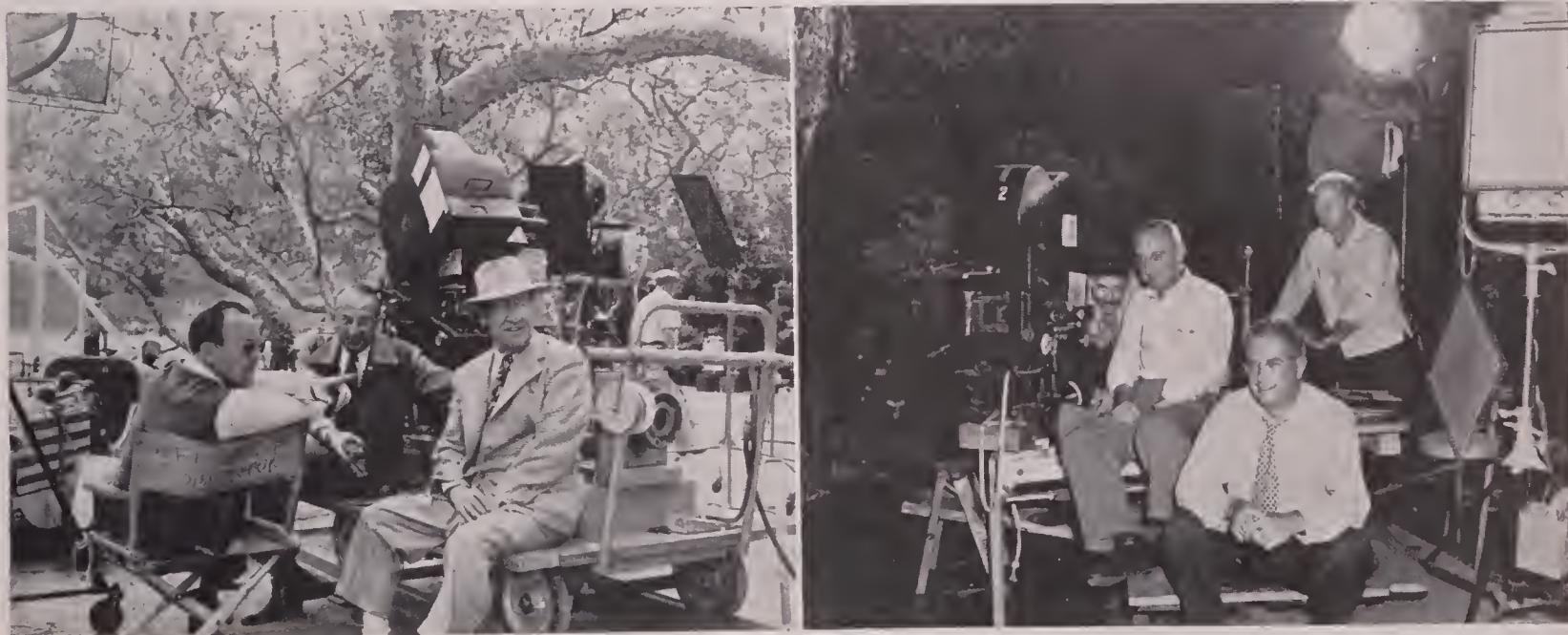
With a few changes, any standard 35-mm cine camera can be utilized to photograph bipack film. These are the changes we have found necessary to convert the NC Type Mitchell for bipack: (1) Move lenses toward film (emulsion) plane a distance of 0.0045 in., then use normal calibrations for focus. Cameras with standard instead of "slip-ring" lens mounts would have to be either eye focused or recalibrated; (2) Adjusting

lenses will necessitate "shimming" the ground glass back 0.0045 in.; (3) Remove "stripper" shoe at back of main sprocket and replace with "cutaway" shoe; (4) Lock off clutch; (5) Substitute either a four-roller pressure plate, or a solid pressure plate. In the four-roller plate the top roller is straight while the other three rollers are crowned 0.003 in. The four-roller pressure plate is patented by the Cinecolor Corporation and license for use must be obtained from them. The solid-type plate is crowned 0.003 in. and is of polished chrome. Pressure can be obtained with a solid screw or by use of a spring twice the tension of the normal spring. In practice we have used the solid screw for the four-roller plate, being careful to avoid "run-outs."

The proper adjustment of the pressure plate is very important; insufficient clearance with consequent "punching" will cause perforation damage and out-of-register images, while too much clearance will destroy contact of the rear negative resulting in "breathing" and out-of-focus pictures.

Too much stress cannot be placed upon adequate camera maintenance. One of the most common faults in the use of bipack has been out-of-register prints owing to faulty camera operation. Nothing

(Continued on Page 185)



John W. Boyle, A.S.C., Director of Photography on the Hal Roach series of bipack two color features, on the sets. Left, Boyle is in center of exterior location; and seated beside camera on stage.

# Leon Shamroy Elected President of A. S. C.



**L** EON SHAMROY has been elected President of the American Society of Cinematographers for the coming year. He succeeds Leonard Smith, who headed the organization for the past four years with a brilliant record in his administration during the final two years of the war and the post-war period.

President Shamroy has been a member of the Board of Governors of the A. S. C. for a number of years, during which period he has continually demonstrated his interests in the welfare and progress of both the organization and its members; and was first vice president during the past year. He is one of the outstanding Directors of Photography of the industry, which is demonstrated by his winning of three Academy Awards for Best Cinematography—"Black Swan," "Wilson," and "Leave Her To Heaven."

## Board Members Returned

Five members of the Board of Governors, up for re-election for three year terms, were returned to office by the A.C.S. membership. They comprise: Leon Shamroy, Leonard Smith, John Seitz,

Joseph Walker, and Lee Garmes. Due to the growing absence of board members from Hollywood on far-distant locations, five alternate board members were selected for one year periods, which will insure quorum at each monthly meeting of the group. The alternates are: John Arnold, Al Gilks, Joseph Ruttenberg, Milton Krasner, and Sol Halperin.

## Other Officers

In addition to selecting Leon Shamroy for President for the ensuing year, the board of governors elected the following officers: Charles Clarke, Joseph Ruttenberg and Lee Garmes, vice presidents; Ray Rennahan, secretary; Fred Jackman, executive vice president and treasurer; and Sol Halperin, sergeant-at-arms. Jackman and Rennahan were re-elected by acclamation.

Complete Board of Governors to function for the A. S. C. during the coming year will include: John Boyle, Charles G. Clarke, Arthur Edeson, George Folsey, Lee Garmes, Fred W. Jackman, Gordon Jennings, Sol Polito, Ray Rennahan, Charles Rosher, John Seitz, Leon Shamroy, William V. Skall, Leonard

Smith, Joseph Walker; in addition to the five alternates named above. Addition of the latter five adds even more strength to the guiding group of the organization, as all are in addition to the regular board members—veteran top cinematographers with many years of experience in the industry.

## Retiring President's Thanks

In retiring as president after four consecutive terms, Leonard Smith stated, "I am very happy in the election of Leon Shamroy to head the A. S. C., and that both the members and Board of Governors will give him all of the splendid cooperation that was extended to me. He has continually demonstrated his desires to promote the welfare of the A. S. C. to make it a stronger and better organization.

"I am very proud of the accomplishments and progress of the organization during my presidency, and want to thank both the members as a whole, and the Board of Governors, for the splendid cooperation accorded over the past four years."



BOARD OF GOVERNORS OF THE A.S.C. which will function during the coming year. Back row (left to right): Fred W. Jackman, Milton Krasner, John Arnold, George Folsey, John Seitz, Charles Rosher, Len Smith, Sol Polito, William Skall, Sol Halperin. Seated (left to right): Lee Garmes, Charles Clarke, President Leon Shamroy, Ray Rennahan, and Joseph Ruttenberg. Not present when picture was taken were: Arthur Edeson, Gordon Jennings, Joseph Walker, John Boyle and Al Gilks.

—Photo by C. A. Peterson

**A Message To The  
A. S. C.  
by  
Leon Shamroy**

"Now past its Silver Anniversary, the A. S. C. has a real tradition which is recognized and respected wherever films are shown. The prestige of the A. S. C. is the result of a history of intelligence, unselfish courage and foresight, displayed by a long line of founders.

"When Phil Rosen came to Los Angeles in 1919 to photograph "The Miracle Man" for George Loane Tucker, he brought with him an idea for a national organization of progressive members of the camera craft, a body that would include motion picture photographers from all parts of the country—who could thus exchange ideas and work together for the betterment of the camera profession. Rosen, together with other members of the craft, discussed the idea for the national body. From these discussions resulted the formation of the American Society of Cinematographers.

"These men, and the others who supported and enlarged their ideals, transformed a disorganized and none-too-well respected craft into the chief instrument of the first great mass art. And at the same time, they organized a society to define, preserve, and create standards for their art and to protect its practitioners. All of this was achieved within a quarter century, an actual world's record for the growth of a tradition in any art or science.

"When you sit down in a chair for the first time in a new job, you need to think about who sat there before you, who made the chair comfortable, and who gave it the look of prestige and service. For the chair epitomizes a job to be accomplished on the basis of service rendered by previous occupants.

'Men like Philip Rosen, James C. Van Trees, Gaetano Gaudio, Homer A. Scott, Daniel B. Clark, John W. Boyle, John F. Seitz, Hal Mohr, John Arnold and Fred W. Jackman, have made the president's chair of the A.S.C. a symbol of the society's achievements. And Leonard M. Smith culminated the work of all his predecessors with an unsurpassed record of service carried on despite serious illness and enormous handicaps. His self sacrifice typifies the spirit that has carried the membership of the A.S.C. successfully through the familiar and continuing difficulties of an industry which in the last analysis depends on the art of the camera to tell its story.

"When anyone is serious in Hollywood it's usually taken as a gag. But I'll risk that in making an humble bow to these men for what they have done for our profession. And I'd like to make another

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President Leon Shamroy (left) receives congratulations from retiring President, Leonard Smith.

Photo by Gene Kornman



A.S.C. officers for the ensuing year. Seated (left to right): Fred Jackman, Executive Vice President and Treasurer; Leon Shamroy, President; Ray Rennahan, Secretary. Standing: Sol Halperin, Sergeant-at-arms; and Vice Presidents Charles Clarke, Joseph Ruttenberg, and Lee Garmes.



Russell Metty, A.S.C., Director of Cinematography on Enterprise production, "Arch of Triumph," adjusts the camera for a close-up of Ingrid Bergman.

# "TRIUMPH" IN LOW KEY

by Herb A. Lightman

WHEN the Academy awards presentation rolls around next year, it will be no surprise at all if Director of Cinematography Russell Metty, A.S.C., receives important consideration of his mood-filled photography of the Enterprise film "Arch of Triumph."

Here is photography which, without obvious tricks or spectacular lighting, is so closely tailored to the atmosphere of the story that it loses its identity as a separate element and actually becomes part of the narrative. Here is realism and mood and low-key lighting of an integrity seldom before seen on the screen.

"Arch of Triumph" is a filmization of Eric Maria Remarque's best-selling novel of the same name. It's theme is the rather glamorous love story of Ravic, an Austrian refugee "ghost" surgeon, and Joan Madou, an Anglo-Rumanian-Italian torch singer—played respectively by Charles Boyer and Ingrid Bergman.

The locale of the story is German-occupied Paris. It is not a happy tale. The atmosphere throughout is somber, sullen, heavy with fear and impending tragedy. It throbs with sustained emotion that explodes from time to time into violently dramatic action.

It is the kind of story into which some cinematographers would have thrown everything but the proverbial kitchen sink, since it fairly teems with opportunities for "arty" camera effects. But contrary to expectation, it is the simple restraint of Metty's photography that makes the film outstanding as cinematic art.

## Conceiving a Mood

Metty, a 210 lb. giant who looks more like a football fullback than a camera artist, caught the mood of the story long before it became his task to translate that mood into light and shadow for the screen.

"When I first read the novel," he recalls, "I got the impression of strong light and shade contrast. The characters

seemed to appear either in a dim, shadowy light or in a flat white glare. With the use of a few simple lighting units, I've tried to infuse the picture with the same subdued feeling the author achieved with simple, direct words."

The result is a style of low-key lighting that perfectly conveys the inert hopelessness of the basic situation. In places it is raw and harsh, like an overcast day. At other times, when love for a moment melts the coarseness of reality, it becomes warm and modeled, with a certain earthly sensuality. It flows in a constantly changing pattern, precisely attuned to a story of many moods.

The basic lighting schemes used are so simple, to all appearances, that the force which they produce is doubly amazing. It is a great temptation for Hollywood cinematographers, having an unlimited number of lighting units available, to overcomplicate their lighting through the use of too many units.

As a basic set-up, Metty, using a working aperture of f 2.3, places a low-intensity key-light (not over 50 candle-power) at right angles to the lens, so that the faces of the subjects are thrown into bold relief against the background. The feeling of mood is intensified by the use of little or no fill light.

Although extremely effective, this style of lighting is not always flattering to the faces of the players, some of whom have features that have to be flattered considerably. Although Metty realizes this, his integrity as a Director of Photography will not permit him to change a light source that has been established in a master scene simply because, in the close-ups, it happens to show a star the way nature actually constructed her.

"I can see no reason to alter a lighting plan simply to give the subject the benefit of flattering lighting," he maintains. "Why should this be done? The human eye, the greatest camera ever devised, doesn't compensate in this way, and I certainly don't feel that I'm the

one to attempt improvements on the quality of reproduction offered by normal human vision."

Fortunately for all concerned with "Arch of Triumph," Miss Bergman is one star who would be photogenic even with a sack over her head, so it was no problem at all for her to look attractive even with the extreme shadow contrast which this type of lighting produces.

## The Case Against Color

Refuting the argument of certain critics who maintain that every motion picture should be (and eventually will be) filmed in color, Metty points out that "Arch of Triumph" definitely owes its pictorial force to the fact that it is photographed in black and white.

"Only in black and white, with full contrast between strong highlights and deep shadows, can a real sense of depth be obtained. This is one picture that would definitely lose all feeling of mood if filmed in color—because, despite the tremendous strides that have recently been made toward high fidelity reproduction in color, so far the process has not been developed to where it can catch the minute gradations from blank white, through the grays, to deep black."

A sequence in the picture lit with particular skill is that in which Boyer tells Miss Bergman that he is leaving her. As the action begins, it is sunset in Paris, and the light which fills the room has a sharp luminosity that throws into bold relief the faces of the two characters approaching and withdrawing from the window light-source.

As the scene progresses, the sun dips below the horizon so that, finally, the only light in the room is the first faint glow of moonlight, subtly highlighting the faces of the characters as the situation reaches its dramatic climax. The change is so smooth and gradual that at no time is the audience aware that the entire key of the scene has been altered to complement a changing dramatic mood.



Left: A new technique replaces the conventional split-screen method of showing a telephone conversation between Charles Boyer and Ingrid Bergman in "Arch of Triumph." Actually, both players are side-by-side on the same set, although deftly controlled lighting makes them appear to be some distance apart. Right: A scene in the Cafe Scheherazade in Paris exemplifies the forceful style of mood lighting used so effectively throughout the film.

### Original Camera Techniques

Russell Metty's photography in "Arch of Triumph" is highlighted by several original camera approaches to effects previously achieved through stereotyped methods.

In one sequence, Ravic has just killed the story's antagonist, a Gestapo agent, and is driving the body to a place where he can bury it. As he drives along, he imagines that the face of the Gestapo agent appears before him and taunts him with mocking words. Ordinarily, such an effect would be obtained by double-printing a shot of the agent's face over the shot of Ravic driving in his car.

Instead, Metty faded in a strong key-light onto the face of the agent slumped next to Ravic, so that his face, as he talked, was actually reflected into the windshield. The effect was filmed all in one shot, and it has a smoothness and finish that is usually lacking in such

tricky devices.

In another sequence, a dramatic high-point of the story, Ravic calls Joan to tell her he is about to be deported. Their telephone conversation is staged to show both characters on the screen at the same time, in order to avoid the distraction of inter-cutting two separate scenes.

Such an effect is usually accomplished by double-printing the halves of two different negatives into one duped negative in what is known as a *split-screen* technique. Avoiding this method, Metty staged the scene so that the two characters actually appear on the same set at the same time but lighted in such a way that, although just a few feet apart, they seem to be some distance away. The result has a clarity, naturalness, and quality that could not possibly have been achieved through the use of the split-screen method.

Perhaps the most unusual style of

lighting used in the picture is that which characterizes the operating room sequences. Here Metty used *indirect* lighting to reproduce the starkly white, flat atmosphere of the modern surgery. He gained a shadowless high-key effect by reflecting arc lights off of the white muslin backing that formed the walls and ceiling of the operating room. The result is a ghostly realistic atmosphere of drama in a cold sterile setting.

### Effective Working Habits

The excellence of Metty's photography is the result of an efficient set of working procedures which he has developed during the course of 25 years as a cameraman.

He believes in pre-planning, but maintains that it is impossible to plan every angle and effect down to the last detail prior to shooting, due to the fact that the situation as you had visualized

(Continued on Page 182)



Left: Dramatic low-key lighting characterizes much of the action of the Enterprise film, "Arch of Triumph." Simple light sources with little or no fill light sharply point up the dramatic situations. Center: Scenes in the operating room are lit exclusively with reflected light to produce a stark, shadowless quality necessary to the mood of the sequence. Right: Set design, low-key lighting, and effective composition combine to give the photography of "Arch of Triumph" an authenticity of a type rarely achieved on the screen.

# A YEAR WITH THE "YEARLING"

by Charles Rosher, A. C. S.



Director Clarence Brown and Director of Photography Charles Rosher, A.S.C., lining up an interior shot for "The Yearling."

**E**IGHT years ago when MGM's Sidney Franklin undertook initial preparations for production of "The Yearling," Marjorie Kinnan Rawling's sensitive, heart-warming novel, he felt there would be many problems and he wasn't disappointed.

This story of a rugged people and their fight for existence amidst the wilds of Florida's scrub country is equaled only by the struggle of the production staff against what seemed to be an endless number of complications. At times production difficulties were so great, it looked as though the picture might be permanently abandoned. But those of us associated with the project developed a kind of affection for this simple yet beautiful story out of which grew a sense of responsibility to see it through, front office and Mother Nature willing.

Because of the primitive outdoor setting and the importance of Jody and the wild animals to telling the story, unbelievable demands were made on every creative and technical resource of the studio.

"The Yearling" presented one of the toughest directorial assignments in Clarence Brown's career, but he exhibited unbelievable patience in working out the many difficult problems involved. He may well be proud of his discovery of Claude Jarman who possesses rare photogenic qualities. Under Mr. Brown's expert

guidance, Claude Jarman gave one of the finest child performances ever witnessed on the screen. It was a delight to watch the boy's response to Mr. Brown's direction.

From the very beginning it was agreed that the color photography should avoid the spectacular. Rather it should strive to capture the simple charm of "The Yearling" with fidelity to story, characters and background. As a result, six separate photographic expeditions were made to Florida with 410 actors, cameramen, technicians and set designers to film authentic scenes in the 1,450,000 acres of wilderness comprising the Ocala National Forest. There, the world of the Baxters had to be created for the cameras. Not one, but two complete Baxter farms were constructed at different locations, after the first was found too inaccessible. A rough idea of the immense physical job can be gleaned from the fact that over 6,000 jack pines were cut to build the log cabins in the scenes of the Baxter and Forester farms.

In May, 1945, when Leonard Smith, A.S.C., began photographing outdoor scenes in Florida, he was faced with the problem of getting boom shots when it was impossible to transport heavy studio equipment over marshy roads. To get that unforgettable shot in the opening sequence of the picture where the camera moves through the forest, down

to the stream's edge introducing Jody (Claude Jarman) sprawled dreamily beside his flutter mill, a boom was improvised on the spot. An old trailer and a part of a tractor were pressed into use, and the result was this outstanding scene.

The beautiful scenes of Jody and the animals romping through the forest and the exciting bear fight sequence can be attributed to the exceptional talents of Chester Franklin, who will long be remembered for his direction of the film classic, "Sequoia;" and the excellent photography of Arthur Arling, A.S.C. Both sequences would have been impossible without the careful planning of multiple camera setups. For the bear fight alone, five cameras including two three-strip Technicolor cameras and three Mitchells, using Monopack, were concealed at strategic angles. The beautiful opening shot of Lake George was contributed by Charles Boyle, A.S.C., who made it during the original expedition to Florida.

The biggest and most exasperating problem to outdoor cinematography was Florida weather. Light conditions were unpredictable. In the first few weeks of location shooting, certain scenes required clouds. But it was one of nature's perversities to give nothing but brilliant blue sky during one of the worst draughts in Florida's history. As



FLORIDA BROUGHT TO CALIFORNIA. Great sink-hole reproduced on studio stage (left). At right, Penny Baxter tells story of the bear fight in a motion picture re-creation of the book's illustration by artist N. C. Wyeth.

time went on the blue was obscured by a murky, gray overcast caused by the many forest fires that developed from the dry spell.

A secondary headache to color photography was also introduced by the parched earth. To keep the Baxter farm in green crops, 27,000 stalks of corn and 4,200 tobacco plants were raised in cans and hothouses to replace those withered by the sun.

After a period of good weather, the elements turned against the company again. The drought was relieved by what seemed to be a never ending down-pour. It rained day after day.

Shooting schedules were subject to constant change in an effort to make the best of existing weather conditions. Many a scene was halted abruptly to catch another because a cloud appeared from nowhere to scud across the sky.

These were just a few of the physical problems encountered by the photographic crews.

As a Director of Photography, my main concern was achieving on film the complete realism envisioned by director Clarence Brown. In my first discussion with Mr. Brown, I learned of his decision to dispense with all artificial make-up. It was a bold step and a photographic challenge. It meant that the normal control over flesh tones possible with make-up, a very important factor in color, would be removed. Although I had more than an inkling of the difficulty involved, it was something I had long wanted to do . . . to show skin color and texture as they really are.

As anticipated, we had our troubles maintaining constant color values in the faces of the principal actors from one day to the next. Once Claude Jarman's complexion had been established, we made him wear a large straw hat when away from the cameras to keep him from getting a Florida or California tan. Gregory Peck, as Pa Baxter, having a heavy beard and a naturally ruddy complexion had to be treated frequently

with an iced chamois skin to hold the redness down. On the other hand, Jane Wyman, as Ma Baxter, required the opposite treatment. She spent fifteen minutes a day under a sun lamp I loaned her, tanning that very fair skin of hers.

Throughout the picture I was conscious of an interesting paradox in complexions. Jane Wyman, who I had photographed before—but always as a glamor girl—was making the supreme sacrifice (for a star) to characterize the drab Ma Baxter. It was the delicate complexion of Claude Jarman that was a photographic delight and surely will be the envy of every woman who views the picture.

The absence of make-up on Jody contributed pictorially to the intensely dramatic scene at the climax of the picture where he rebels against his father's order to destroy "the yearling." If you'll notice, the boy's face goes red with

emotion. An effect which otherwise would have been hidden by make-up came through to the film.

While nearly four months were spent on location getting the important long shots, it remained to complete the bulk of the photography in the studio.

On Stages 15 and 30 of the MGM lot, the Baxter cabin and part of the farm, including the giant "sink hole," were recreated. To insure authenticity, the Florida cabin was dismantled and, together with rail fences, was shipped to Culver City. Forty tons of Spanish moss, typical of the scrub country, was loaded into a refrigerated car to keep it alive so it would grow on the set and photograph in the right color.

Back in the studio our troubles really began. Every long shot made under varying conditions of Florida sunlight had to be matched for lighting and color with close-ups made on the set. To insure an accurate match, projection equipment was kept on the stage. Each of the long shots filmed on location were viewed carefully with an eye to duplicating artificially the direction and quality of the natural light. As many as 30,000 amperes were consumed at one time in illuminating the huge set.

The dramatic mood of the majority of the scenes laid in the interior of the cabins suggested a low key lighting. But, in going to a low key, I wanted to inject a quality of warmth that seemed to emanate from this little family group. Warm tones were emphasized whenever the fireplace appeared to be the dominant source of illumination.

To accentuate the pathos of Fodderwing's funeral, the entire sequence was photographed in a cold light. This same effect was achieved in the moving shot over the grave stones of the Baxter children in the early scenes.

Special care was taken with shadow detail. Whenever possible, shadows were kept from going too black by a mod-

(Continued on Page 182)



Director of Photography Leonard Smith, A.S.C., seated at right, on Florida location for "The Yearling" with Claude Jarman, Jr., and Gregory Peck.

# 8mm and 16mm PRACTICES FEATURED AT SMPE CHICAGO CONVENTION

**M**OST successful midwest convention in the 30 year history of the Society of Motion Picture Engineers was held at the Drake hotel, Chicago, April 21 to 25. In addition to record number of papers presented—mainly on 8 and 16 mm. procedures and practices and applicability of the sub-standard films for television use—attendance zoomed to high figures for a midwest meeting of the organization.

Because the convention was held so close to our press time, it is impossible to give a detailed report on proceedings in this issue. However, we are detailing some of the more important of the 60 papers presented, and abstracts of same where such information is provided:

## Photography

"A New Sun Shade and Filter Holder for 16 mm. and 8 mm. Motion Picture Cameras," by James T. Strohm, Bardwell & McAllister, Inc., Hollywood, Calif. Description was given of a new sun shade and filter holder which may be used on any 8 or 16 mm. camera. It is not necessary to drill holes or alter the camera in any way, and the device is adjustable in all planes so that it may be correctly centered in front of the lens of any camera. By employing a series of slides, the device will accept gelatin or cemented filters, diffusion discs or gauzes, or polarscreens.

"The Mult-Efex Titler Device," by James T. Strohm, Bardwell & McAllister, Inc., Hollywood, Calif. A title device was described for use with 8 and 16 mm. cameras to facilitate making titles and such special effects as wipes, double exposures, flip-flop titles, swing-around titles, zooms, scroll and rolling titles. Outline and matte photography may also be accomplished. Means are provided for proper centering and a standard auxiliary lens is provided so that the title board may be used very close to the camera lens.

"An Instrument for Photometric Calibration of Lens Iris Scales," by M. G. Townsley, Bell & Howell Co., Chicago, Ill. An instrument for calibrating iris scales of photographic lenses was described. The iris scales are calibrated in "T" stops based on the photometric transmission parallel to the axis. This follows the procedure proposed by Daily. The new instrument employs alternating light pulses in measuring and comparison optical systems with calibrated attenuation in the comparison optical system to give a null output from the electron-multiplier photocell which is used as a detector. The null balance principle makes the unit extremely stable and the sensitivity is sufficient to make accurate measurements on iris openings as small as .031, which corresponds to 1" "T"

32. Data was given on transmission of several lens types, and on the accuracy of the instrument, and a proposal is presented for changing over to the new system.

"Animation—16 mm.," by Ben B. Jaffeson, Hugh Harmon Productions, Hollywood, Calif. For many years, animation, when mentioned was associated with cartoon, and the thought implied was a simple process of the changing of successive drawings over a rendered background and photographed by a stop motion 16 mm. camera. Animation today, however, results from the creation of effects not possible in wild shooting. Perfect registration of film in the gate of the camera has been—and still is—the most difficult problem confronting 16 mm. endeavors in animation. Recent advances in 16 mm. animation stop-motion cameras have eradicated many of these registration problems. Animation lighting, for the most part, is flat, even lighting on a flat surface upon registered art work placed on a peg system. This problem is most interesting and important in the creation of special effects, process combination, matte percentage exposure, double exposure, and duplication or exact reproduction of rendered art work in black-and-white as well as color.

## Sound Recording

"The 316-D Western Electric 16 mm. Portable Sound Recording System," by John G. Frayne, Western Electric Co., Hollywood, Calif. This recording system is comprised of a two-position portable mixer, a combined main amplifier and noise-reduction unit, a power-supply unit, and a film recording machine. The 16 mm. recorder is equipped to make sound tracks either in the normal position on the film or that required for printing on reversal emulsions.

"Light Weight Recorders for 35 mm. and 16 mm. Film," by M. E. Collins, Radio Corporation of America, Hollywood, Calif. These recorders have been designed to provide improved light weight recording machines capable of recording any of the standard types of neative or direct positive sound tracks. Separate recorders for 35 mm. and 16 mm. film are available, each being designed for optimum performance. Chief features are improved performance, dependable operation, compactness, minimum weight, and accessibility for servicing. The film may be driven through the head assembly in either direction with equal stability. An automatic film take-up mechanism of the self-reversing type is provided.

## Other Subjects

A new type microphone tilting device for studios was described in paper by

B. H. Denny and R. J. Carr of Paramount Studios, Hollywood.

A 16 mm. processing control sensitometer, disclosed by George W. Colburn of Chicago, was developed with considerations of economy, may be home made, and its portability.

Norwood L. Simmons and Emery Huse, of Eastman Kodak Co., Hollywood, described current duplicating techniques used in Hollywood, and compared the practices employed at five different Hollywood laboratories, and considerable variation was found in the degree of fidelity of the duplicating procedure at the plants studied.

George E. H. Hanson, of Warner Bros. Studios, Burbank, presented "Synchronized 16 mm. Sound and Picture Projection at 16 Frames Per Second," in which he described a method of re-recording 35 mm. sound track to obtain a 16 mm. track which will reproduce synchronously with a 16 mm. picture projected at 16 frames per second. Only necessary modification of a standard re-recording channel to perform this operation is the substitution of an 1800 r.p.m. synchronous motor for the standard 1200 r.p.m. motor on one 35 mm. sound head, he disclosed.

T. J. Morgan, Ampro Corp., Chicago, outlined the design objectives involved in the production of a prevision-made 8 mm. projector. Factors to be considered, he stated were: sales attractiveness in styling, distinctiveness and simplicity of appearance; problems in film handling; simplification of functions; minimizing operational controls; illumination efficiency as correlated with film movement and optics; temperature control; quality of projection; and production cost economy in parts and assemblies. H. H. Wilson of Ampro outlined same factors for design and manufacture of a portable 16 mm. sound projector.

Mervin W. La Rue, Sr., and Mervin W. La Rue, Jr., of Bell & Howell Co., Chicago, presented "Special Adaptations and Application of 16 mm. Motion Picture Cameras to Medical and Scientific Needs." Paper described equipment especially designed to accomplish eardrum and other macrophotography, as well as the construction and functional operation of equipment for photomicrography. Demonstration reel was shown of equipment in operation.

Paper on "Naval Photography in Testing, Research and Development" was presented by J. E. Aiken, Navy Photographic Center, Washington. "Some Problems of a 16 mm. Cinematographer" were described by Jack F. McCosky, professional 16 mm. photographer.

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## 11. Pictorial Continuity

By CHARLES LORING

ONE of the elements that helps lift an amateur film into the professional class is *pictorial continuity*—which in simple language means the correct *visual* tying together of separate scenes and sequences to form a coherent, smoothly flowing motion picture story. It is the factor that gives a pattern of unity to the whole production, the blending ingredient which allows the audience to lose itself in the screen narrative, undistracted by the mechanics of the medium.

In planning for *pictorial continuity*, the film-maker shapes and molds the various scenes so that they will fit into the cinematic whole as smoothly as the pieces of a jig-saw puzzle dove-tail together. He plans each scene so that it contains elements that link it visually with the scenes that precede and follow it.

Pictorial continuity depends upon two factors: composition and pattern of action. The first is a property of camera and lens; the second stems from the movement of characters about the set—but the two are closely inter-related and depend upon each other for force.

### Slanting for the Audience

When photographing a scene, the cameraman can see at a glance the entire situation and the locale in which it is taking place. In addition, he is able from time to time to take his eye away from the viewfinder and the action which it confines, refreshing his memory as to the general surroundings.

Not so the audience. It sees only what the camera lens allows it to see, and unless the overall locale is first clearly presented or suggested, the audience feels cheated and remains curious as to the context of the action shown. For this reason, the cameraman must first clearly *establish* the general locale of a fresh situation. Since the audience's memory is short, retaining the details of only the last two or three scenes shown, the locale must also be *re-established* from time to time.

Re-establishing can be done in a variety of ways. First, by simply backing off to take in a wider angle of the action and surroundings. Secondly, by *panning* your subject from one location

to another that has been previously established. The third, and perhaps most *cinematic* method is to link up two elements of the same scene showing their spacial relationship. Thus, the foreground includes some object or character previously established, and the audience is able to re-orient itself by means of this element.

It is all too easy to "lose" your audience by concentrating on medium shots and close-ups for too long a time. Action should be staged in such a way that occasional long shots fall naturally into the pattern. Save your close-ups for emphatic statements. Use medium shots for general action, and cut to long shots for the purpose of establishing and re-establishing in order to maintain the sweep of the overall scene.

A good pattern to follow is the basic sequence of long shot, medium shot, close-up, and re-establishing shot. This duplicates the normal concentration of a person entering a new situation. His first glimpse of the subject is normally a long shot. Then, without changing position, he narrows his vision down to a point-of-view that can be compared with a medium shot. Ultimately, he moves in for a more concentrated view corresponding with a close-up—the shot, which in any film, is the most emphatic angle possible. Finally, he moves back or glances about to refresh his memory as to the surroundings of the subject.

While this basic sequence is effective and uncomplicated, it is by no means an iron-clad formula—and it should never be followed so rigidly that the sense of the action is lost. In the final analysis, it is the action within a scene that should determine the angle and image size to be used on that particular scene.

### Changing Point-of-View

The lens, acting as the "eye" of the camera, adopts a certain point-of-view for each scene, depending upon the angle and image size which the cinematographer feels best portrays the action of the scene. Therefore, every transition to another scene or sequence represents a shift in point-of-view. These changes should be clean and definite, but with a sense of flow from one to another permitting an uninterrupted unfolding of the story.

In order for two scenes to cut together smoothly, we must change the composition, either by moving in closer to the subject, by using a different focal-length lens, or by changing angle completely. If two scenes showing continuous action are shot from the same or very similar angles, a disturbing "jump" cut will result.

If, on the other hand, too great a change of angle is made in cutting to another scene, the audience will be jolted and momentarily lost. Therefore, should it be necessary for a radical change of angle to be made, the jolt may be minimized either by momentarily cutting away from the scene, or by using a *dolly*, *pan*, or *follow* shot to lead your audience smoothly from one composition to another.

Here, the moving camera comes into its own, for it is the smoothest possible way to change composition without losing the audience. Used correctly, it can link up two to ten or more separate compositions within a single scene, at all times preserving the relationship of one component with the rest.

### Directional Continuity

In sequences which show a subject moving or facing in a certain direction, it is important that each scene preserve a consistency of screen direction, regardless of the size of shot.

For example, if a character is shown walking down the street from right to left, it would be a disturbing jolt if in the following scene he were shown going from left to right. It would appear as though he were retracing his steps. Actually, this is an error which is all too common in the films of the average amateur and many professionals.

If, however, it should become necessary to change direction suddenly, the jump can be minimized by showing the subject turning a corner, by cutting to a neutral (straight-on) shot of the subject, or by cutting away momentarily to another segment of the situation.

The reverse of this approach can sometimes be used to good advantage in order to show conflict between two opposing elements, such as a couple of locomotives rushing toward each other from different directions. By inter-cutting shots of the two roaring toward each other, a certain forceful suspense is created.

If you intend to change locales on a sequence in which your subject is moving, let him walk *out* of one scene and *into* the next. Unless you do so, there will be a disturbing jolt as the background behind him suddenly changes completely in character. If this change of locale between scenes also involves a lapse of time, it is better to *dissolve* or *wipe* rather than *cut* from the one scene to the other. In this case, the character should *not* leave the frame.

Sometimes the entrance and exit of a character into a scene involve diagonal lines of action, so that he enters or leaves from a corner of the screen. In such a case, it is important that a con-

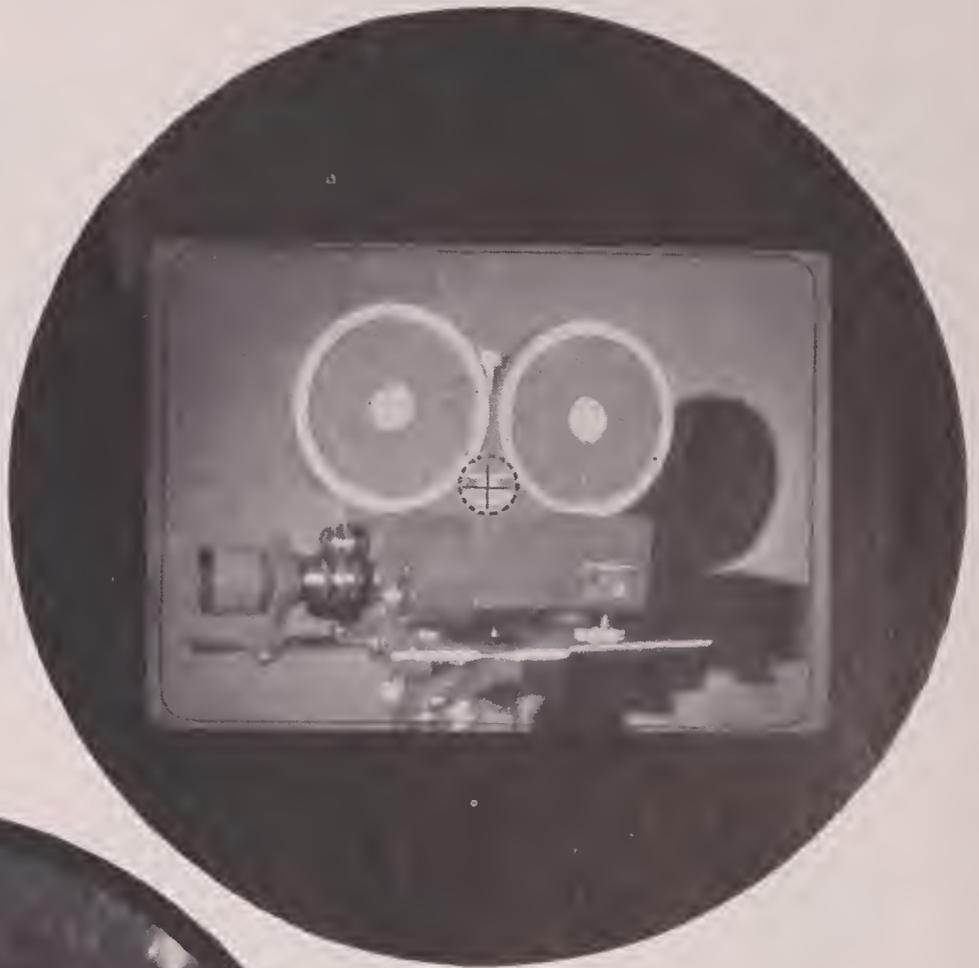
(Continued on Page 189)

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# Composition In Motion Pictures

## Part 3. — Dynamic Composition

By Howard T. Souther

(Stephens Manufacturing Co., Los Angeles, Calif.)

(This series of three articles on motion picture composition was originally presented by the author as a paper at the October, 1946, convention of the Society of Motion Picture Engineers in Hollywood. It was repeated at the October 28th meeting of the American Society of Cinematographers, from which stenotyped transcript was made.)

**Foreword.** The superior illusion given to a scene by movement must be taken into account in the compositional task. A previous section in this chapter involves space and spatial development in the frame to form a unified whole. This section demands that we take into account *time*, and direction taken by our elements in the frame through time.

And though this section deals essentially with kinetic movement, we must not overlook the potential movement of form in the frame which is primarily static. This potential movement is given meaning and purpose through the process of editing or cutting the film. The accompanying drawings of the rearing horse demonstrates the dynamism which may be accorded an inanimate statue. The effect is unmistakably powerful in these three line sketches. Providing that the editing pieces in motion picture film of these three shots are of the necessary shortness, the effect is one of overwhelming, inescapable movement.

Observe the first sketch:

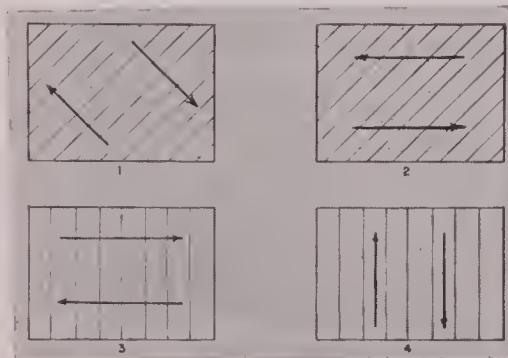


Here we have made use of the power latent in a diagonal, compositional line through the frame. The second shot adds the vitality of foreshortening and the illusion of forward movement due to the increased size of the image. The third shot takes supreme initiative with an acute camera angle, violent foreshortening and powerful contrast of dark mass against light background. Thus we see that the dynamics of editing composition without which there can be no proper determination of movement within the frame.

The obvious derived from postulate is this: Speed and direction of movement within the frame are directly related to the manner in which the scene is to be cut and edited.

### Plan of Kinetic Movement Within the Frame

If we consider the four schemes of movement indicated in the adjacent figure, we shall be led to determine two factors. The first of these is the direction



of the movement with reference to the frame limits. This is indicated by the arrow. The second factor is the relation of the movement to the implied line of the surrounding background. The composition of the static surroundings is formally indicated by parallel lines in the schemes.

In the first figure, the background is composed along a diagonal of the frame. The movement is in a direction contrary

to the diagonal. The dynamism of the composition is sharply emphasized because of:

1. The contraposed movement of the object against the background line.

2. Conflict of the movement with reference to the sides of the frame.

In the second figure, the dynamic quality is reduced by half because the movement follows the line of the frame. The third figure shows one-half the power found in the first figure because the direction of the movement is parallel with the frame lines, notwithstanding the fact that it opposes the background line. The fourth figure displays the greatest weakness in dynamic effect. Not only does the movement follow the frame line, but it follows also the direction of the background line.

Now we must not interpret the foregoing in such a manner as to presume a necessary search for the greatest dynamism possible in the shot. Quite often the script will demand that we use the weakened form of compositional construction. We must satisfy the particular scenario or directorial demand.

### Panning

Beside suggested movement and dynamism through compositional editing, and beside the movements of objects or elements themselves within the frame, we have the kinetic movement caused by the motion of the camera itself.

Rapid movement is obtained through the release of a dampening device which may consist of a series of gears working as a smooth frictional delay in the camera free-head. Engaging these gears retards rapid movement but makes for more regulated control. Remember also, that the latent inertia of between 175 and 350 pounds of camera and blimp contribute materially to this smooth motion.

Panning the camera adapts itself easily to holding within the frame objects both near and far away. Very naturally, the farther away the object from the camera, the greater can be the objects speed of movement; conversely, in such case the slower can be the actual panning movement of the camera.

At times it may be advantageous to make a rapid pan and come to a sudden stop. Not infrequently is it demanded that the cameraman pan rapidly for a reaction to the scene being filmed outside of the static frame limit. Where the action is intense, the speed with which this is done becomes important. In such cases, a difficulty arises inasmuch as present cameras have no suitable means of indicating the operative cameraman's

point of stoppage. The tendency is to overshoot the boundary of the reaction composition—yes, and sometimes the set! How efficacious would be a small hydraulic stop on the free-head, supplying smooth but definite cessation of movement at the proper framing position.

#### Dollying the Camera

So far we have considered shots involving movement where the camera is stationary. So also, we must consider shots involving movement of the camera where the object is stationary, in which case we may obtain *intra-shot* dynamism.

Going back a page, we may again consider the dynamic effect produced through rapid editing of the rearing horse through three separate shots. We could also achieve a commensurate effect through one continuous editing piece, by dollying in with the camera and gradually panning up. Whether the dolly effect, or the flashing effect of the independent cuts contribute more to the final emotional result is a matter of directional judgement with reference to what has happened before, and what will transpire immediately after this scene. It is simply the case of a different tool being able to supply a different effect.

Obviously, dollying precludes photographing objects other than those relatively close.

#### Crane or Boom Shots

The crane allows a great latitude of movement. Its use, however, demands

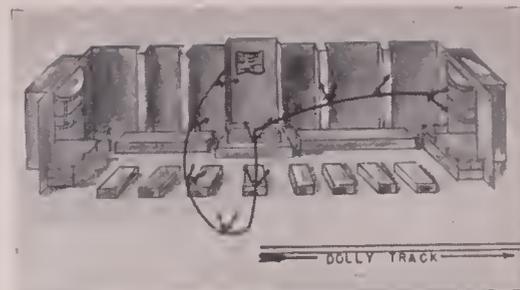
operative space. This valuable mechanism provides us with the means of including an extreme longshot and a closeup in the same editing piece. Not only is the crane capable of the lateral motion of the dolly, but it allows up and down movement in sweeps of thirty or forty feet. Long, sweeping diagonal movements are possible with this device. Effects of rapid zooming through incredibly unsupported distance are in every way practicable.

In the earlier days of the motion picture camera, the impulse was to borrow the compositional forms of the old masters. The relative static quality of the long and medium shots of the "Ten Commandments" and "Quo Vadis" shows that they were not free of this mechanical copying.

The result was that the transition into medium and closeup shots through flash cuts, destroyed the compositional unity of the theme as a whole. There was no way in which the audience could traverse the extreme distances involved, without interrupting its conception of unity and editorial completeness.

The boom or crane was the answer to this problem. If we may resort to a rhetorical example instead of actual illustration of the manner in which the crane fulfills its purpose, observe the development in the situation below of the cinematic method with the camera crane.

*Scene:* A large banquet-hall over 300

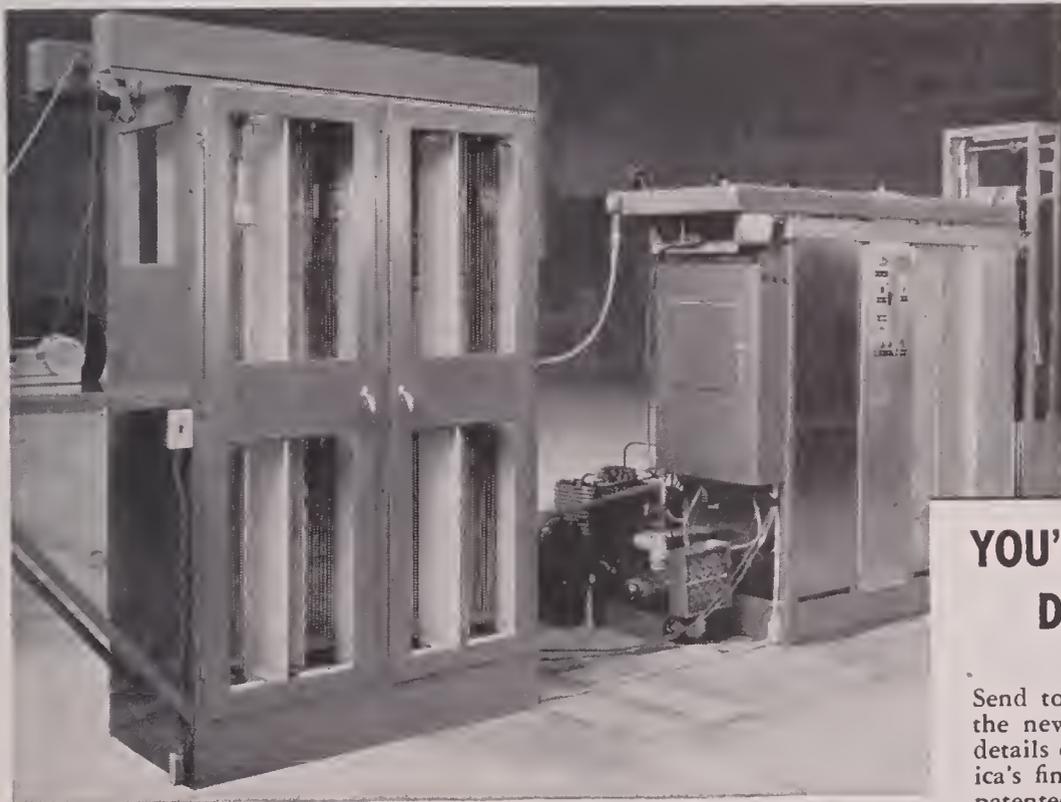


feet long . . . the walls are bedecked with American flags . . . a vast assemblage of people are foregathered at tables below a raised dias against the center of one of the walls . . . it is the occasion of the inauguration of the President of the United States.

*Action:* The script demands that we establish in a long-shot the feeling of the huge hall, and the importance of the occasion. It asks us then to direct our attention to the speaker on the dais. As the speaker takes the floor, we must record the opening words of his address and his reaction to the important occasion. As his speech progresses, the editorial composition requires that we record the reaction to his speech of his mother in the box of honor over 100 feet away.

*Method:* The diagram shows the construction of the "mise en scene." The mechanics of the movements are carefully prepared and fully rehearsed beforehand.

(Continued on Page 178)



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# AMONG THE MOVIE CLUBS

## Brooklyn Amateur

Frank E. Gunnell, F. A. C. L., paid a return visit to Brooklyn Amateur Cine Club on March 19th to exhibit his award-winning "While the Earth Remaineth," "Reflections," and "Bohemian Baloney," from ACL library, completed the regular film programs; and John Manfrin displayed another in his series of clinic films.

Second "Guest Night" of the season was held on April 2nd, at which time several contest runners-up and winners were shown, including: "Barbara Sue Goes Camping," by H. Cahn; "Virginia," by Fred Ursini; "Nutmeg Rambles," by Horace Guthman; "Summer Trails," by Charles Benjamin; "Designed by Nature," by Irving Gittell; and 35 mm. ko-

dachrome slides of Banff National Park by Gene Adams.

Club business was the rule at the April 16th meeting, with films programmed comprising "Calling Dr. Kildare," and "Murder in Central Park," by Dr. MacDonald Brown.

"Gala Night," one of the annual highlights in the club's activities, was held at the St. Felix St. theater on evening of April 25th, with capacity audience of members and guests viewing splendid program of kodachrome amateur films, comprising: "Dog House Blues," by E. H. Sparks of Connecticut; "Tiny Town," by Edmund Turner of Detroit; "Vacation with Pay," by member Irving Gittell; "Safari," by president Charles Benjamin; and "Dizzy Top," by Patricia and Ryne Zimmerman of Wisconsin.

## San Francisco Cinema

Films shown at the March 18th meeting of Cinema Club of San Francisco included: "Yellowstone National Park," 300 feet in 8 mm. kodachrome by Rudy Arfsten; and "Operations Crossroads," 16 mm. color produced by the U. S. Navy of the Bikini atom bomb tests. Ed Petherick showed his kodachrome slides of "A Night at the Fair," and G. M. Tabet displayed an 8 mm. developing tank which he designed and constructed of bakelite.

At the April 15th meeting, Dave Redfield gave a particularly informative description of the various kinds of movie films available at this time, and also explained best methods of splicing. Film program presented comprised: "Winter at Niagara and in Washington," by Ed Sargent; "America the Beautiful," 800 feet of color loaned by U. S. Treasury Department; and "Silent Service," 1,300 feet of color and sound from the U. S. Navy describing operations of the submarine service.

## Los Angeles Cinema

Regular meeting of Los Angeles Cinema Club was held at Ebell Club hall on April 7th, with program comprising: "Monuments of Ancient Mexico," by George Calliant; Mildred Zimmerman's "Long Island"; "Yellowstone and the Grand Tetons," by Paul L. Hoefler; and Dr. E. Leslie Eames' 35 mm. kodachrome slides on "The Mother Lode Country."

Mid-year film contest has been set for July, with two classifications: novice, and un-cut film; the latter to be on subject of "The City of Los Angeles," or any activities or industries of the community. Special field trip for members has been set for August 10th.

## Philadelphia Cinema

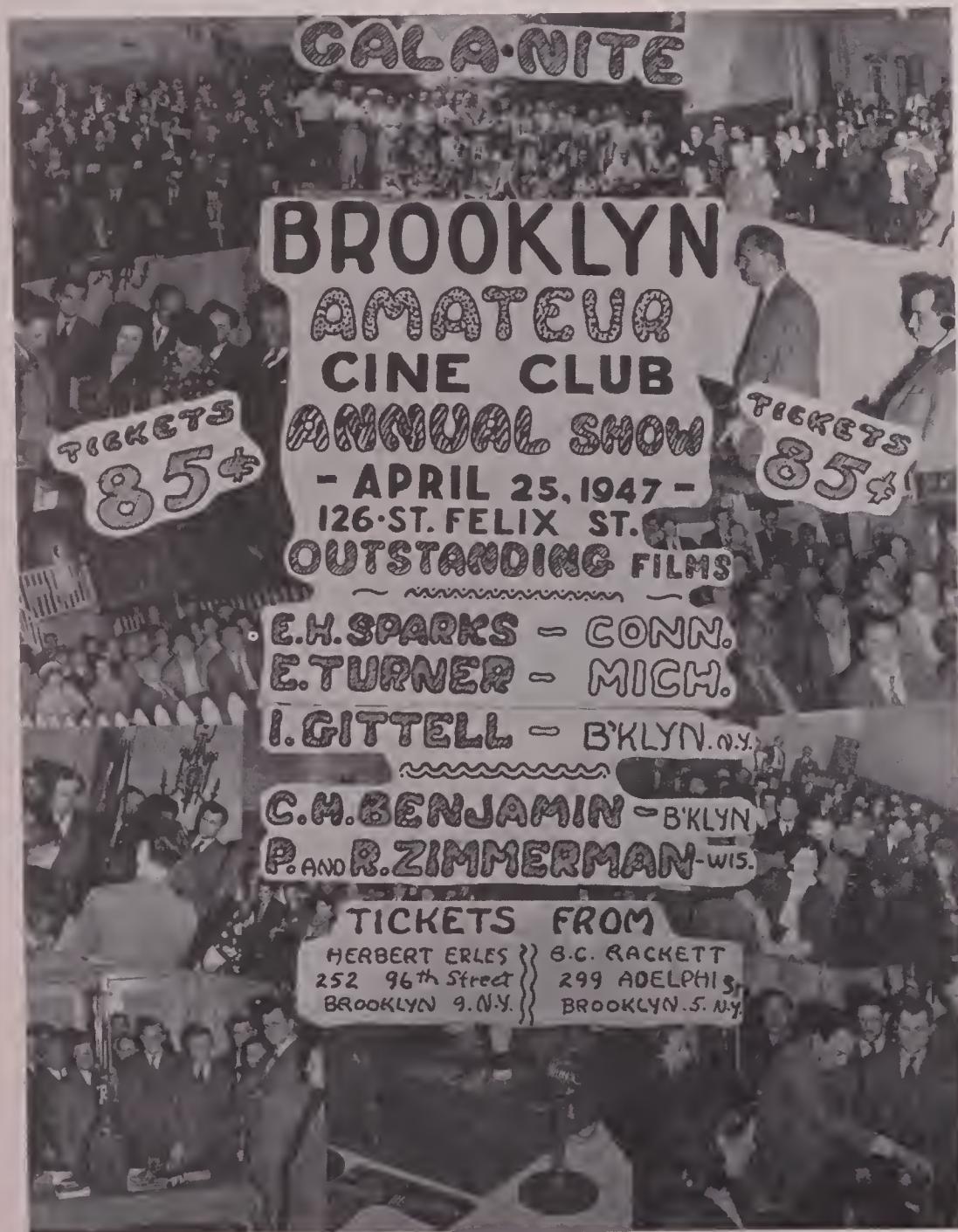
Film program presented at the April 8th meeting of Philadelphia Cinema Club, held at Franklin Institute, included: "Reel Trouble," by Walter Bruner; "My Vacation On the Wing," by Victor Fritz; "Ace of Darts," by Robert Haentze; and "Clear Track Ahead," Pennsylvania Railroad color soundfilm.

Annual dinner meeting was held on April 15th, at which time the three prize-winning pictures of the recent club contest were shown.

## Minneapolis Octo Cine

George K. Culbertson gave a demonstration and talk on his Fidelitone dual turntable apparatus at the March 25th meeting of Minneapolis Octo Cine Guild, held at the Hasty Tasty. Film taken by the club's project committee during the past several weeks was also exhibited.

(More Club News on Page 183)



Poster used to advertise the Annual Gala Night Show of Brooklyn Amateur Cine Club.

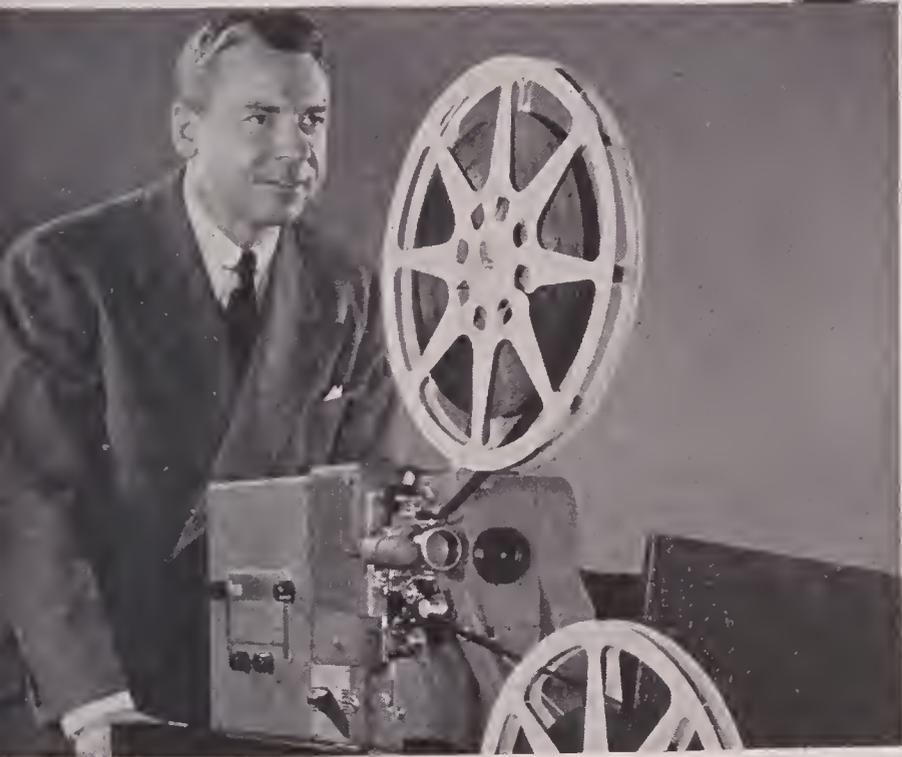
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## SOUND KODASCOPE FS-10-N

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# DYNAMIC COMPOSITION

(Continued from Page 175)

The scene opens with a medium shot of a large American flag. A band is playing the Star Spangled Banner. As the music goes on, the camera pulls back in a wide arc to the left, lowering slowly all the while. In the extreme backward and center position, the camera comes to rest. Situated in the upper center of the frame is the raised dais, and the speaker. The music stops and the speak-

er arises. With his movement the camera moves in to record his speech. After a certain time, and with *lightning rapidity*, the camera shoots over to a closeup of the mother in the box of honor. The scene has been established, a large part of the situation has unfolded. This has taken place in one smoothly flowing editorial piece.

The actual setting up of this shot is a complicated piece of business.

The day before the actual filming of this particular scene, the director informs the head grip of the picture troupe of his approximate desire with reference to camera movement. The grip chooses the proper size boom, and lays his boom tract the night before. The gaffer or lighting foreman, "roughs in" the lighting from the various angles observed and ascertains the presence of necessary illuminating units. The property man moves his furniture to accommodate the boom movements.

When actual shooting begins, the entire scene is timed and cues are given for the various moves with relation to sound and action.

The finish of the scene will probably result in a strip of film two minutes long, and require the entire day to shoot.

\* \* \*

Certain empirical rules for camera movements have been prescribed through years of experiment and experience. By "empirical" we imply the thought that there is no *real* reason for their existence. They seem to work in most cases and therefore mention of them at this time is in order.

1. All moves should be as slow as the action or motive will permit.
2. Anticipation helps to start and stop a panning movement.
3. A cut should never be made from a moving shot to a static shot. If the camera cuts while movement is taking place, the following scene should open with movement of the camera. Action or camera movement should be stopped or started in a separate shot, if necessary.
4. Fast moves should be used only for effects.

Now, here are several hard and fast rules which make their appeal to common sense:

(1) Camera moves should be perfectly smooth, never jerky or bumpy. The scope of the camera implies terrific leverage. Every irregularity in movement is tremendously amplified on the screen.

(2) Certain speeds of pan against vertical composition in the background result in a "harmonic beat" which appears as a jerky movement of the background. This is caused by the interrelationship of the background speed against the twenty-four jerks of the film pull down movement. This is most apparent in cases of a contrasted sharp background. In an evenly toned background, this jerking motion resolves itself into a non-irritating blur.

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This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The blimp has these exclusive features: • follow focus attachment for changing lens calibrations while the camera is in operation • viewing magnifier mounted on top of blimp for focusing while camera is mounted in blimp • arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp • pilot lights to illuminate lens calibrations and film footage indicator.

Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

Manufactured exclusively by the Makers of "Professional Junior" Tripods and Other Fine Camera Accessories.



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## Multi-Efex Title Aligner

All amateur movie makers will be glad to learn that Bardwell & McAllister, Inc. of Hollywood, manufacturers of the Multi-Efex Titler for home movies, has perfected a device which makes it possible to align titles horizontally and vertically. This new product is the Multi-Efex Aligner.



As shown in the illustration, one end engages with the lens-mounting of the camera while the other pointed end finds the centerline of the title frame. It fits all lens-mounts on any 8mm. or 16mm. movie camera and is constructed so that no part of it can touch the lens while in use.

This accessory can also be used for aligning small objects which are being photographed at extremely close range.

The Multi-Efex Aligner comes as an added accessory with the Multi-Efex Titler at no extra charge, but will be sold separately for use with other makes of titlers.

### Titler Film Available

Bardwell & McAllister announces the release of a 16 mm. color motion picture film that demonstrated the Multi-Efex Titler for amateur movie makers, and the many types of special effects which can be obtained by its use.

Distributors and dealers are now loaning out prints of the film to camera clubs and other interested groups which might be interested in learning to title pictures and to improve quality of titling. The equipment provides amateurs with opportunity to make titles with the professional touch of the Hollywood studios. A number of amateur movie clubs have already booked and showed the reel at meetings, and it can be recommended for showings by all such clubs.

The film is 300 feet of intensely interesting action in full color; showing in detail how to make zooms, fadeouts, forward-and-backs, wipes, double exposures, scrolls, flip-flops, swing-arounds, rolls, and other types of attractive and unusual titles—as well as trick shots and special effects.

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## Studio Art Directors Entertained By A. S. C.



ART DIRECTORS FROM HOLLYWOOD STUDIOS were guests of A.S.C. members at the clubhouse on evening of April 7th. Caught by photographer C. A. Peterson are: (1) Fred Jackman, A.S.C.; Leonard Smith, A.S.C.; William Ferrari, president of Motion Picture Art Directors; Leon Shamroy, A.S.C.; and Ray Rennahan, A.S.C. (2) Academy Award winners on "The Yearling," Charles Rosher, A.S.C.; Art Director Paul Groesse; Leonard Smith, A.S.C.; and Arthur Arling, A.S.C. (3) Art Directors, Danny Hall, Jack Holden, Ferrari, and business representative Norman Lowenstein. (4) Warners Studio group, Arthur Edeson, A.S.C.; Art Director Bob Haas; Sol Polito, A.S.C.; and Ernest Haller, A.S.C. (5) Art Director Ernst Fegyte in center of A.S.C. group, comprising Karl Struss, Charles Rosher, Victor Milner, and George Folsey. (6) From RKO Studios, Nick Musuraca, A.S.C.; Art Director Carroll Clark; and Robert De Grasse, A.S.C.

SEVERAL prominent art directors of the studios were guests of members of the American Society of Cinematographers at dinner meeting held at the A.S.C. clubhouse on evening of April 7th. Invitations, extended by individual members to their art director associates at the various studios, were in line with the policy of A.S.C. leaders to generate closer spirit of camaraderie and cooperation between the Directors of Photography and other artists in the

studios. Because of the limited capacity of the clubhouse for serving, only a relatively few members of the Society of Motion Picture Art Directors can be invited for any one time, but the plan is to extend invitations to groups of the art directors so that eventually every one will have been a guest at one of the famous A.S.C. dinners.

President William Ferrari of the Society of Motion Picture Art Directors

headed the initial contingent of guests from his group. In a brief speech, he lauded the accomplishments of the A.S.C., and expressed appreciation for the invitations for such a splendid social get-together away from the pressure of production. Among the art directors present were: Steve Gooson, Ferrari, Ernest Fegyte, Paul Grosse, Bob Haas, Carroll Clark, Danny Hall, Jack Holden, Sam Woll and Norman Lowenstein.

## G. E.'s New Exposure Meter Accessory

A means of measuring higher levels of illumination through the use of three new clip-on type multipliers has been announced by the General Electric Company. These multipliers will extend the range of all DW-48 and DW-58 exposure meters up to 7000 foot-candles.

To use the multipliers on G-E exposure meters it is only necessary to remove the hood from the meter and clip on the multiplier. This method of measuring exposure is known as the "incident-light" method, and is increasing in popularity among professional photographers.

The incident-light multipliers are available in three ratios which will measure light up to 700, 1400, and 7000 foot-candles respectively; they may be obtained through photographic dealers.

## New 16mm. Distributor in India

Ramoni N. Dixit has established Ace Service in Madras, India, and writes he desires to contact manufacturers of 16 mm. cameras, projectors, and allied accessories to function as distributor of such products for India Burma and Ceylon. He is also interested in serving as distributor for that area of 16 mm. pictures, including educational and classroom films. Dixit can be contacted at 22/79 Sembudoss Street, Madras 1, India.

## Camera Mart List

List of professional equipment being distributed by Camera Mart, 70 West 45th Street, New York City, is now available to producers of 16, 35 mm. and slidefilm producers. List includes cameras, developing machines, sound and silent cameras, recorders, projectors, amplifiers, studio and laboratory equipment—both new and used.

## So. African Exec in U. S.

J. U. Horvitch, director of Photo Agencies of Johannesburg, South Africa, is currently in New York looking over post-war models of motion picture and photographic equipment to arrange distribution deals for South Africa. Horvitch is headquartering at Anglo-African Shipping Co., 45 Fifth Avenue, New York 16, for the next three months.

## Bolex Cameras Reported Stolen

American Bolex Co., Inc., 521 Fifth Avenue, New York 17, N.Y., announces that the following Bolex H-16 motion picture cameras, complete with accessories and Kern-Switar 1" f/1.4 lenses were stolen: No. 32441; 32806; 32809; 32810; 32811; 32813; 32814; 32821; 32822. The company would appreciate hearing from anyone who may come across any of these cameras.



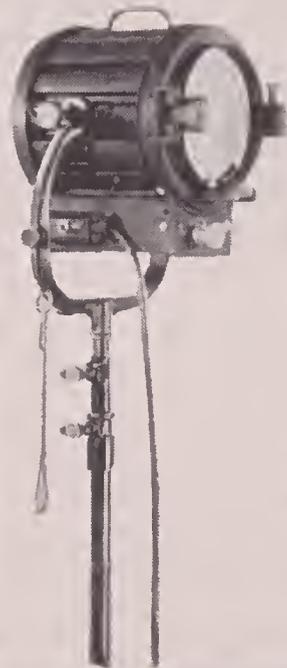
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... Movies couldn't talk and matinee idols wore sideburns? It was in that era that Mole-Richardson revolutionized motion picture lighting with high wattage incandescent lights. One of the first deliveries of these new lights was made to the old Universal lot, where they were used with precedent setting success on the "Broadway" set... first of the "super-colossal" musicals.

## In 1947 Mole-Richardson Wins Another "Oscar"



This year the Academy of Motion Picture Arts & Sciences awarded a third citation to the Mole-Richardson Co., for developing a new high intensity arc light. The Solarspot, pictured at left, was an "Oscar" winner too, receiving an Academy award in 1944. Made in 750, 2,000 and 5,000 watt sizes, it is universally preferred by those who demand perfection in lighting equipment.



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## "Triumph" in Low Key

(Continued from Page 167)

it suddenly appears quite different when you arrive on the set to film it.

"If you worry too much about the composition of every scene before you are actually ready to shoot that scene, you will probably end up with an uneven lighting quality, a confusion of angles, and a generally 'nervous' style of photography," he points out. "While keeping in mind the overall mood of the sequence, the cinematographer must direct his attention principally to the scene at hand, as many of the important decisions regarding approach can only be made as the action is developed on the sound stage."

He is opposed to the "arty" treatments which some cinematographers find it necessary to inject into their photography, just for the sake of being different. "It isn't necessary to complicate your style with trick lighting effects or odd, surrealistic angles," he claims. "Perhaps these tricks will appeal to a few artistic highbrows, but they are way over the head of the average moviegoer."

The simplicity of which he speaks applies, not only to his style of lighting and composition, but also to the choice of

mechanical elements which he uses to achieve his effects. He rarely uses more than one focal-length lens on a picture, never more than three. His favorite is a 30 mm. wide-angle lens whose forceful perspective adds emphasis to his compositions. Once he has selected a lens in keeping with his approach to a particular film, he uses it consistently, so that the entire picture has a unified visual point-of-view.

One of the finest compliments ever paid a cinematographer came from Lewis Milestone, director of "Arch of Triumph," during filming of the picture.

"Metty," he observed, "is a perfectionist for detail. Small actions that build compelling overall mood never escape his eye. It is this knack for being able to pick out fine details and build them up into something of definite value that lifts a Metty-filmed story out of the mediocre class and places it with the best of modern creative art."

## Los Angeles Eight

"Free Wheeling in the Utah Parks," 16 mm. color film by Stan Midgley which won first prize in the Union Pacific contest last year, featured the April 8th meeting of the Los Angeles 8mm. Club, held at Arden Farms clubhouse.

## Year with "Yearling"

(Continued from Page 169)

erate use of fill light. This control of shadow detail on intermediate planes gave an added quality of depth.

Shadows on the face had the familiar tendency of going red. To get a natural gray tone, a complimentary blue-green light was projected into the shadows. The result . . . natural shadow tones with detail.

Those of you who read "The Yearling" probably will notice the similarity of a number of scenes to some of the illustrations in the book by artist N. C. Wyeth. This was a deliberate effort to recreate the compositions that became fixed impressions with many readers of the book. These scenes were Jody and the flutter mill, Pa Baxter at the Forrester's cabin telling the story of the bear fight, the fight at Volusia in front of Boyles' store, and the burial of Fodderwing.

At their best, domestic animals are a great problem to both director and cameraman. With wild animals, 469 of them, there was an unbelievable amount of temperament to cope with. Score upon score of takes were made to get just the right piece of action to fit a particular scene in the script. Because the deer would bolt at the slightest sound or quick movement, the customary procedures for getting a scene under way were revised. All warning signals and starting buzzers were silenced; all personnel on the set remained absolutely still before and during the shooting of all animal scenes.

To aid in keeping the deer within the confines of the camera angle, technicians strung very fine wires along the paths they were to move. The wires were connected to an electric fence unit so that every time an animal strayed from the path, he felt a slight jolt. After a little while the deer got the idea and moved in the desired direction.

The problems of the art department under Cedric Gibbons were manifold. Special credit is due Paul Groesse who supervised the erection of the Baxter and Forrester farms in Florida and later in Culver City. He did a superb job of creating the small town of Volusia and the illusion of a Florida river at Lake Arrowhead, California. Under his watchful eye, plants indigenous to the scrub country were transplanted to the banks of the narrow neck of the lake, and a river steamer, complete with power plant, was transported in sections and assembled on location.

That Len Smith, Arthur Arling, and I should have won an Academy Award for "The Yearling's" cinematography is especially gratifying and we appreciate the splendid cooperation of the many who were associated in the photographic work on the production.



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## Utah Cine Arts

Capacity attendance enthusiastically received the pictorially-beautiful adventure film of Dr. R. G. Frazier, "Down the Salmon River," at the March 19th meeting of Utah Cine Arts Club of Salt Lake City. Surprise film was provided by Howard Frederick, while program chairman LeRoy Hansen headed a technical discussion on correct use of light meters.

Recent attendance increases necessitated securing of larger-capacity room at the Newhouse hotel for the meeting of April 16th, with program chairman William D. Loveless providing a technical discussion on film titling, and a program consisting of surprise film by Al Morton; Allen Bateman's "Isle of Capri, Spring of 1939"; "Spring Melody," by Pete Larsen; and "Magic Magazine," by Robert Youngston.

## Oakland Camera

Regular meeting of the movie section of Oakland Camera Club was held at Chabot school auditorium on April 8th. Section chairman, Dr. Numa P. Dunne, presented a talk on the subject of titles, and projected a film illustrating several different types of titles.

Film program included: "Snow Trip," and "Mother Lode"; latter with sound and running commentary; both by W. S. Boyle; "Over the Waves," by B. L. Williford; "Beautiful Niagara," by Dr. F. Y. Lee; and "Crossroads—U. S. A.," by R. H. Sampson.

## Milwaukee Amateur

Net profit of the annual Gala Show of Amateur Movie Society of Milwaukee, held at Shorewood Auditorium on March 22nd, amounted to \$168.53, according to club bulletin announcement. Total of 784 tickets were sold for the event.

"The Importance of Editing Your Film" featured the April 9th meeting, held at the Red Arrow Club. Film shot by club members at the Youth Center was actually edited, and gave members an insight on just how to do it. At the April 23rd meeting, subject was "The Art of Shooting Color." Demonstration included both interior and exterior setups, and advised on methods of improving exposures.

## San Francisco Westwood

Westwood Movie Club of San Francisco will hold an impromptu contest in May, with entries comprising 50 foot roll of 8 mm., and 100 foot roll of 16 mm.—with only one splice allowed on each film. Regular annual contest will be held in November; with entries comprising maximum of 200 feet for 8 mm. and 400 feet for 16mm. At the March 28th meeting, Leo Kerkhof and Joe Pissott demonstrated sound equipment they constructed for synchronizing with 8 mm. film.

## New York Metropolitan

Film program for the March 20th meeting of Metropolitan Motion Picture Club of New York, held at hotel Pennsylvania, included: Frank Gunell's "While the Earth Remaineth"; "Bluff Island Idyl," by George Mesaros; and "Trapper," by Charles J. Ross.

Club's 14th annual Gala Night was held at Hunter College Playhouse on April 18th, with an outstanding program of "the best in amateur motion pictures" attracting a capacity audience.

At the February meeting, members voted C. L. Spaulding's "Vermont Calls," best in the novice contest. Second went

to John P. Steele for "A Sap's Fable," and third place to Alice Burnett for "High Sierras."

The well-attended supplemental meetings provide members with expert advice and guidance for better movie making. At the March 5th session, independent producer, William Nelson detailed the manner in which professional films are steered through the original idea, rough story draft, scenario, actual production, editing, etc.; and then screened the film he had described. At the April 2nd meeting, Leo Heffernan demonstrated his direction of an actual film in kodachrome; and explained each step in the production

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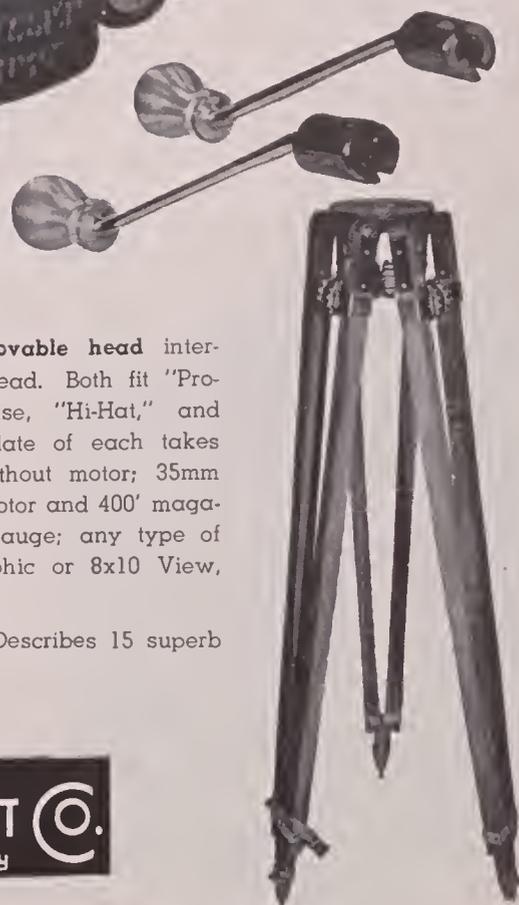
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# American Standards On Motion Pictures

All American Standards on Motion Pictures developed by the motion picture industry are published officially for the industry by the American Standards Association. The procedure used in the past was somewhat involved, but has been simplified in the light of experience gained in standardization during the war and the preceding ten years. At present, American Standards may be proposed by any competent individual, organization or industrial group and it is expected that they will substantiate the claims that such new proposals are de-

sirable. Safeguards are necessary, of course, to insure that the proposed standardization will not prejudice technical development in motion pictures, and the ASA procedure does this as well as make certain that anyone stating his opinions for or against any new proposal has an equal opportunity to be heard.

The withdrawal of existing standards is as carefully supervised as the preparation of new ones, and the same procedures are observed. An example is—"American Recommended Practice for Motion Picture Film, Theater Sound Fader Setting Instructions, z22.32-1941," which was officially approved for withdrawal by the ASA on March 7, 1947. Therefore, this standard is no longer valid and will not be considered as having industry sanction in the future.

Sometime prior to 1941, the industry adopted the practice outlined in this standard, because at that time it was felt necessary to provide more than one type of recording for certain feature releases. Fader Setting Instructions to projectionists were inserted as a 15-frame strip of information located in the first 20-frames of the synchronizing leader of every release print. Prints which had normal equalization and recording characteristics, were marked "Regular" prints, while all other prints were either "Hi-Range" or "Lo-Range." This practice has not been followed recently, and since none of the studios are now using it as outlined, the Research Council of the Academy of Motion Picture Arts and Sciences recommended to the ASA Sectional Committee on Motion Pictures, z22 that it be withdrawn because continued existence of the pub-

lished standard implied that the practice was still being observed.

The Sectional Committee voted in favor of the withdrawal and on December 31, 1946 the Secretary of that Committee asked the SMPE Board of Governors, which acts as its sponsor, to formally transmit this recommendation for final action by the ASA Standards Council. The Board did so and official ASA approval of the withdrawal was announced on March 7, 1947.

At the present time, American Standards on Motion Pictures number from Z22.1 through Z22.54. Two of them, Z22.1 and Z22.32 have been officially withdrawn leaving 52 valid standards on the current list. Of these, 26 were recently revised and published in the SMPE Journal for April and September, 1946. They are available in complete sets, bound in a heavy loose-leaf binder, from the General Offices of the Society in the Pennsylvania Hotel, New York, N. Y.

The remaining 26 standards are now in various stages of revision, and as they are completed and approved, will also be announced in the Journal. Individual notices of all new standards and revisions, as well as withdrawals, will be sent to all who have purchased standards binders, so that they may keep their records always current.

A number of proposals for new motion picture standards have been submitted to the SMPE and are now being considered by various Society Engineering Committees. Reports of these committee's activities are scheduled to appear in the Journal and will give an indication of current standards work.

Recently adopted standardization procedure of the SMPE provides for publication of all new standards proposals in the Journal, in the form of a complete report outlining the past history of each new standard, the story of its progress through the Society Committees and a review of its ultimate effect on the industry. Following publication of this report in the Journal, and a suitable waiting period of about 60 days, each new standard will go to letter ballot of the Committee on Standards if no unfavorable comments or criticisms are received. However, if any serious objection to the new proposal has been raised as a result of this publication, the standard will go back to the Committee that prepared it, with appropriate instructions from the Engineering Vice-President and the Chairman of the Committee on Standards to assure that each serious comment receives thorough consideration. Then, following approval by the Committee on Standards, the customary standardization procedures are observed and the standard ultimately published.

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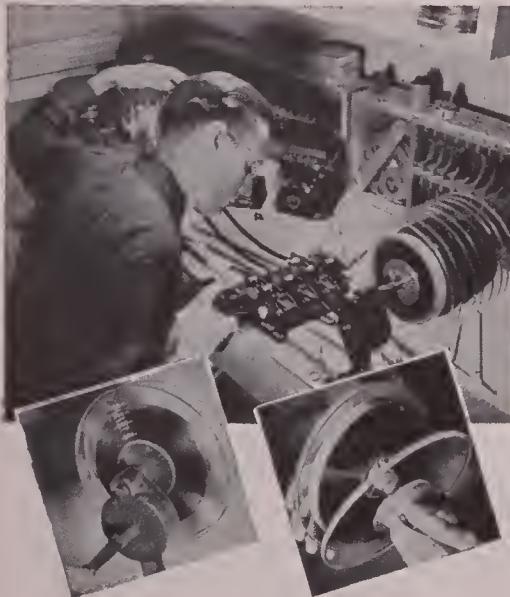
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## Shooting Bipack

(Continued from Page 163)

is more destructive of quality than an image that is degraded in sharpness and color because of lack of register.

In the event the print is out of register and the negative shows no perforation damage, it would be wise to have the laboratory check the printing machine before assuming that the camera is at fault. Besides being mechanically perfect the printer, to obtain good register, should use the same perforation for registering the two negatives to the Duplitzed positive as is used by the camera for register. Otherwise perforation idiosyncrasies may cause out-of-register prints despite good camera operation.

As an aid in properly maintaining the cameras we photograph a test chart at the end of each day's work. The chart used at Hal Roach Studio is modified from one originally designed by the camera department of Republic Studios. An examination of the two negatives obtained is an excellent check on the camera's performance. Any lack of sharpness in the back negative, above that normally caused by the diffusion of the light passing through the front film, is easily noted. Another camera may be substituted and the camera sent to the shop for checking. Before the camera is used again another photographic check is made and the negative examined.

We have obtained our best results with coated lenses. It is recommended that the wide-angle lenses should be carefully tested for covering power before being used. We have had satisfactory results with 24-, 28-, 30-, 35- and 40-mm lenses, but such wide-angle lenses should be used with discretion. The present 400-ft. capacity magazines used for two-color bipack are wasteful of film and the constant reloading necessitated by the short lengths uses up valuable production time. The Roach Studios are engaged in the design and construction of a 1000-ft. magazine.

The orthochromatic film in the bipack combination comes in two types: an exterior for daylight illumination, and an interior for tungsten lighting. Because of the difficulties of obtaining a sufficiently high level of illumination with tungsten lights and variations in color temperature owing to aging of incandescent lamps, only the exterior type of bipack is used in the Roach Studios. This necessitates the use of high-intensity carbon arc lights and Macbeth filtered incandescent units.

Lighting practice for bipack is similar to that for any color process and will only be summarized briefly. Backlight is kept to a minimum; only the necessary amount used to give detail in hair and separate the planes of color. An undue amount gives an unpleasant bluish tinge. In exteriors, backlight makes grass and foliage appear brown and should always be avoided except when special effects are desired. For street scenes and exteriors where there are no deep shadows, overcast days have given us our best

results (since we always use high-intensity arcs, and booster lights) for foregrounds and faces. The use of an Aesculin-type filter to cut the ultraviolet helps in rendition of face values, skin textures, and colors. In general the set should be fully lighted, avoiding deep shadows. With coated lenses at  $f/2.8$ , a keylight of 500 ft-c is used, filled to an over-all of 650 ft-c.

For night effects, and somewhat deeper shadows, less fill and more cross-light is used. The negative should be fully exposed, the proper effect being obtained by printing down. Night effects are accentuated by the use of "practicals" and brightly lit windows. In practice about 20 per cent of the lights used are incandescent lamps with Macbeth white-lite filters. Occasionally ordinary incandescent spots are used without Macbeth filters to bring out or emphasize reds and orange, or in the photographing of color characters. Because of the volume of light necessary, large units are used as far away from subjects as set construction will permit. A *Y-1* filter is used on all high-intensity spots, to cut the excess of blue, while the Mole-Richardson broadsides are used without filters. The side arcs are 5500 K. The high-intensity arcs with *170-Y-1* Brigham filters are 5900 K.

No specific rules can be given for make-up since the problem changes with the actors and actresses. In general, in a two-color process the make-up should be on the light side to avoid a red-orange or sallow appearance. Lip rouge should be an orange-red, blue-reds photographing much too dark. We have found grease to be more satisfactory than "pancake" and no make-up is used above No. 25.

Because of the light make-ups, blended modeling is used to prevent masking appearance and to break color up into planes. For men, a beard cover must be used; otherwise the beard comes through as a blue shadow. No make-up is used on children. The make-up must be carefully balanced between characters to avoid extremes. Flesh tones are best rendered when the print is on the light side. Dark prints cause tones to take on an orange cast rather than the more desirable pink appearance. Make-ups made for existing three-color processes have not been found satisfactory. Standard black-and-white technique in lighter shades has been found more suitable.

The successful use of two-color bipack requires the most careful selection of colors in both sets and wardrobe. Certain difficult colors should be avoided and the most painstaking attention paid to the relationships of colors used. The use of pastel tones of color produce the best results. Excessive use of brilliant colors is to be avoided except in small areas for emphasis only. Colors darker than the middle range of the scale should not be used except where special effects are desired. This is because all dark colors tend to reproduce with a certain sameness, giving a monotone effect. The use of black and white is good in this regard, to give added range. Contrasting colors

used together are excellent for heightening color effectiveness. Blue appears bluer by virtue of being adjacent to a yellow. In men's wardrobes too many grays should be avoided since they tend to reproduce alike, leaning to the blue-green. For white shirts, towels, bedding, etc., we use a buff color, rather than the usual gray since the buff reproduces a better white. Browns reproduce fairly accurately, therefore graduations can be better judged. In the selection of wardrobes it is better to make actual photographic tests.

It should be remembered that only the faces are the really fully lighted areas so that clothes are somewhat underexposed. This tends further to degrade dark colors. In general, grays reproduce with a greenish cast, yellow goes orange-brown, reds on the magenta side, tend towards brown, orange-reds reproduce the brightest. Fluorescent cloth used for stage productions reproduces with unusual brightness and can be used effectively where a very brilliant color is desired.

In all instances it is best to make photographic tests of both sets and wardrobes prior to actual production. It is essential that the art director, the wardrobe designer and the cinematographer work closely together to achieve a harmonious result.

Adequate liaison between the color laboratory and the studio is most important, both in keeping the cinematographer informed about his negative and in assisting the laboratory in achieving the effect the cameraman is striving for.

Process shots, matte shots, wipes, dissolves, speed work, etc., can all be done in two-color bipack; in fact, anything which is possible in regular black-and-white photography is feasible in two-color bipack.

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# Kodak Hits Production Peak

Eastman Kodak Company, terming progress in color the top photographic development of the past year, reports that the output of most of the firm's products hit new peacetime peaks in 1946 and would continue to rise during 1947.

The company's annual report for 1946, currently mailed to more than 42,000 stockholders, also announced:

1. Building projects to provide increased production facilities, delayed by the war, are being pushed ahead "as rapidly as possible."

2. A "sizable appropriation" has been made to continue a broad program of research, development, and process improvement.

3. Company employment at the year's end totaled 48,800 in this hemisphere, an increase of 6,000 during 1946 and an all-time high.

4. Tennessee Eastman Corporation, associate company at Kingsport, Tenn., is expanding its manufacturing plants to provide broadened production of new chemical products, textiles, plastics, and dyestuffs.

5. Distillation Products, Incorporated, is enlarging its activities in the high-vacuum equipment and vitamin fields. DPI is jointly owned by Kodak and General Mills, Incorporated.

The booklet report covers the company's 1946 activities and supplements financial details, announced March 5, which showed record peacetime sales of \$274,703,448 and net profit of \$35,691,318. The latter figure includes unusual tax reductions totaling \$3,936,800.

Although selling prices of many Kodak products were increased, the report noted, the average price level of Kodak goods was only six to seven per cent above that prevailing immediately before the war and did not make up for the larger rise in costs in 1946. Percentage of profit from operations, consequently, was lower than before the war, the company said.

Explaining that its postwar reconversion was virtually completed in 1946, the company calls attention to unprecedented production levels for a non-

war year in sensitized goods, photographic equipment, and optical products.

The report, discussing research into relatively new fields, pointed out, as an example, that "a simple photographic method of printing designs on metals, plastics and other materials (Kodak Transfax Process) is now being studied by the Research Laboratory for use in the decoration of ceramic ware."

In addition to major projects in color, industrial photography, and the graphic arts, the company added, the research program embraces methods of extremely rapid film processing, which "are being studied in relation to commercial needs, especially those arising in the television field."

Work on rare isotopes, such as Carbon 13 and Nitrogen 15, which are widely demanded for medical research, will continue and "will gradually become an integral part of the production program which now supplies more than 3,000 chemical compounds to research laboratories in the United States," Kodak disclosed.

Tennessee Eastman, meanwhile, "is equipping a large laboratory at Kingsport to study the special problems of cellulose esters and their applications, and the work of the company in related fields of chemical science is being concentrated there," the report said.

A new laboratory, the report continued, also is being installed in Panama City to study photographic equipment and materials under tropical conditions.

The company revealed that part of a new colorprint service building, under construction at Kodak Park in Rochester, will begin operations by this summer "with a consequent increase in color-print output."

In a summary of company activities outside the United States, the report said that plants at Harrow, England; Toronto, Canada; and Vincennes, France, "operated at high levels." The plant in Stuttgart, Germany, "continued its operations, begun in 1945, under jurisdiction of the American Military Government."

"Prewar operations of the company in Manila, Shanghai, Hong Kong, and Sin-

gapore have been resumed," the report continued, "and plans have been made for the reopening of the establishment in Baravia, Java, during 1947."

The booklet's non-financial section, entitled "Progress Highlights from a Year of Transition," also reported:

## Color Film Output Increased

1. A "substantial increase" was achieved in the output of color film and prints and "the production rate in general for the many types of films and papers was the highest ever recorded in the company's peacetime operations." Two new color films were introduced in 1946: Kodak Ektachrome, which the photographer can process himself; Kodachrome Commercial Film 16mm., a motion-picture film yielding high quality duplicate prints.

2. Production of cameras and equipment attained by the end of 1946 a rate "about 20 per cent higher than that for the year as a whole and above that for any prewar year." Output of precision cameras on a unit basis exceeded any previous year by 50 per cent.

3. Manufacture of optical goods likewise reached "a new high for peacetime."

4. Despite the heightened production, distribution of many products was on an allocation basis because of the great, general demand.

5. An improved lens-coating technique ("Lumenizing") was devised. This system enables Kodak to coat exposed outer lens surfaces with a microscopically thin layer of magnesium fluoride to give "increased light transmission, better contrast, and a crisper separation of tone values." Previously, coating only the inner glass-air surfaces of the lens systems was practicable.

6. Tennessee Eastman introduced several "increasingly important chemical products" for use in lacquers, sulfa drugs, insecticides, and medical dressings. The Kingsport firm also is preparing to turn out on a large scale some 15 new hydroquinone derivatives for producing antioxidants, resin products, dyes, perfumes, and pharmaceutical goods.

7. Establishing itself "as a major producer" of acetate dyestuffs, Tennessee Eastman is expanding the manufacture of its acetate yarns and staple fibers, including some newly developed types.

8. The 1946 wage dividend totaled approximately \$8,100,000 compared with \$7,362,000 for 1945. Additionally, in the field of employee benefits, the company broadened its annual vacation and group life insurance plans.

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## Color Light Playing

For one to read "NOURTHAR," the fine art of LIGHT COLOR PLAYING, is like reading the writing of a person of the future. Mary Hallock Greenewalt surely has a vast knowledge of the world, for in her book she paints vivid pictures of all emotions of life and experiences, while describing her masterly technique of light playing.

The book, 10 $\frac{3}{8}$  inches by 7 $\frac{1}{2}$  inches, hard backed and bound in silver cloth, has fifteen chapters with 150 illustrations on four hundred and twelve pages. While very lengthy, one should not miss a page or even a single line. I'm sure the reader will be well paid.

The art of color playing with the author's clever machine; or should I say an organ of electric switches, dimmers, wire connections and lamps with remote controlled multiple filters; while a great symphony is being played or while the actors are speaking their lines surely would add the finishing touches we have long wanted.

During the many years as a soloist in symphonies, concert bands and orchestras, I had often wished for some color effects that would change with the various moods and tempos. How often have we watched grand sunsets in all their rhapsodies of colors and felt like bursting into song . . . or were we made silent and romantic while we sang within . . . deep blue skies with a full moon . . . soft lullabys and whispers of love . . . then there was the early morn or the day on the desert with its ever-changing moods . . . so it is to Mary Hallock Greenewalt, a fine musician, an inventive genius, and a philosopher who has patiently over many years designed, built and perfected a portable system whereby we may have at our finger tips all these changing moods of light wherever and whenever desired, that we are indebted.

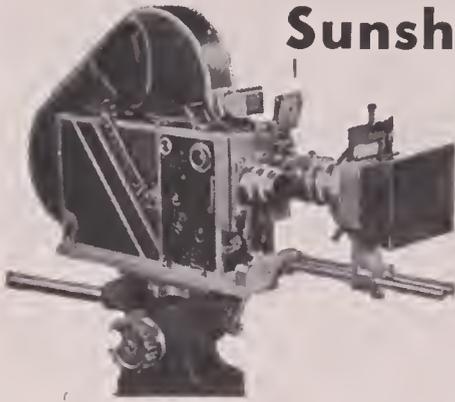
In the motion picture world, we Cinematographers dreamed COLOR. Now we have it and it predominates on the screen because it is real. We see the actor, the landscape, the valleys, the skies and mountains in all the colors that nature created . . . Now why not mix color photography with NOURATHAR? I'm sure the combination would give the music, art, and story directors greater latitudes.

Because of its depth, the book—while not directed in anyway towards motion pictures—contains color philosophies of great interest to the studios reader. It cannot be read casually.

From the jacket of this book published by Westbrook Publishing Company of Philadelphia, I wish to quote a few lines in conclusion. "NOURATHAR is the author's coined name for the SIXTH ART. The word is derived from the Arabic roots "nour" meaning light, and "athar" the essence of." To me "NOURATHAR" is the key for those who wish to unlock the doors to a new artistic world.

Reviewed by Glenn R. Kershner, A.S.C.

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### Alhambra La Casa

Exhibition of "Free Wheeling," which won the \$1,000 first place prize in the recent Union Pacific contest for Stanley Midgley, spotlighted the April 21st meeting of La Casa Movie Club of Alhambra, California, held at the YMCA building. Program also included demonstration of various gadgets by R. A. Battles, and film program comprising: "Pasadena," by Edwin K. Kendall; and "Four Seasons," by Lloyd B. Austin. Tenth anniversary of La Casa will be celebrated on June 16th.

### Seattle Amateur

Edited version of the new Seattle Amateur Movie Club's production, "Give and Take," was shown at the March 11th meeting; with other films including "Up and Atom," club production of Walla Walla Movie Club; "Wings," by Dr. Congdon of Wenatchee Movie Club; and pictures by members R. A. Currie, L. G. Dillaway, Pete Delaurenti, Art Erickson, John Flynn, and O. O. Fahlenkamp.

## Current Assignments of A. S. C. Members

As this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A. S. C. were engaged as Director of Photography in the Hollywood studios as follows:

#### Columbia

Burnett Guffey, "Assigned to Treasury," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vleadimir Sokoloff.

William Snyder, "The Man From Colorado," (Technicolor) with Glenn Ford, William Holden, Ellen Drew, Edgar Buchanan, Ray Collins.

Vincent Farrar, "Blondie in the Dough," with Penny Singleton, Arthur Lake, Larry Simms.

Henry Freulich, "The Son of Rusty," with Ted Donaldson, Tom Powers, Ann Doran, Stephen Dunne.

Ira Morgan, "Two Blondes and a Red-head," with Jean Porter, Jimmy Lloyd, Judy Clark, Douglas Wood.

Phil Tannura, "Destiny," with John Beal, Trudy Marshall, Jimmy Lloyd.

#### Eagle-Lion

Tony Gaudio, "Love From a Stranger" with John Hodiak, Sylvia Sidney, Ann Richards, Isobel Elsom, Ernest Cosart, John Howard, Anita Bolster.

#### Allied Artists

Harry Neumann, "The Hunted," with Belita, Preston Foster, Cathy Carter, Russell Hicks, J. Farrell MacDonald.

#### Metro-Goldwyn-Mayer

Charles Schoenbaum, "Good News," (Technicolor) with June Allyson, Peter Lawford, Joan McCracken, Pat Marshall, Ray McDonald, Mel Torme.

Harry Stradling, "The Pirate," (Technicolor) with Judy Garland, Gene Kelly, Walter Slezak, Gladys Cooper, Jerry Bergen.

#### Paramount

Ray Rennahan, "Whispering Smith," (Technicolor) with Alan Ladd, Robert Preston, Brenda Marshall, Donald Crisp, William Demarest, Fay Holden.

#### PRC

John Alton, "Bury Me Dead," with Mark Daniels, Greg McClure, Cathy O'Donnell, June Lockhart.

#### RKO

Harry Wild and W. Howard Greene, "Tycoon," (Technicolor) with John Wayne, Laraine Day, Sir Cedric Hardwicke, Anthony Quinn, James Gleason, Judith Anderson.

George Barnes, "Mourning Becomes Electra," with Rosalind Russell, Michael Redgrave, Raymond Massey, Katina Paxinou, Leo Genn, Henry Hull, Sara Allgood.

Lucien Ballard, "Memory of Love," with Dana Andrews, Merle Oberon, Ethel Barrymore, Hoagy Carmichael, Artur Rubinstein.

Frank Redman, "Dick Tracy vs. the Gruesome Gang," with Raph Byrd, Bo-

ris Karloff, Lyle Latell, Anne Gwynne, Edward Ashley.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Production) with Cary Grant, Loretta Young, David Niven, Monty Wooley, Elsa Lanchester.

#### Screen Guild

James Brown, Jr., "Dark Bullet," with Henry Wilcoxon, Mary Brian, Douglas Dumbrille.

#### Selznick

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Cecil Kellaway, David Wayne, Albert Sharp.

#### Twentieth Century-Fox

Ernest Palmer, "Scudda Hoo, Scudda Hay," (Technicolor) with June Haver, Lon McCallister, Anne Revere, Walter Brennan, Henry Hull, Robert Karnes.

Norbert Brodine, "Kiss of Death," with Victor Mature, Brian Donlevy, Patricia Morison, Coleen Gray.

Joseph LaShelle, "The Foxes of Harrow," with Rex Harrison, Maureen O'Hara, Richard Haydn, Gene Lockhart, Vanessa Brown, Victor McLaglen.

#### Universal-International

Stanley Cortez, "Secret Beyond the Door," (Diana Prod.) with Joan Bennett, Michael Redgrave, Anne Revere, Barbara O'Neill, Natalie Schaefer, Rosa Rey.

Maury Gertsman, "Singapore," with Fred MacMurray, Ava Gardner, Philip Dorn, Richard Haydn, Thomas Gomez, Spring Byington.

Milton Krasner, "Something in the Wind," with Deanna Durbin, John Dall, Donald O'Connor, Charles Winninger, Helena Carter, Margaret Wycherly.

Hal Mohr, "The Lost Moment," (Walter Wanger Prod.) with Robert Cummings, Susan Hayward, Agnes Moorehead, Joan Lorrying, Frank Puglia.

#### United Artists

Mack Stengler, "The Mauraunders," (Hopalong Cassidy Prod.) with William Boyd, Rand Brooks, Andy Clyde, Dorinda Clifton.

#### Warners

Karl Freund, "Wallflower," with Joyce Reynolds, Robert Hutton, Janis Paige, Edward Arnold, Barbara Brown.

Sol Polito, "Voice of the Turtle," with Eleanor Parker, Ronald Regan, Eve Arden, Kent Smith, Wayne Morris, John Emery.

Arthur Edeson and William V. Skall, "Two Guys From Texas," (Technicolor) with Dennis Morgan, Jack Carson, Dorothy Malone, Andrew Tombes, Penny Edwards.

Peverell Marley, "Whiplash," with Dane Clark, Alexis Smith, Zachary Scott, Jeffrey Lynn, S. Z. Zakall.

Ted McCord, "The Treasure of the Sierra Madre," with Humphrey Bogart, Walter Huston, Bruce Bennett, Tim Holt, Barton McLane.

## Cinema Workshop

(Continued from Page 172)

sistency of screen *geography* be maintained. Thus, if he leaves the frame (facing the camera) at the *lower right* corner of the screen, he must enter the frame of the following scene (facing the camera) from the *upper left* corner. But if, in the second scene, he is walking away from the camera, he must enter from the *lower left* corner.

A somewhat more theatrical variation of this pattern is the device in which the character walks straight toward the camera in one scene and directly away from it in the following scene.

### Specific Continuity Elements

Pictorial continuity depends upon the proper build-up to the main point of the sequence. This simply means that if you have a striking close-up as the "punch line" of your sequence, you would not haphazardly throw it into the film, but would build up to it with well planned and executed long and medium shots.

The device known as *juxtaposition*, if correctly and not too frequently used, provides a smooth and original transition between scenes. Simply defined, the term means the matching up for effect of two separate scenes, each of which has different subject matter, but similar compositional pattern. For example, if at the close of one scene we move into a close-up of a spinning roulette wheel, and then dissolve to a spinning car wheel to introduce the next scene, an effective transition is made. Similarly, if we concentrate on the flame of a burning match and then dissolve to flames leaping in a fireplace, we have another forceful example of juxtaposition of compositional elements. This device can be used to add variety, to create smooth transitions, and to create a symbolic connection between two subjects of different meaning but similar form.

As we have said before, camera movement is one of the most effective means of preserving pictorial continuity—its strongest point being that changes in composition can be made without the audience becoming confused as to the physical relationship of different parts of the setting or action.

The straight *tilt* or horizontal *pan* is used to follow the action of the moving

object, while the tripod itself remains stationary.

The *follow* shot (also known as *dolly* shot, *trucking* shot, or *perambulator* shot) is executed by mounting the tripod on a movable base so that the camera actually follows along with the subject as it moves.

A *pull-in* is a shot in which the camera starts with a long shot and gradually moves into a close-up of a particular segment of the scene. It is one effective means of establishing a new scene and then getting to the most important element quickly and smoothly.

The *pull-back*, a direct reverse of the above technique, starts with the camera in close-up, and then moves back to a long shot to show the general surroundings. This is effective when it is necessary to impress a certain segment of the situation onto the audience's mind, before the overall setting is shown.

Camera movement should never be used merely for the sake of movement, or for the purpose of forcing action into an otherwise static treatment. Like any other pictorial continuity device it should always be used with a definite effect in mind.

Pictorial continuity should originate in the script. The director should be careful that the pattern follows through in the action as he stages it. The cameraman, above all, should use his camera to enhance the flow of one scene into the other—so that, on the screen, the audience will gain the impression of a freely moving story unhampered by jumpy transitions or gaps in the narrative.

NEXT ISSUE: *Special Effects*

## Cameraman in Japan Now Available for Background Footage

Gene Zenier is currently in Japan on a motion picture assignment for March of Time, and has permission to do other coverage in both 16 mm. color and 35 mm. process background footage. Zenier advises that he has a Mitchell and B&H standard for shooting, and is willing to undertake assignments on approval basis. His cable address is Gene Zenier, Time, Inc., Tokyo. Mailing address, PRO, GHQ, FEC, APO 500, c/o Postmaster, San Francisco, Calif.

## Telefilm Expands

Construction is currently under way on new building to house developing and recording laboratories at Telefilm studios, Hollywood.

The company has just installed a new recording system to better service 16 mm. producers. Apparatus consists of a Maurer recorder, enhanced by special equipment developed by Telefilm engineers, enabling recording by variable density, variable area, direct positive, reversal, etc.

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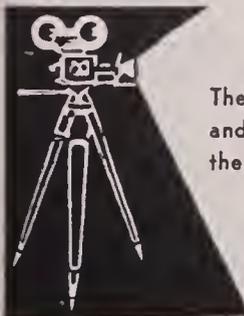
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## Message to A.S.C.

(Continued from Page 165)

bow in the direction of the fifteen charter members of the A.S.C.—Arthur Edson, Victor Milner, Joe August, J. D. Jennings, Homer A. Scott, William C. Foster, L. D. Clauson, Eugene Gaudio, Walter L. Griffin, Philip E. Rosen, Charles G. Rosher, Roy H. Klaffki, Fred LeRoy Granville, Robert S. Newhard and L. Guy Wilky.

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## Bell & Howell Changes Lens Coating Name

In a move calculated to maintain uniformity in the use of "Filmco" as a widely-recognized symbol of precision, Bell & Howell Company has redesignated as "Filmocote" its lens surface coating, it is learned.

Previously called "Extra-Lite," the anti-reflection surface treatment being applied to B&H-made camera and projection lenses has the same characteristics of durability and correct color which resulted from the Chicago firm's war-time research and experience in precision optics.



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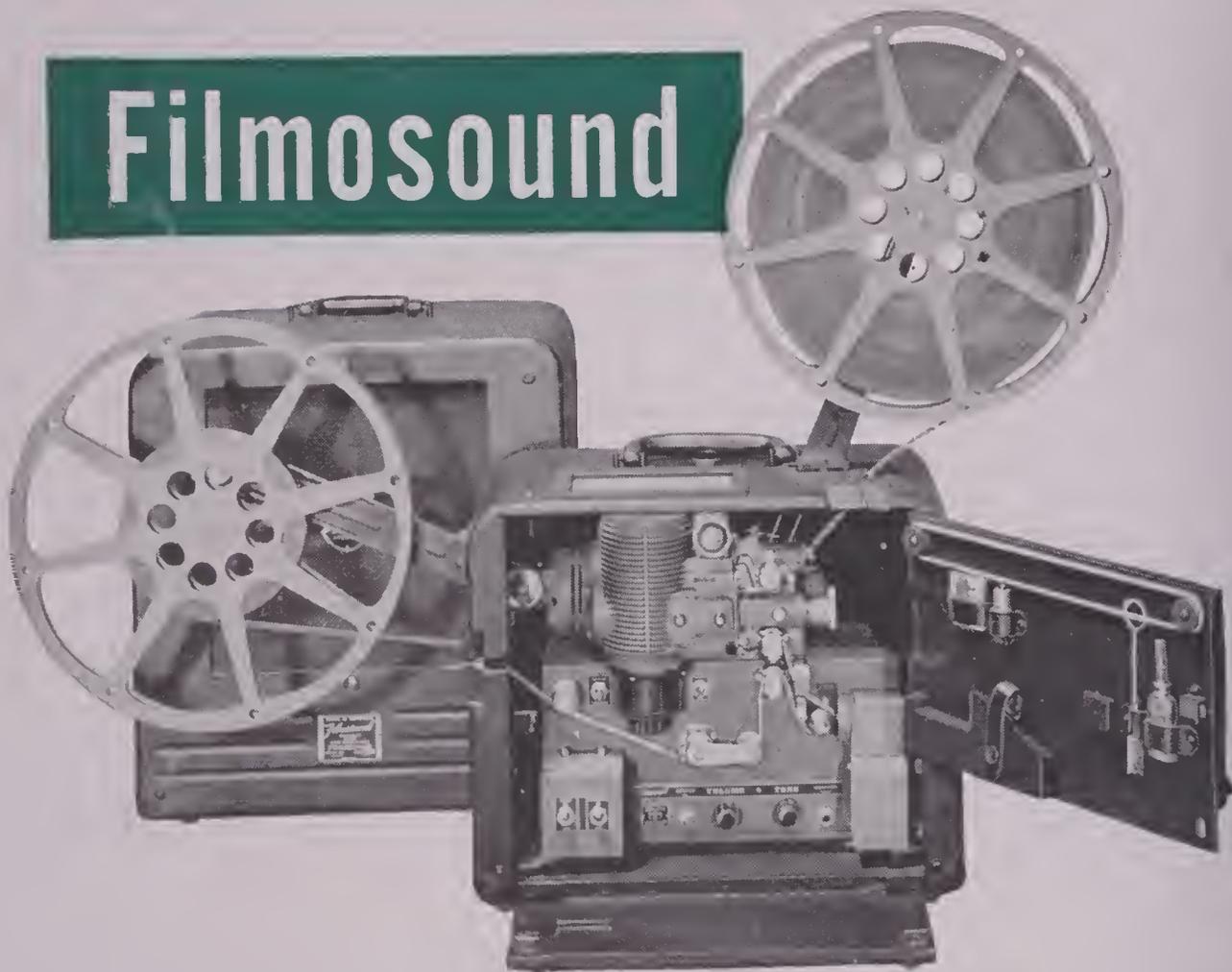


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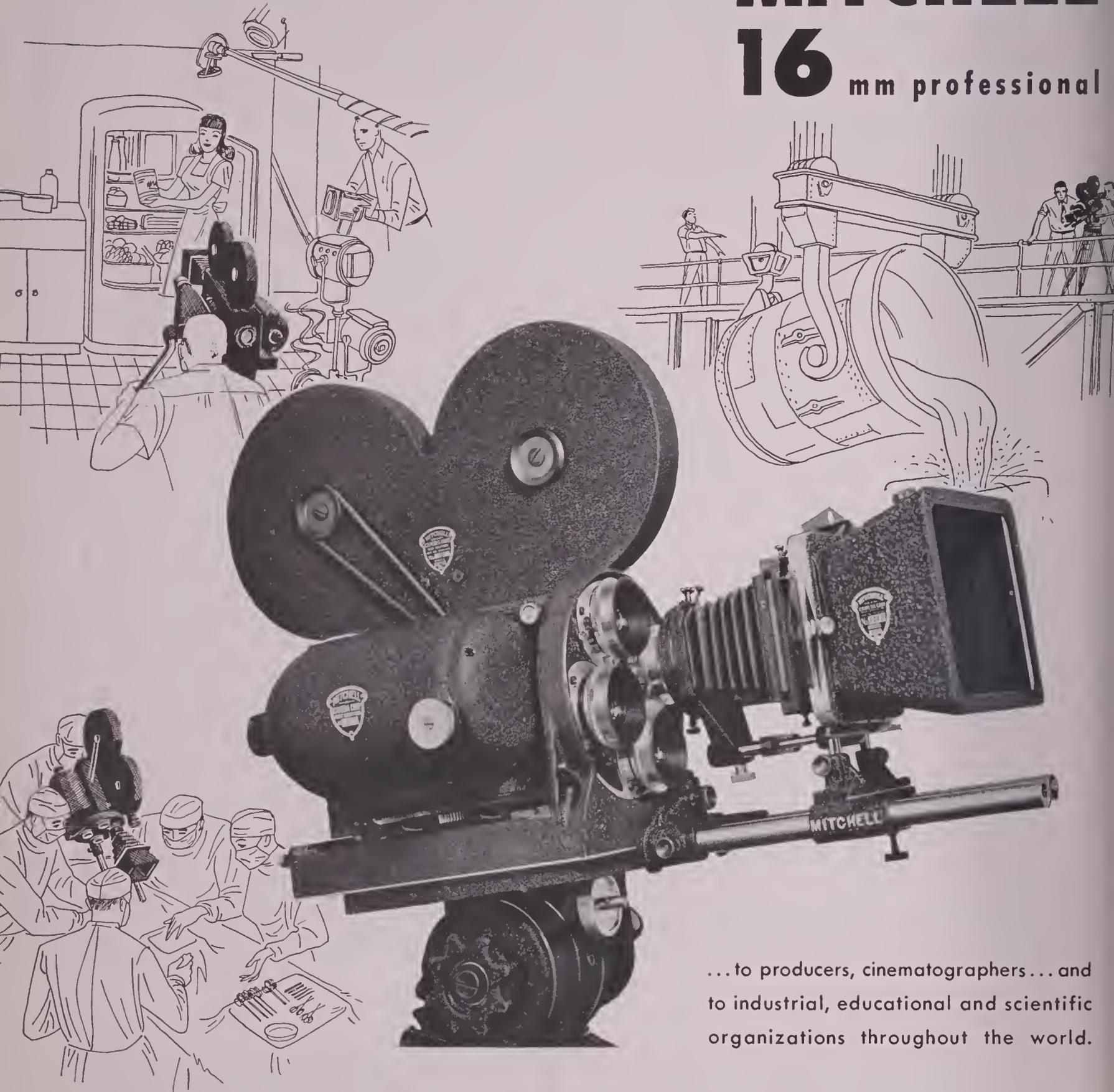
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

JUNE, 1947

NO. 6

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ON THE FRONT COVER—Bing Crosby and Bob Hope rehearsing a scene in carnival set at Paramount for "The Road to Rio." Director of Photography Ernest Laszlo, A.S.C., is watching action behind camera on crane at upper left; while Director Norman McLeod is seated in front of Crosby. Photo by Jack Koffman.



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Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

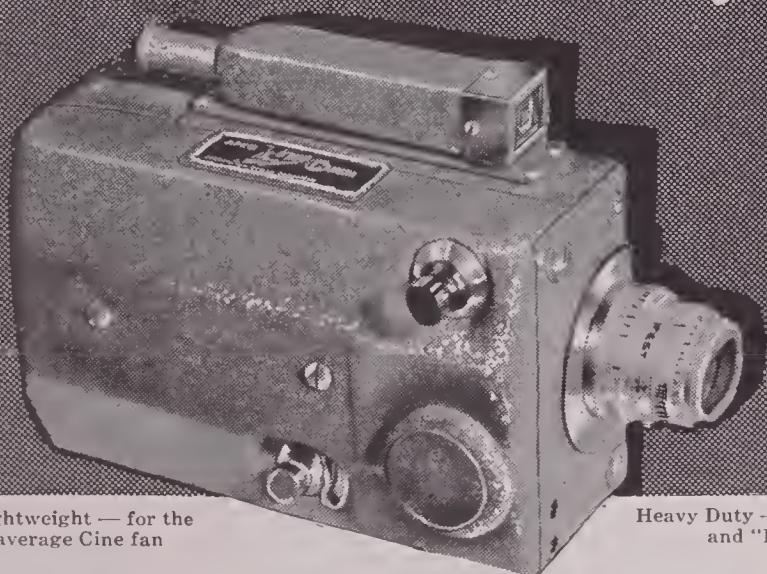
Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1946 by A. S. C. Agency, Inc.

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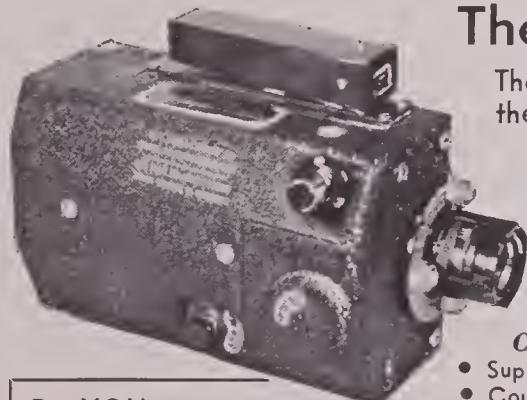
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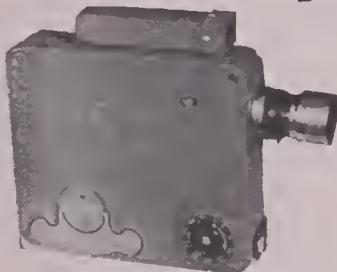
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# MAGNETIC TAPE SOUND RECORDING

**R**ESearch and improvements in magnetic tape recording, with the possibility that this procedure and technique might eventually be adapted for economical recording of sound tracks for both amateur and professional motion picture production, is currently creating widespread interest.

Because of such interest in the future potentialities of magnetic tape recording; especially for sound track accompaniment for 8 and 16 mm. pictures in the amateur field; it was felt that an article presenting a resume of the magnetic recording methods would be particularly informative at this time. There is also the possibility that future development and improvement of magnetic sound recording will allow for use of this type of system in various stages of regular motion picture sound practices from the original recording at the time picture is taken, up to the point of making the final sound negative for release prints. Already, a great deal of activity is taking place inside the studios in use of magnetic recorders, where sound quality is secondary.

Magnetic recording is not new, although it has made great development strides during the past decade. The first magnetic recording instrument was originally built by Valdemar Poulsen in 1898, and was called the Telegraphone. Thirty years ago, the method was proposed for synchronization with films to provide talking pictures, but when sound was added to the films 10 years later, it was via optical recording rather than magnetic.

## Several Methods

A number of companies and groups are currently pressing research and improvements of magnetic recording, and the sum total cannot be less than eventual introduction of highly efficient equipment for practical uses, together with economy and convenient operation.

Various bases can be utilized. Steel tape, wire, paper or plastic tape are now being developed. The base is coated with a thin layer of magnetic powder, with thickness of about 0.6 mil. Experiments have disclosed that a narrow magnetic sound track can be deposited on 8, 16 and 35 mm. film prints for reproduction when pictures are projected.

The tape or other magnetized strip is threaded through the recorder, with the signal transmitted through the microphone pickup agent deposited magneti-

cally thereon. If the "take" is not satisfactory, it can be wiped off by a de-magnetizing run-through in the machine, and the same surface used again and again for other recordings. The original can be reproduced repeatedly without loss of sound quality. Also, specific words, groups of words, or sounds not wanted can be wiped off by de-magnetization on specific sections of the tape, without disturbance of sound signals desired to remain.

At this point, it seems that the initial practical use of magnetic recording for films will be in the amateur 8 and 16 mm. fields. This is particularly important for the paper tape system, which is both economical and convenient. For those amateur movie enthusiasts who do not feel inclined towards the expensive method of optical recording, especially when only one or two prints are required for personal use, magnetic tape recording indicates it will assist to solve the problem.

The paper tape media also can be cut and spliced (with ordinary Scotch tape), without disturbance or clicks on the sound track when run through the machine for reproduction.

## SMPE Presentation of Papers

A most informative group of papers on magnetic recording and devices was presented at the October, 1946, convention of the Society of Motion Picture Engineers, and published in the January, 1947 issue of the SMPE Journal. Abstracts from several of these provide basic information on the progress of development of magnetic recording, and possible uses by the film industry for both recording and reproduction in the future.

S. J. Begun of the Brush Development Company, Cleveland, Ohio, summarized his paper, "Recent Developments in the Field of Magnetic Recording," as follows:

"New magnetic recording media have been developed during recent years which will widen substantially the field of application for magnetic recording equipment. Probably most outstanding among the new recording media is the non-ferrous wire or tape, plated with a thin layer of nickel-cobalt alloy, and the paper disks and tapes coated with a dispersion of magnetic powder.

"It might be of particular interest to the motion picture industry that the

coated recording media can be perforated to obtain synchronization between picture and sound. It is also possible to apply the magnetic coating directly to the film base."

Begun stated in his paper, "It is only now that recording media are available which use a coating of finely dispersed magnetic powder applied to a plastic or paper base; and it was in 1928 that Pfleumer, in Germany, made the first practical attempt to apply a magnetic coating to paper or plastic material for use as a recording medium. But in this country, little attention had been given to the development of coated magnetic recording media until in 1939, the Brush Development Company started experimental work in this field. This activity was greatly accelerated during the war.

"Only about 10 years ago," he continued, "it was considered necessary to have the recording medium move with a speed of two to three feet per second, to cover a frequency band wide enough for low, or possibly, medium quality sound recording. With the coated recording materials it is now possible to go up to about 5,000 cycles with a speed as low as 7.5 inches per second.

Later, Begun points out that "Up to this time it has been considered impossible to obtain any worthwhile sound recording on 8 mm. film. The speed of 8 mm. film, assuming 24 frames per sec, is a little better than 3.5 inches. With magnetic recording a quality can be obtained which is good enough for speech intelligibility and it appears that for amateur applications, 8 mm. sound film is now in the realm of possibility. Of course, if a magnetic recording track is provided on 16 mm. film, the quality of reproduction is certainly adequate for amateur use and most likely even for professional applications."

## Magnetic Track for Films

The paper by Marvin Camras, of Armour Research Foundation, Chicago, described the feasibility of magnetic sound track on motion picture film. Advantages of magnetic recording, he pointed out, include: simplicity, low cost of the magnetic system, immediate monitoring if desired, no processing, magnetic record medium can be erased by demagnetizing and used over again, parts of sound track can be edited by erasing, and dubbing in of new sound; and no serious distortion with overmodulation. As against this, he disclosed magnetic recording disadvantages — head contacts the record with possibility of wear, and technical performance not quite equal to the best possible with advanced optical methods. He did, however, explain that the above listings are based on the present state of the art. Camras then described the technical phases of the construction and operation of the magnetic sound heads and use for recording on film.

Another paper, "A Magnetic Sound Recorder of Advanced Design," was presented by R. J. Tinkham, president, and

(Continued on Page 218)

# PAINTING WITH TECHNICOLOR LIGHT

By Herb A. Lightman

WHEN "Forever Amber," the Twentieth Century-Fox filmization of Kathleen Winsor's controversial best-seller, reaches the screen within the next few months, the usual battle will probably rage as to whether or not the film is faithful to the novel, etc., etc., etc. While a certain segment of the audience may object to the whittling down of the astronomical number of Amber's lovers to an easily-handled brace of six, there is at least one point on which practically everyone will agree: that is the excellence of the Technicolor photography of this photoplay.

Filmed in Technicolor, "Amber" is the work of Director of Cinematography Leon Shamroy, A.S.C., whose reputation as one of the industry's top color photographers is attested by the three Academy award "Oscars" which he has won for photographing "The Black Swan," "Wilson," and "Leave Her to Heaven"—all Technicolor productions. "Forever Amber" bids fair to win additional acclaim for his highly individualistic style of "painting with light."

The photography of this film is characterized by smoothly modeled lighting which gives depth and substance to the sets and characters. There is an abundance of mellow candlelight and a compositional approach that makes the situations seem like fluid tapestries. The whole effect is one of mellowness punctuated by staccato bursts of visual brilliance.

#### Emotion in Color

Shamroy's approach to color cinematography is *emotional* as well as technical. He feels that in order to assure the desired audience reaction to a given sequence, the director, cinematographer, and art director must first agree on the dominant mood required in that sequence, and then all work in the same direction to capture it on film.

He strongly emphasizes the importance of cooperation between department heads in planning the artistic approach to the film. On "Forever Amber," not a set was built or a costume created until it had received his "okay for camera." He worked closely with director

Otto Preminger and set designer Lyle Wheeler to see that a consistent approach was preserved in every phase of production.

In conference regarding technique, he feels that the cinematographer should make the final decision, since he is the one who will actually be responsible for recording the action on film.

Each sequence of a photoplay has its own emotional pattern which, once defined, may be enhanced through the correct use of color. Once having established a mood, Shamroy perfects a lighting pattern to fit it precisely—knowing full well that he is in no danger of repeating that lighting set-up, since rarely (if ever) is the same mood encountered in two sequences of the same picture.

Working with the established mood as a basis, he intensifies the emotional pattern of a Technicolor scene by *painting* it with colored light—that is, adding areas of "cool" or "warm" light where they will add force to the scene. A particular situation, for example, may demand a *cool* mood to compliment the action planned; in which case the use of blue and green gelatin slides over the secondary lighting units will add to the effect. Where *warm* emotions are to be portrayed, the use of amber or raw incandescent light adds to the effectiveness of the scene.

Shamroy studies each composition as he would a painting, decides which areas (in relation to the source of light and emotional pattern of the scene) demand warm tones and which would benefit by cooler tones. He then "paints" the composition with the appropriate variations in hue, balancing one against the other, and always making sure that the true color of the set is allowed to remain in selected areas. "It is important that we preserve the true colors of the set in part," he points out, "so that there



Left: A production shot taken during filming of the Twentieth Century-Fox film, "Forever Amber." A battery of sunlight arcs is set up on an exterior scene to provide proper fill illumination. Director of Cinematography Leon Shamroy, A.S.C. (at left, in hat and coat), studies the composition, while Director Otto Preminger (seated next to the Technicolor camera, right) prepares to study the action. Right: A scene from the plague sequence of "Forever Amber," indicating the flat lighting and monotone grays which give this sequence a feeling of realistic horror.



Left: In filming "Forever Amber," Director of Cinematography Leon Shamroy, A.S.C., has achieved a mellow style of lighting especially well adapted to portraying the candlelight and firelight which characterize the story's situations. Right: Scenes such as this were carefully lighted to convey the mood and emotional pattern previously set by the director, art director, and cinematographer. Shamroy "painted the set with light," adding warm or cool tones where they were most effective.

will be a basis from which to work in blending the hues of the auxiliary or 'mood' lighting units."

He employs colored light in the manner that a painter uses a brush tipped with subtle shades of pigment, adding a dash of warm tone here, a touch of cooler tone there, until the balance is correct for the emotional pattern of the scene.

It is this technique that has earned him the reputation for painting with light—a technique distinctly opposed to the theory of some cinematographers who believe that white light only should be used for Technicolor, the shades of settings and costumes being allowed to account for color contrast.

#### Color Emphasis

"Visual emphasis within the scene depends upon how selectively color is used to point up the action," Shamroy explains. "For this reason, an important area or costume should be given enough color to attract the eye, while everything else in the scene is restrained. Since the audience cannot pay attention to two centers of interest at the same time, it is not good cinema to have two units of brilliant color fighting for attention; one or the other must dominate."

In keeping with this point of view, color merely for the sake of color should be played down in order that it may be used forcefully when a dramatic moment occurs. In "Amber," the plague sequence is done in somber tones of gray, with a studied flatness that emphasizes the quiet horror of the situation. Of this sequence, Shamroy says: "There is a grisly squalor to the whole mood, creating an impression of the withering hand of death abroad in the land. There is a certain beauty in squalor, because any little patch of color that may be present stands out with a clarity and sharpness that can be very striking.

In his approach to realism, Shamroy

strives to project an illusion of reality without unduly emphasizing harshness. He works on the theory that in every situation, no matter how stark, there is an underlying warmth which must be allowed to show through for effective dramatic contrast. This theory was demonstrated quite forcefully in his photography of "Leave Her to Heaven," a photoplay in which exquisite lighting and composition served to exaggerate the venomous nature of the main character.

In "Forever Amber," it was a difficult task to simulate realism, since the lush settings and costumes of the period were in themselves so colorful that they were bound to seem unreal as compared to modern motifs. With this in mind, the production chiefs assigned to the film were especially careful to avoid the "extravaganza touch" which so often lends a note of unreality to films portraying a colorful period in history. "We are more interested in a warm, intensely human story than we are in the spectacular," explains director Otto Preminger. "We have tried to do the picture in a very natural and very simple way, shying away from what Hollywood calls an *epic*. Moviegoers no longer care very much for epics, it seems. They want good human stories about very real people."

Staying in line with this approach, Shamroy, in filming the story, achieved a fine balance between his illusion of reality and a faithful reproduction of the lusty glamor that prevailed in England during the reign of Charles II.

#### An Art in Itself

Leon Shamroy considers Technicolor cinematography a vital art form which, while having some compositional rules in common with black and white photography, differs from it widely in every other respect. The big difference lies in the application of *color* as a comple-

ment to *drama*. It is not merely a matter of high or low-key lighting, but a task of matching colors of light to varicolored emotions.

He draws his inspiration from the works of famous painters—admiring the subdued warm tones of Rembrandt's work, and the luminous color and photographic detail of Ruben's painting. He also likes the verve displayed in the less abstract schools of modern painting. During his apprentice years, he knew and worked with many contemporary artists whose cumulative influence is evident in the artistry of his present style of lighting and composition.

His compositions have a *modern* feeling, a strong sense of line and movement which directors find valuable in presenting action from the most forceful angle. His use of color is bold without being jarring. He does not, for example, like to use much red, preferring to reserve this brilliant color for scenes which require the ultimate in emphasis.

Although his style as a cinematographer has its roots in art, he is no blind "art for the sake of art" devotee. He is well aware of the market for which his talents must be slanted. "After all," he points out, "the professional cinematographer is helping to *sell* a screen story to the audience. He has a definite responsibility to present the producer's product to best advantage."

It is Shamroy's fine balance of art with box-office that makes his photography so widely appreciated in Hollywood. Never sacrificing one for the other, he manages at the same time to satisfy the art critic, as well as the producer, whose appreciation of art often does not extend beyond enthusiasm for the designs made by black figures on the credit side of the ledger. In "Forever Amber," he seems once more to have achieved the unbeatable combination.

# One Man Photographic Expedition To Sweden

By Ray Fenstrom, A. S. C.

**A** FEW weeks after I finished shooting "The Last of the Redmen" in Vitacolor for Columbia studios in Hollywood, I sat one day with Jerry Altfilisch, who had just formed Pictorial Productions. We started discussing personal picture experiences, people we knew, and yarns of the trade. Then we veered onto the subject of places—where we had been, those countries we would like to see for the first time, and those worthy of visiting again. He told his story about the flight with the Flying Hendersons, and I recited my flight to Labrador in 1928 to secure pictures of the German and Irish flyers who had succeeded in flying the first East-to-West jump over the Atlantic. Then we got on the subject of pictures in color. Result of the original informal talk is my present trip through Europe, which started in Sweden last December.

From Hollywood I flew TWA with 490 pounds of excess baggage, which included lights. After a spell of preparation in New York, I took off one Saturday morning aboard a DC4 of the Scandinavian Airlines System—which is truly sloganed a "United Nations of the Air." Sweden, Norway, and Denmark have joined hands to form this International airline. Insignia, composed of shields of each country, is the most colorful on any line in the world. The light blue and yellow of Sweden; the red and white of Denmark, and the red, white and blue of Norway. It photographs beautifully, as does the bright blue Viking ship design painted the entire length of the big plane. I had an even heavier load than when I first arrived in New York, but we were few passengers for the trip and the airline personnel took extremely good care of my equipment. It is but 19 hours from New York to Stockholm—the capitol of Sweden. First stop was at Gander, Newfoundland; next morning it was Prestwick, Scotland; then a stop at Norway's capitol city, Oslo; and finally Stockholm that evening.

## Stockholm's Growth

At my first glimpse of Stockholm from the air, I realized that Sweden had greatly changed since my last visit in 1933. My first article for the *AMERICAN CINEMATOPHGRAPHER* was written from here in 1925 after I returned from the

North Pole assignment with Amundsen and Ellsworth. John W. Boyle, A.S.C., and I made the first feature length color film in Sweden in 1931. But John wouldn't know the place now. Stockholm has grown—from 300,000 then to nearly 800,000 now. Beautiful and very colorful apartment homes have sprung up far out into the country where John and I shot tiny homes of that year. We drove out then into the country in a rented car. Now streamlined streetcars still painted light blue; electric busses in bright red; and fast taxis; whisk one out in no time at all. A rapid transit system had to be built to take care of the rush to the city before and during the war, which the Swedes fortunately managed to keep out of.

## Production Problems

The problems of shooting pictures here are about the same as at home, except the color of light for shooting color-film. Luckily I have a Harrison color corrector and set of correction filters. The winter light is very, very weak. The day starts at 10 and finishes at three. Shooting color is impossible except when the sun shines, which it did this winter once in two months. So I decided on interiors.

Jerry Altfilisch and I had planned a real human interest series to be designated something like, "The World Your Neighbor," how he looks, lives, works, and enjoys himself. No one ever sees the other fellow as he actually is, or tries to understand him. We felt—and still feel—if all neighbors get better knowledge of each other from within the home, a true United Nations spirit may be created.

So my first job had a working title of "At Home In Sweden." For it, I sought a typical middle class Swedish home, with average furnishings. I found that all Swedish homes—because of retention of family heirlooms through many generations—contained a mixture of the modern with the old and the antique. For example—in the family home I finally selected—they had stainless steel in the kitchen, old polished Swedish copperware, and both gas and electric ranges. Their family Bible had been in the same family since 1760. All through the house one could spot the old, beautifully blended with modern Swedish furniture.

The open corner fireplace in the living room was a copy from an old farmhouse—but as modern as the stainless steel.

After my first survey, I realized that I would need many more lights than the 12 I had flown over. The house circuit was 220 volts, and not heavy enough to carry the load required. After searching for a friend in the local picture business, I finally lined up what I felt was needed. I rented 25 more lights, all larger than my own. Latter were mostly spots and photofloods. I rented cable and hired the best electricians available from the union. I had to get the city power company to install a meter at the street, and we ran 300 feet of heavy cable from there to the home. Costs are about the same here as in Hollywood, and requirements almost similar. I had a full union crew throughout, and they were collectively and individually very excellent workers. Once they found out what I wanted, they worked carefully and efficiently. We had a lot of fun explaining both Swedish and American studio vernacular and slang to each other.

Lighting equipment here is quite similar to ours as used in the Hollywood studios, and—from baby spots to arcs—most are made here. To use my 110 volt lights, I had to split the 220 line, but had no trouble, except that the electricians had to comb the town for plugs and wire. There is still a great shortage of material here.

## Second Swedish Production

For my second picture here, I chose a new approach to the idea of telling a story. It came from my notes on the original impressions—seeing Sweden and Stockholm the first time after 13 years. Everywhere were streetcars. They may be disappearing elsewhere, but here they are definitely on the increase. All of them are painted a shiny light blue. Whether they are old or new—like the one I feature in my tale—they are clean and immaculate as Swedes. In the old cars no one is allowed to stand inside the car. The new streamlined beauties have 33 seats and straphangers' places for 77. They are long, tall, silent, and swift as gazelles. They stop and start faster than any car I ever saw. The quiet electrical parts are built in Sweden by their "General Electric of Sweden"—

ASEA. The body was built by General Motors Nordisk Co. It was one of these cars which gave me the idea for my second picture. They look so smooth and pretty, I compared these cars with tall, young girls. I hope Jerry Altfilisch uses my plan to let our little heroine—the car—speak with a feminine voice, telling her own story of Stockholm today, as she “sees” it.

My next one I hope to make a musical novelty, using some new ideas quite European in photography. Will write more about that later.

#### Modern Swedish Production

During my four months here, I have met most of the producers and technicians. I included one company working on location in my last film. They had booster inkies, DeBrie sound camera with a Barney, and had a dishpan light under it to keep it working in near-zero weather. Equipment seems adequate for the way they shoot here, and the results are very good. Swedish producers had the war years to build up film production with no outside competition to speak of. Now every American film shown runs to capacity houses. All seats are reserved, and—in a land of paper makers—they use tissue-paper tickets that are almost impossible to find if once slipped into one's pocket.

Each camera has but three men—cameraman, assistant, and slate boy. Mike booms are light and very portable. Recording, generator trucks, reflectors and lights are good, but the Swedes do not have the imagination that we have in Hollywood studios. Here they tend to all think alike, regardless. Their production speed is very slow, but overall production time is not much longer than in Hollywood. Costs are nevertheless high, but producers are not poor here either. Sweden is the most movie-going country in the world. Stockholm has nearly as many movie theatres as restaurants—and it seems the natives eat all the time. Two breakfasts, a long lunch, dinner, supe and a vikning—which can be any time between supe and the first breakfast.

#### Swedes Love Living

No one works holidays or Sundays—double costs if they do. The day before a holiday is usually a half-day session. Holidays are numerous and Swedes look forward to them. Everyone in the picture business seems to have two homes, one in town and one in the country; commuting between them at the slightest provocation winter or summer. In summer, boats take up where cars, skates and skis leave off. They love sports of all kinds. There is also the greatest inviting-and-being-invited custom here. If one lives through it, he can make pictures. One no sooner meets a person before the routine begins, and try to change the custom to suit your own American ways. You are invited home to dinner. You go, and don't forget to bring flowers. Sit down at six, and never stop until two in the morning—either sipping or eating. Then return the visit by inviting him to dine.

Some time during all that campaign you try to get your job of picture-planning done. Then shooting starts, getting in a couple of good days and being quite pleased with yourself the middle of the following day—when suddenly everybody starts losing interest in production matters, wanting to quit—for the next day is a holiday and everyone has to get ready for it. Two days later, you try to get started again. If it has snowed, you can be sure at least half of your people are stuck out at their country homes, but do telephone to advise of their delays. You try to carry on without them. Somehow the job gets finished. Then you deliver the film to the lab., and are told there will be no processing until the following Wednesday. There are two holidays in between. So they dump the soup and take a vacation until then.

#### Exporting Procedure

Before shipping the film to Hollywood—after you have sweated out the two pictures originally planned and shot, there

are a few formalities any professional producer-cameraman has to wade through. First, the Government wants to take a look at everything you have shot. They report to the Military authorities anything not wanted shown. You lose that film. When you get a clean bill of health from them, they seal your packages-of-labor, and you apply for an export license. This can take from two days to weeks; but I had luck. It only took three days, thanks to the valuable help of friends. Then there remains the American Consular Invoice—cost nine kronor, or two dollars and fifty-two cents. Shipping film usually consumes from one to two weeks, for the details required entails a city-full of running around. Everything in Sweden is expensive, and equals our own high cost of living—at times, exceeding it. Here you don't just get a hotel room and try to hold it. You pay for heating it too. That cost varies with the weather, and it has

(Continued on Page 219)



SCENIC LOCATION—Greer Garson stands on the scenic bluffs overlooking the Pacific Ocean at Monterey, California, for a scene for the Metro-Goldwyn-Mayer production of "As You Desire Me." Director of Photography Joseph Ruffenberg, A.S.C., is at right of Camera.

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## ACES of the CAMERA

LLOYD KNECHTEL, A.S.C.

By ROE FLEET

WHEN Lloyd Knechtel, A.S.C., was still in high school, he selected motion picture photography for his life work. This decision undoubtedly was dictated by the fact that his older brother, the late Alvin Knechtel, was already established in Hollywood in that field. So Lloyd started at the bottom for practical experience—as a handy-man and general assistant in the still motion picture laboratories of Detroit Motion Picture Company during school vacation and part time. This apprenticeship was invaluable, and—coupled with hero worship of his older brother—he passed up a law course at Univer-

sity of Michigan in favor of photography—and hopped to Hollywood to become a general assistant to Alvin on the coast staff of Pathe News.

By that time, brother Alvin had already established a reputation in the industry as a pioneer and expert on optical printing and special effects work, and it was natural that Lloyd obtained invaluable training in that branch of motion picture photography. Soon he was given a Debie camera to use on newsreel coverage on the coast; and some of his interesting assignments of that period included the funeral of Rudolph Valentino; naval maneuvers off the coast of Cali-

fornia; the Aimee McPherson disappearance and return; return of Charles Lindbergh to California following his solo flight to Paris; and numerous football games. In those days, the newsreel boys concocted air stunt clips that involved wing walking on the old OX5 type Jenny planes which were generally flown by Col. Arthur C. Gobel, who in later years won the Dole race to Honolulu.

During this period, Alvin devised and produced many trick short subjects for Pathe Review. With the work done nights at his garage, it was natural that Lloyd, after his day's assignments as a newsreel cameraman, would be the assistant on the projects. A wooden platform had been constructed and bolted into concrete to house a very early model of optical printer. On one end was a Bell & Howell camera, while on the other was mounted a Pathe camera. The latter served as a printer head with a light shining through the movement. The B&H served as a photographing camera to optically reproduce the image.

Mechanical drive and elaborate gadgets? Not in those days. All work was done a frame at a time, stop motion. Alvin was at one end, while Lloyd was stationed at the other, turning the stop motion crank. The particular type of trick photography used in those days involved the reduction and multiplication of one figure. In one instance 36 babies were shown—all from the same image—watching itself on the screen, with a Walt Disney type animal orchestra playing in the pit!

Also, a short on Gene Tunney was made in advance of his famous fight with Jack Dempsey at Philadelphia. The film with many Tunneys of reduced size in training poses, were shown on the same frames while full-sized Tunney looks on with approval. Being made in advance of the fight, prints of the subject were in the Pathe exchanges and thus able to be projected on theatre screens immediately after the fight was over. The garage optical printer and special effects layout accomplished many trick photographic subjects which proved very popular in those early days.

Result was that, because of widespread comment within the industry, brother Alvin was given a term contract to jointly head the trick department of First National with Ralph Hammeras, A.S.C. The present stage 5 on the Warner lot was originally designed by them; and it is now recognized as a top department of its kind in the Hollywood studios.

On the advice of brother Alvin, Lloyd stepped out to gain practical production experience, and became assistant cameraman to George Stevens on "Desert Flower," a wild horse feature which Fred Jackman, Sr., A.S.C., produced for Hal Roach. It proved to be great experience, as both producer Jackman and Director of Photography Stevens were recognized as splendid craftsmen in the photographic field. After working on a number of features in the studios and on location,

(Continued on Page 221)



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## GEAR-DRIVEN magazines on the Maurer 16-mm

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## 12. Special Effects

By CHARLES LORING

**S**PECIAL EFFECTS, strictly speaking, are not out-and-out camera *tricks* designed to surprise, mystify, or amuse the audience. Rather, they are devices which the cinematographer uses to save time, expense, or effort in presenting an illusion of reality on the screen. The proof of a good special effect is whether or not it is detected by the audience as being in any way false to the situation portrayed. If it looks fake, it is a failure; but if it goes by unnoticed, it can be considered a successful effect.

In Hollywood, elaborate special effects departments equipped with complicated devices produce illusions which save the studios millions of dollars annually. From these professional effects, we shall select and discuss a few which the semi-professional can produce with a minimum of effort and special equipment.

### Miniatures

Miniature settings and props are widely used in professional production to produce effects which could otherwise not be staged except at prohibitive cost. When huge factories are shown blowing up or catching fire, when ships battle at sea, when automobiles careen off of cliffs, when floods engulf an island—the long shots of the action are almost always staged through the use of miniatures.

A person skilled in building model airplanes or ships can usually adapt his talent to the creation of miniatures for the screen. These models can be built of the cheapest materials, but must be skillfully executed and painted so that they look realistic. If possible, work from photographs of the actual subject. Be sure the tiniest details are included, or at least suggested. Models should be “aged,” if necessary, with an air-brush to play down the overly- neat appearance that a freshly painted model usually has.

If the camera angle has been decided upon before the model is built, the designer may force perspective in construction so that the model will seem to have more depth. This effect can be intensified through the use of a wide-angle lens during filming.

In lighting a miniature outdoor set, the source should be a strong key light with little or no *fill*, in order to simulate

the harsh light of the sun. The ideal camera angle is a three-quarter oblique pointing down toward the subject from about a 45° angle. A background utilizing three dimensional elements (such as model trees, etc.) will give a more realistic effect than a painted backdrop.

When action is shown in a miniature setting, it must be slowed down so that it will appear smooth and natural. Professional miniature scenes are usually shot at 128 frames per second, but the effect should be quite satisfactory if shot at the 64 frame setting that appears on many standard cameras. Thus, if a fire is shown, the flames will seem to be leaping into the air at a speed in keeping with the size and scope of the actual setting.

One last rule on miniatures is that they should not be held on the screen long enough for the audience to analyze them too closely and perhaps spot evidence of how the effect was achieved. Use such scenes for brief establishing long shots; then cut to closer life-size shots of the same situation, tying in as many visual elements of the miniature setting as possible.

### Fog Effects

The effect of *swirling* fog is usually produced by filling an enclosed set with chemical vapor which is blown about by wind machines. This expensive and rather complicated process is beyond the reach of most semi-professional producers—but a very satisfactory effect of stationary fog or haze can be produced by the use of special filters used in front of the lens.

Filters especially developed for such effects include the Harrison & Harrison series, Nos. 1 to 6 (depending upon the density of the fog desired) and the George H. Scheibe filters, Nos. 1/8 to 5. Under ordinary conditions these filters require no additional exposure.

If special fog filters are not available, a passable effect can be achieved by placing one or more thicknesses of cheese cloth or loose gauze in front of the lens, as close to the element as possible. Such scenes should be shot at the widest practical aperture in order that the mesh of the gauze will not come into any sort of sharp focus.

Lighting for a daylight fog scene

should always be rather flat. In a night scene the key should be relatively low. Never shoot fog scenes in direct sunlight; wait for a cloudy or overcast day so that the effect will seem natural. When using filters or gauze in front of the lens, be careful not to *pan* or otherwise move the camera too rapidly, as the fog will seem to move with the lens.

To produce a *swirling* effect when filters or gauze are used, place smoke pots out of camera range and blow the smoke onto the set with small electric fans. If you can avoid choking the actors, the effect will be quite realistic.

### Night Effects in Daylight

It is standard practice in professional filming to shoot exterior night shots in sunlight, the effect being achieved through a combination of filters and exposure control.

A medium speed film, such as Eastman Plus X, Ansco Supreme, or DuPont 2 is the best type of emulsion for night effects, assuring sufficient speed and contrast. Filters which give best results include the 25A and 29F, which (when used in strong sunlight against a blue sky) simulate a very convincing moonlight effect. A combination of 56B and 23A filters creates a softer night effect, very much in key with romantic and mystery themes.

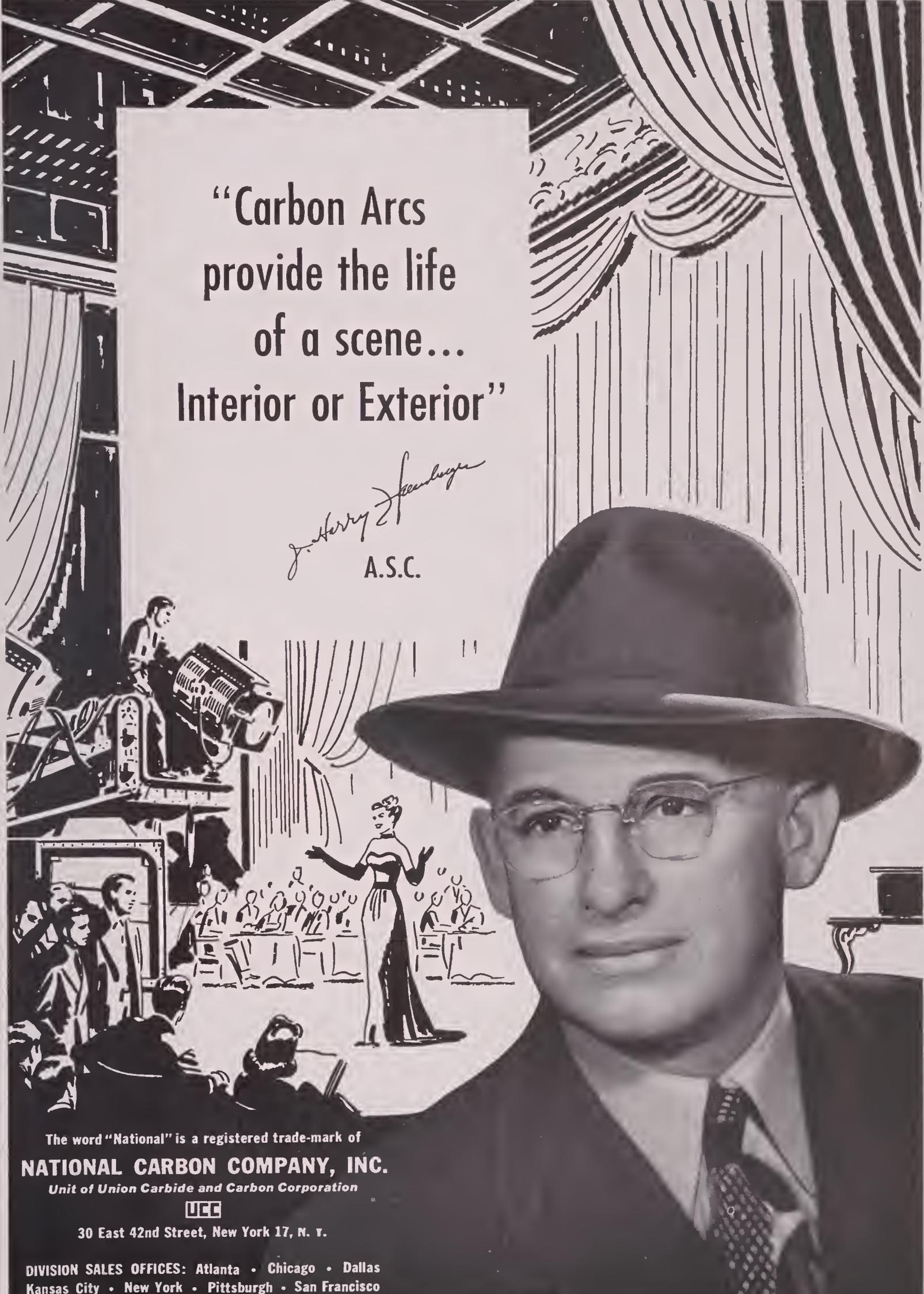
Simulated night scenes should very definitely be exposed for the highlights, with shadows being allowed to go dark. Underexposure of one to two stops will intensify the effect—but be sure to inform your film laboratory that you were filming *night* shots. Otherwise (thinking that you have merely underexposed) they will compensate in printing and the scenes will look light and washed out.

In shooting night scenes in daylight, several elements should be considered. Firstly, try to shoot on days on which the sky is a rich blue, so that your filters will be able to darken it down sufficiently. A white or “baldy” sky will not respond very well to the correction of orange or red filters. For the same reason, try to place your action so that you are shooting toward the darkest part of the horizon.

When shooting close-ups of people through a heavy red “night” filter, flesh tones will usually look chalky and unnatural unless your subject wears a fairly dark shade of panchromatic grease-paint.

Fairly satisfactory night shots in color can be achieved by using a medium blue filter, such as the Harrison B3. Instead of compensating two stops for the factor of this filter, shoot the scene at the meter reading (thus actually underexposing by two stops) and the resulting low-key scene with its blue overcast will pass for a very reasonable facsimile of clear moonlight. It may take some degree of experimentation to find the right combination of filter and underexposure to achieve night shots in color

(Continued on Page 225)



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provide the life  
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Interior or Exterior”

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# A New Series of Camera Lenses For 16mm Cinematography

By W. B. RAYTON

(This paper was presented by the late Dr. W. B. Rayton at the October, 1946, convention of the Society of Motion Picture Engineers in Hollywood; and published in the March 1947, issue of the SMPE Journal. It is re-printed by special permission.)

SIXTEEN-MILLIMETER motion picture equipment was designed primarily for the amateur with the inevitable result that cost was one of the principal guiding considerations. This involved both the optical systems as well as the mechanical design. The possibilities inherent in 16-mm motion pictures for more serious work engaged the attention of the camera makers before it received adequate attention from the projector designers, and yet it seems as if even the camera makers have not realized the full possibilities of the 16-mm art until very recently. We have heard a description of a new 16-mm camera designed not for the amateur but for the professional—one that can stand beside its big brother, the 35-mm camera, and do everything the latter can do except for such limitations as may be imposed by the grain size of the emulsion.

With such a conception of the 16-mm camera it is logical to equip it with lenses in every way comparable to those used on the professional 35-mm camera, and it was to make this possible that the series of lenses described in this paper was designed.

This is a series of Baltar lenses containing focal lengths of 12.7, 15, 17.5, 20, and 25 mm, of which the four latter focal lengths can be carried on the turret of the new Mitchell 16-mm camera. Their relative aperture is  $f/2.3$  for all focal lengths. They are designed to produce pictures not only equal in sharpness to those produced by the longer focus Baltars in the 35-mm cameras, but pictures that exhibit the same indefinable characteristics of excellence that produce an impression of something more than mere mechanical perfection.

The lens design is a familiar one consisting of four meniscus-shaped components with each of the two inner components consisting of two elements cemented together. Advantage has been taken, however, of new high index glasses, developed since the war began, to obtain practical perfection in the correction of spherical aberration, astigmatism, and

curvature of the field. Each lens in the series has been independently designed for the field of view it was required to cover with the exception of the 25-mm which is the same construction as is used for the 35-mm film. In this case no improvement seemed necessary or possible for the 16-mm frame.

We will now go into more detail in respect of performance and correction of aberrations for the 17.5-mm lens, for this is the median focal length of the series. The residual spherical aberration is so insignificant that when this iris is closed to  $f/2.8$  the image of a star is a pure diffraction pattern. Actual tests with red, green, and blue filters reveal no change in the plane of best focus and the difference in the size of the images formed by these three primary colors differs by not more than one part in a thousand. At the corners of the frame the images of tangential lines lie on the focal plane and for radial lines about 0.001 in. in front of it. In more technical language, the mean curvature of field is half a thousandth of an inch and the astigmatism one thousandth.

The variation of chromatic aberration with distance from the axis or, to put it in another way, the variation of spherical aberration with wavelength is insignificant. This is a characteristic of lenses of this general type not found in any other type in so far as I know. While I do not recall having seen the history of this lens form traced back to Gauss' work on telescope objectives, it seems to me the line of descent is clear. Early opticians had several solutions to offer for disposal of the fourth variable presented by a two-element telescope objective after the three primary requirements of given focal length, corrected chromatic aberration, and corrected spherical aberration has been met. Gauss proposed that the fourth condition be that spherical aberration be corrected for two colors and showed that this condition could be met with two meniscus elements—one positive and one negative—all surfaces being concave towards the image space.

In 1889, Alvin Clark, America's most accomplished telescope objective maker, was granted a patent (USP 399,499) on a photographic objective consisting of four meniscus elements and comprising substantially two Gauss telescope objectives mounted with all faces curved towards the diaphragm. This lens was

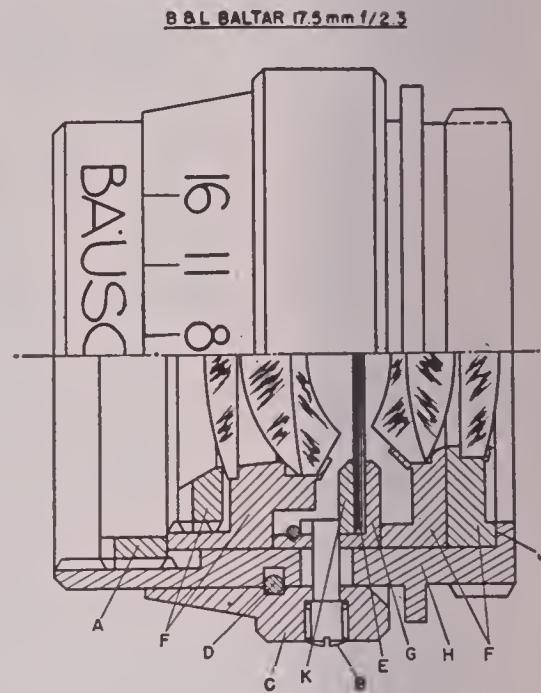


Figure 1.

manufactured by the Bausch and Lomb Optical Company for several years.

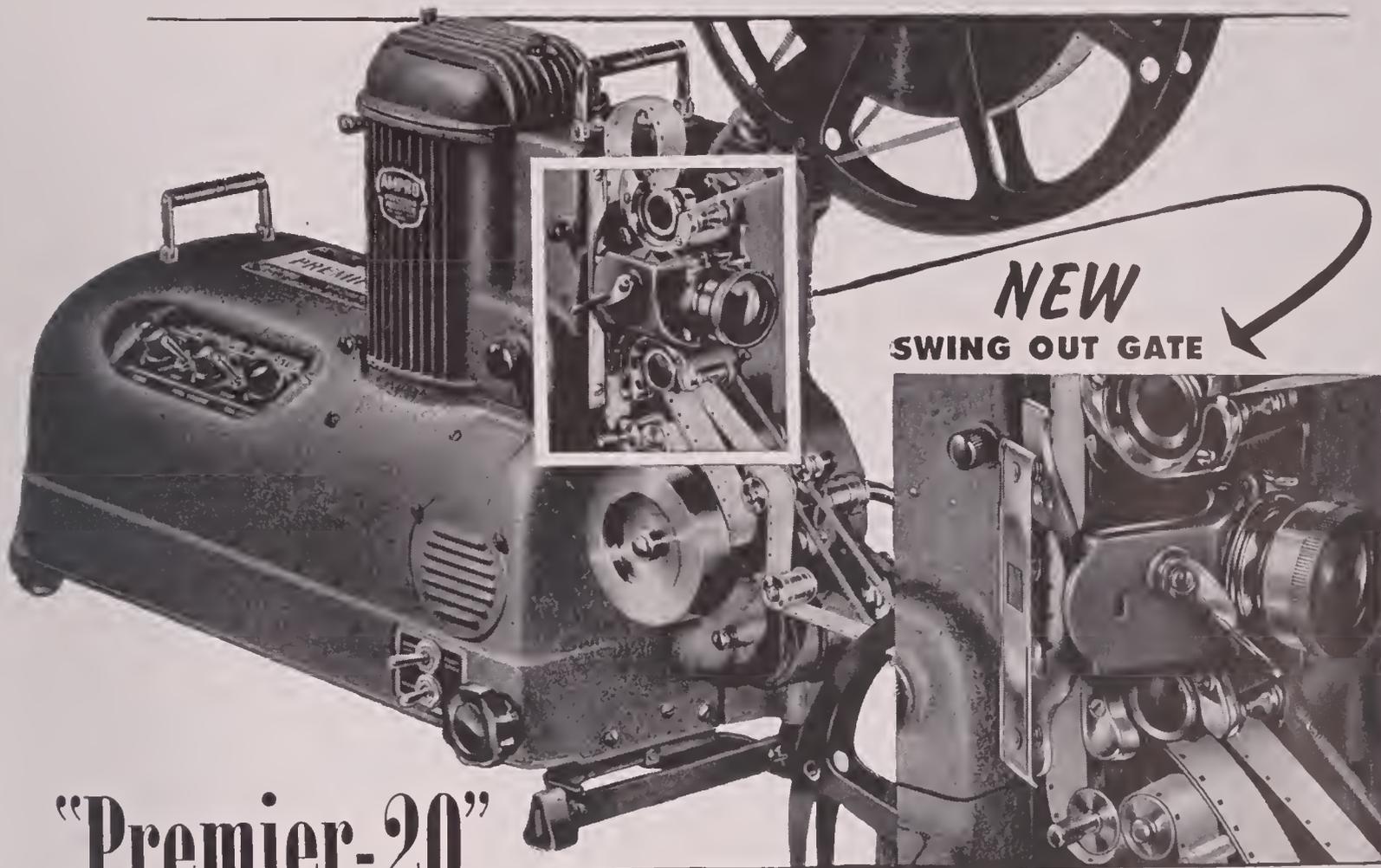
The deviations from this basic construction are large in number and exceedingly diverse in performance characteristics. They include process lenses, wide-angle lenses, and high-speed lenses. And they all approach reasonably well the original thought of Gauss, viz., that spherical aberration should be equally well corrected for two colors.

The best efforts of the designers, however, are of no value unless the execution of the design in manufacture is equally carefully and competently controlled. One of the fundamental requirements in assembling a lens system is to achieve exact alignment on a common axis of all the lens elements. The commonest lens construction consists of a front member and a rear member, each mounted in threaded mounts that screw into the two ends of a lens barrel which contains the iris diaphragm. The difficulty of getting these units to screw together so that the two members are truly coaxial is formidable. It is true that many excellent lenses have been made in this way but we think there is a better way.

For these short focus lenses we have mounted each lens component in an individual cell with a smooth, cylindrical

(Continued on page 218)

# Improved 16mm. sound projection



## "Premier-20"

16MM. SOUND PROJECTOR

**NEW  
SWING OUT GATE**

*Close-up of new swing-out gate, showing gate in open position.*

Enjoy the thrill of brilliant, clear pictures . . . natural, life-like sound reproduction with the new improved Ampro "Premier-20" 16mm. Sound Projector. Simplified controls, lightweight portability, ease of threading . . . all combine to make this the ideal projector for 16mm. talking pictures in the home, school, church or club. The new Swing-out Gate, shown at the right, permits easy cleaning of the aperture plate and pressure shoe . . . without ever disturbing the focus . . . Many other important features.

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# AMONG THE MOVIE CLUBS

## Philadelphia Cinema

Dr. Robert E. Haentze was the winner in the annual film contest of Philadelphia Cinema Club for his 8 mm. kodachrome subject, "How Green Are My Parents." Dell Valle won second place for his "Confidentially, It Stinks," while Robert Tross received certificates for third with "My Day." All three prize-winners had people as subjects, rather than scenery.

Officers elected to head Philadelphia Cinema for the coming year are: Francis M. Hirst, president; C. Harold Mook, vice president; Dr. Raymond L. Chambers, secretary; and Dr. Robert E. Haentze, treasurer.

Regular May meeting was held on the 13th in Little Theatre of Franklin Institute, and featured short nature talks by Irvin Boeshore and George Pittman. Film program comprised: "Wild Flowers," by Frank Hirst; "Maine—Vacationland"; and "Trip to the Dentist," by Arthur Salis. Special meeting was held on May 24th to exhibit "Typical Times in the Tropics," by Ralph Gray of Mexico City.

## Alhambra La Casa

Program chairman presented discussion and demonstration on titling at the May 19th meeting of La Casa Movie Club of Alhambra, California; while film section of the program was presented by members of the Pasadena Movie Club. Pictures screened included: "Rose Parade of 1947," by Albert B. Topits, Sr.; "Midwest Vacation Highlights," by Milton A. Miller; and "A Short Northwest Travelogue," by Forrest LeBarron.

## Los Angeles Cinema

Although the May 5th meeting of Los Angeles Cinema Club was primarily an educational session, some unusual photography was screened, headed by Guy Hazelton's "Yosemite," skillfully assembled from color film he shot at the national park in different years. "The Heavens Declare the Glory of God," by S. G. Lutz, presented a series of cloud studies; while two comedy films, "The Prize Winner," and "Father's Time" were greatly enjoyed.

Howard T. Souther presented a learned discussion on composition and illusion of depth with slides to illustrate, and Lorenzo del Riccio displayed the Zoomar lens and showed a film illustrating the use of the instrument.

## Seattle Amateur

Program for meeting of Seattle Amateur Movie Club on May 13th centered around title-making, with various types of titlers demonstrated and the actual titles for the club production made before the members. Film program included contributions by Gordon Forsythe, Austin Grant, Charles Grinnell, John Holman, Clyde Huntley and Dr. Harvey Johnson.

## Minneapolis Octo Cine Guild

Regular monthly dinner meeting of Minneapolis Octo Cine Guild was held at the Hasty Tasty. On April 16th, the Guild presented an hour film show for the Bloomington Civic Club, which was enthusiastically received. Project committee is making progress on plans for production of an indoor film.

## New York Metropolitan

Film program for the May 15th meeting of Metropolitan Motion Picture Club of New York City, held at Hotel Pennsylvania, included: "Calling Dr. Kildare," by MacDonald Browne; "We Dude It," by Archie MacGregor; "Bermuda," by Britt Boice; "Leo Shoots Sylvia," by Bill Weed; and "New York World's Fair," by Joseph F. Hollywood. At the May 7th supplemental meeting, Frank Gunnell presented an illustrated talk on Composition.

## Syracuse Cinematographers

Cinematographers Club of Syracuse held its first annual banquet on April 26th, at which time contest pictures made during 1946 were run off and judged. First prize went to President A. D. Rodgers for his 16 mm. kodachrome reel, "The Adventures of Uncle Dudley." Mr. and Mrs. Walter Kellogg took second prize for their 8 mm, "Ville de Montreal." Club moved into permanent quarters at 339 E. Onondaga street.

## Milwaukee Amateur

Gerhardt Baker of the photographic department of Layton Art School, headlined the May 14th meeting of Amateur Movie Society of Milwaukee with an informative talk on composition. Vacation films produced by Canadian National Railway spotlighted the May 28th session. Entries for the annual novice contest closed on May 28th, with judging to be handled at the June 11th meeting.

## Los Angeles Eight

Preview showing of Herman Hack's professional 16 mm. production, "The Frontier Preacher Reads the Bible," featured the May 13th meeting of Los Angeles 8mm. Club, held at Bell & Howell auditorium. In addition, there was a demonstration of the Zoomar lens, and film program which included Hugh Wallace's film of Mexico.

## San Francisco Westwood

Excellent film program was presented at the April 25th meeting of Westwood Movie Club, San Francisco, including "Eighth Air Force Gun Camera Combat Film," courtesy of Ralph Elliott; and "An Eastern Vacation," by member N. A. Soderman.

## Cincinnati Amateur

Cincinnati Amateur Movie Club has been organized by Hal Woodward and Forrest Young, with former elected as first president and Young as secretary-treasurer. Initial meetings of the club included discussions and demonstrations of cinematographic technique by Bob Richardson of American Film Products, and George Stucker of Fox Movietone News.



Dr. Robert E. Haentze, left, presented with trophy of Philadelphia Cinema Club by president Francis M. Hirst, for his winning entry in the club's annual movie contest. Haentze's film was "How Green Are My Parents," in 8mm. kodachrome.

# Kodak Combination Lens Attachments



**F**ILTERS . . . Portra Lenses . . . Pola-Screens . . . Lens Hoods—here's a system by which one investment permits the use of any or all of these picture-bettering attachments on your movie and "still" camera lenses. (Still cameras take, in addition, Telek Lenses and Pictorial and Portrait Diffusion Disks.)

An Adapter Ring fits snugly over the lens barrel . . . the attachment of your choice slips into the Adapter Ring Insert which then screws into the Adapter Ring. Easy to use? Yes, and remarkably versatile, too. Through the use of Retaining Rings instead of an Adapter Ring Insert, you can combine attachments—use *every one* of the above accessories in a single, effective assembly.

You'll find it an economical system. For, while over forty sizes of Adapter Rings are provided to assure an exact fit for each individual lens, there are only four sizes—or series—of attachments. *You can use the same attachments on all lenses in the same series-group.* And even if you own lenses in more than one series, chances are you can fit all your lenses with one inexpensive set of attachments

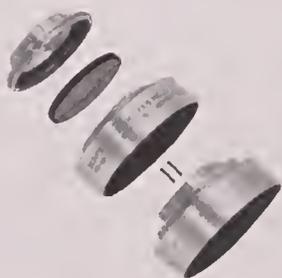
through the use of a Kodak Step-Up Ring which lets you use attachments of one series on lenses of the next smaller size group.

Your Kodak dealer has the full story on this handy way to wider-range movie and still picture making. Better see him—and ask for copies of the free folder, *Ciné-Kodak Filters and Other Lens Attachments*, and the free booklet, *Kodak Filters and Other Lens Attachments*.

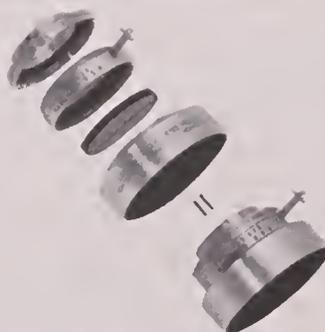
## A FEW OF SCORES OF POSSIBLE COMBINATIONS



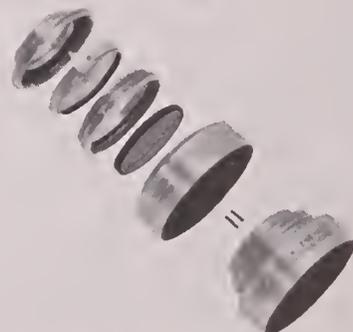
Here's the basic system—a Filter (or any other single attachment) fits snugly between Adapter Ring and Adapter Ring Insert.



For reduction of flare—the Adapter Ring, Filter Disk, and a Lens Hood. The Lens Hood doubles as the retaining element.



Adding a Pola-Screen to the combination—Adapter Ring, Pola-Screen, Filter Disk, and Lens Hood make up this unit.



Still another possibility—Adapter Ring, Portra (close-up) Lens, Retaining Ring, Filter Disk, and Lens Hood.

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Come in or write me—tell me what you've got and what you want—we can get together.



## Bell & Howell Records Advance for 1946

Bell & Howell Company announced net sales for the year 1946 amounting to \$10,387,699, in its annual report just released to stockholders. Though this figure represents an 85% increase over the last pre-war year of 1941, according to J. H. McNabb, company president, desired production schedules were not attained during the first nine months of the year because of material and labor shortages and restrictive price ceilings. Strikes in some of the company's major suppliers' plants also restricted output.

Output per factory employee in all Bell & Howell plants exceeded previous records, according to figures cited in the report. Productivity per man-hour went 15% over the 1941 level, in a year when individual man-hour output lagged throughout the country.

After application of Federal tax carryovers, Bell & Howell's net profit for the year amounted to \$422,945, representing earnings of 69 cents per share on common stock outstanding, after required dividends had been paid on the preferred holdings. Regular dividends on

the common stock were paid for the thirty-second consecutive year.

By the end of the year approximately 600 World War II veterans had been assimilated into the organization. Many have been given special courses of instruction on the company premises to fit them for more skilled work.

### New Facilities Put Into Use

Pending determination of a final purchase price on the original Lincolnwood plant, the Chicago firm last autumn made a substantial payment on these facilities, for the purpose of reducing carrying charges. Also prior to the end of 1946 fiscal year the total of company-owned floor space was increased to half a million square feet by virtue of the completion and occupancy of another new plant, adjacent to the original Lincolnwood structure. The new building will be utilized principally for case fabrication and line production. Unusually complete employee recreational facilities were put into use during the year, including a modern fieldhouse; a flood-lighted, graded baseball diamond with bleachers; and tennis and horse-shoe courts.

### Emphasis on Equipment Shows Results

By selling the Filmsound Library during 1946 to United World Films, Inc., Bell & Howell cleared the decks for unhampered design and manufacture of equipment. Three new units already have made their appearance in the market; a moderately-priced slide projector; a 16mm electric-drive magazine-load camera for motion study work; and a high-grade precision 8mm motion picture projector.

### Enters Microfilm Business

During 1946, all physical assets and patents of the Microfilm Division of the Pathe Manufacturing Co. were acquired by Bell & Howell, thus enabling the company to broaden further its services to commerce and industry. Engineering, production, sales, and service units of the Bell & Howell Microfilm Division now are set up at the Lincolnwood plant; and with improved equipment and trained personnel the company is handling considerable microfilming work on a contract basis. A complete new line of microfilm recorders and viewers will be announced in 1947.

### Expanded Research

Engineering Division, operating with the largest peacetime budget in its history during 1946, carried on an extensive program of research, design, and product improvement. Engineering work was completed on a new 300 watt reasonably-priced slide projector, a semi-professional film splicer, a new and outstanding 8 mm. motion picture projector, a close-up attachment for 8 and 16 mm. Filmo cameras, an 8 mm. motion picture magazine loading camera, a 16 mm. projector and an electric motor-driven camera for time and motion study work, besides a fully-automatic 35 mm. still camera. Considerable lens design work was accomplished, and advanced methods of lens designing were developed.

Only Art Reeves Can Sell The New Model

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Some dealers are offering war surplus machines as new models. These 1942 surplus machines will not handle modern film. They were not designed for that purpose.

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### 16mm BLIMP

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This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The blimp has these exclusive features: • follow focus attachment for changing lens calibrations while the camera is in operation • viewing magnifier mounted on top of blimp for focusing while camera is mounted in blimp • arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp • pilot lights to illuminate lens calibrations and film footage indicator.

Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

Manufactured exclusively by the Makers of "Professional Junior" Tripods and Other Fine Camera Accessories.



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| 4. Feather Touch Adjusting Handle (U. S. Patent) | 9. Triangular Steel Tube Construction       |
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Send for **FREE Screen Guide** "Secrets of Good Projection," a 32-page booklet, gives proper screen sizes, correct projection lenses, tips for improving projection and many other valuable facts. Mail coupon for your **FREE** copy.

The Radiant "DL" here illustrated is portable, sturdy, compact, easily set up, quickly adjustable. The Radiant line includes Wall, Ceiling and Table Models in sizes 22" x 30" to 20 feet by 20 feet and larger.

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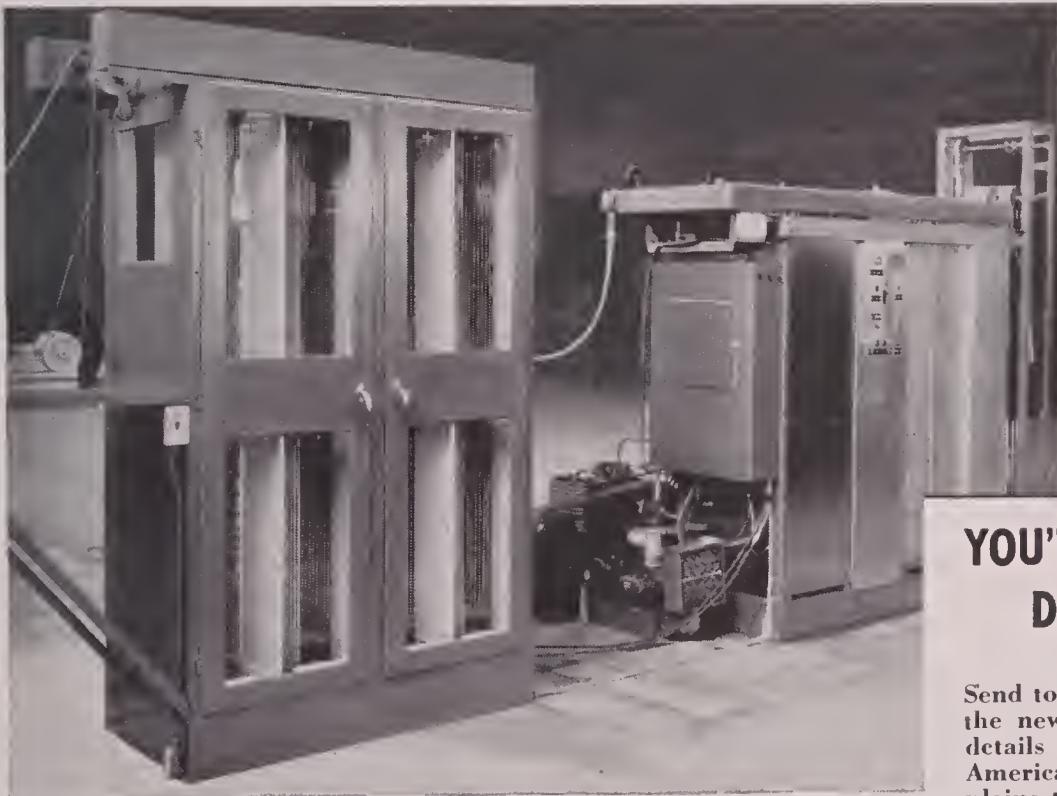
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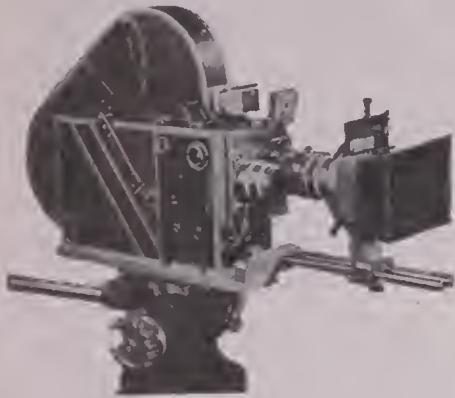
Send today for your complimentary copy of the new illustrated booklet giving complete details of the Fonda Film Processor . . . America's finest developing machine. Explains the patented Fonda top-friction drive mechanism, which eliminates film slack. Fonda offers almost any speed range . . . processes any type film.

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# Professional Type Combination SUNSHADE and FILTER HOLDER



The Sunshade-Filter Holder is supported by a double arm bracket. This attaches to a plate which you can fasten on to the base of your camera where it can remain at all times if you desire. The Sunshade-Filter Holder is demountable into 3 small units which, when not being used, fit into your camera carrying case.

Manufactured exclusively by the makers of "Professional Junior" Tripods and other fine camera accessories.

For E. K. Cine-Special, Bolex, Filmo and other fine 16mm cameras. It resembles the professional 35mm type Sunshade-Filter Holders and Matte Box generally used with professional 35mm cameras.

Designed for use with all popular types of 16mm cameras, the "Professional Junior" Sunshade & Filter Holder holds two 2" square glass filters, also a 2½" round Pola Screen with handle which can be rotated for correct polarization. By using our Sunshade & Filter Holder you will not require filters of various sizes as the 2" square filter will cover all lenses from 15mm to 6" telephoto.



Compact, simple to assemble or dismount, the entire Sunshade-Filter Holder and 2 filter holders which are supplied are precision-made of non-corroding metals. Every serious cameraman appreciates the advantages that accrue when a fine Sunshade-Filter Holder like this is used.

Order your Sunshade & Filter Holder today. And also ask for our complete catalog

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CAMERA EQUIPMENT


1600 BROADWAY NEW YORK CITY

## Sound For 8mm. Predicted

Compact 8-millimeter motion picture projectors with sound and built-in screens for home use were predicted by Robert E. Lewis, of the Armour Research Foundation of the Illinois Institute of Technology, at the recent convention of the Society of Motion Picture Engineers at the Drake Hotel, Chicago.

"With the advent of sound for 8mm film, and the construction of 8mm projectors as a complete unit assembly including a rear-projection screen," Mr. Lewis said in a paper presented on the final SMPE session, "the installation of motion picture projectors in homes, along with television sets, is likely to parallel the installation of radio-phonographs."

Pointing out that sound on 8mm film is still in the laboratory stage, he said that several methods now the subject of study and experiment are never-the-less promising of solutions to the problems presented by the space limitations of the narrow film.

## Proper Credit

In the May, 1947 issue of AMERICAN CINEMATOGRAPHER, heading on article, "A Year With the Yearling" had a typographical error. Instead of Charles Rosher, A.C.S., as printed; correct designation, naturally, should have been Charles Rosher, A.S.C.

## Kodak's Capstaff Honored

John G. Capstaff, photographic pioneer and head of Kodak Research Laboratories' photographic department, has been awarded the 1946 Progress Medal of the Royal Photographic Society of Great Britain. The annual award by the Society was presented to Capstaff unanimously for "important contributions" he has made "to the development of photography."

Capstaff has been active in photographic research for more than 30 years, and as early as 1914 conceived the idea of applying the photographic "reversal process" to provide economical motion pictures in black-and-white and color for amateurs. His inventions and improvements on reversal methods aided greatly in establishing and popularizing 8 and 16 mm. motion pictures for amateurs.

Pioneering in color photography, Capstaff is responsible for many major developments in that field, in which he is internationally known as an outstanding authority.

## Westrex's Gregg on Tour

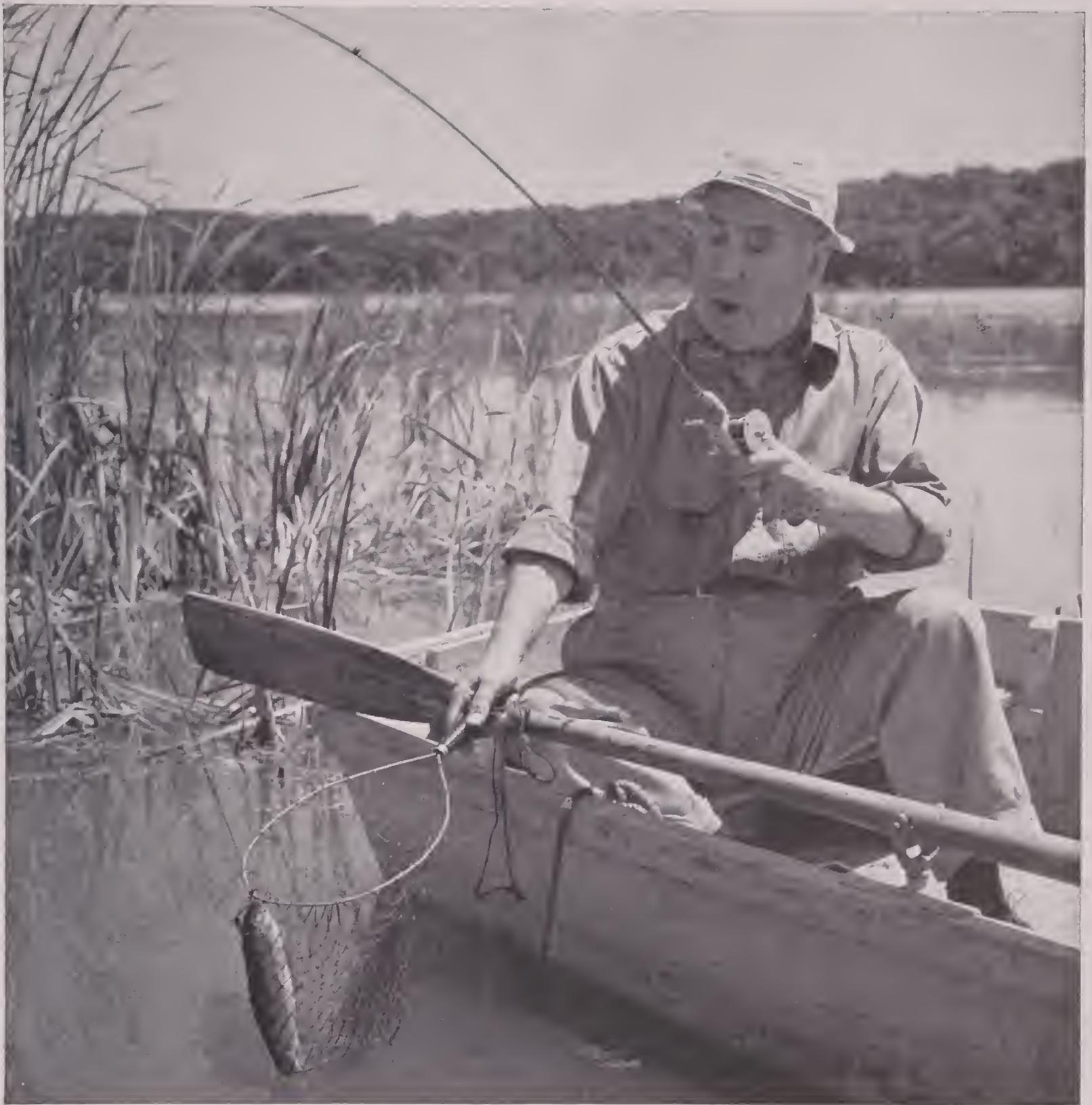
Eugene S. Gregg, vice president of Westrex Corporation, foreign motion picture equipment and service subsidiary of Western Electric Company, left New York last month for London on first leg of an around the world business trip.

## Herrmann Recalls Original Byrd South Pole Films

John Herrmann, A.S.C., who photographed motion pictures of the Admiral Byrd expedition to the Antarctic in 1933-35—which were subsequently released by Paramount as a feature under title of "Little America"—was the subject of nostalgic reminiscences in a two-page spread in the magazine section of the New Orleans *Times-Picayune* a few months ago when Byrd was in the Antarctic exploring the South Pole area. Herrmann, former bureau chief at New Orleans for Paramount newsreel, is currently free-lancing in that city.

## ASA Exposure Indexes Pamphlet Available

Comprehensive explanation of the practical use of the new ASA Exposure Indexes has been compiled in pamphlet form by Eastman Kodak under title of "Exposure Indexes and How to Use Them." It described the origin of the exposure index and the scale of numbers used, and compares that scale with the former Weston and General Electric meter settings. Free copies of the pamphlet may be obtained from Sales Service Division, Eastman Kodak Company, Rochester 4, N. Y.



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You'll catch vibrant, vivid life in your movies. So real. So lifelike. Natural, brighter pictures are the rule when you use Hypan Film.

You'll catch sharp, clear screen images. The kind you see on your local theater screen. Again, easy with Hypan. For you can count on Hypan's panchromatic sensitivity to bring you richer tone values.

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You just can't help but be proud when friends start praising the movies you'll make on Ansco Hypan Film. **Ansco, Binghamton, New York.**

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**HYPAN FILM**

## AnSCO Reduces Price on Color Sheet Film

Reductions up to one third in the cost of AnSCO color sheet film have been announced by E. Allan Williford, vice president of General Aniline and Film Corporation in charge of the AnSCO division.

Price changes affecting sizes ranging from two-and-one-quarter by three-and-one-quarter, through to eight by 10—in both daylight and tungsten types—took effect March 1st.

Increased production of sheet color film made the general price reductions possible, according to Williford. However, price of AnSCO color film in roll sizes including 35 mm. cartridges, movie film, and roll films will remain the same for the present.

## Powelite Reflector Floods

H. T. Lorenz Co. of Chicago is introducing trade-named Powelite, comprising a mounting plate for either 8 or 16 mm. camera and four reflector floods. Accessory can either be mounted on tripod or held in hand for shooting, big advantage being that lights move on same plane with the camera to provide necessary lighting of a subject or scene.

## B&L Division Heads Named

Ben A. Ramaker and Ivan L. Nixon were today appointed managers of Bausch & Lomb Optical Company's ophthalmic and instrument divisions.

The two men, both members of the firm's board of directors, and divisional sales managers for many years, will have "full responsibility for handling all phases of division operations," M. Herbert Eisenhart, president, announced.

Raymond H. Andersen was named to succeed Ramaker as head of the company's ophthalmic sales and Lysle B. McKinley was appointed successor to Nixon as manager of the firm's instrument sales division.

## New Kodaguide Ready

A simple, new exposure guide for the amateur movie maker—the Movie Kodaguide—has just been announced by Kodak. Covering practically all movie-making situations, it provides an easy method of calculating correct camera settings for exposure of cine-Kodak black-and-white films and of Kodachrome film outdoors and indoors. It is now available through Kodak dealers, retailing for 20 cents.

## New 16 mm Lens Series

(Continued from Page 210)

wall and the iris diaphragm in a similar way. Ring-shaped spacers are used where necessary and the whole assembly is accomplished by pushing the components into a barrel the inside of which is a true cylinder, very accurately fitted to the diameter of the lens cells. The whole assembly is held in place with a single retaining ring (A in Fig. 1.). This is the manner in which we have mounted microscope objectives with the utmost satisfaction for many years and our experience convinces us that we can maintain coaxial alignment by this method to a higher degree than can be accomplished with the older method.

The diaphragm actuating pin B is screwed in place after the assembly has been effected—a set-screw, not shown in the diagram, is installed to lock the diaphragm ring in place, and the covering ring C, carrying the stop opening scale, is slipped over the outside and held in place by the spring ring D.

To disassemble for cleaning, the ring C can be pushed off the mount, a set-screw that locks the diaphragm ring in place is removed, retaining ring A is removed, and the whole assembly can then be pushed out from the back.

Finally, in order to reduce to a minimum the stray light in the image plane, all surfaces are coated with a hard, durable coating of magnesium fluoride.

## Magnetic Tape Recording

(Continued from Page 199)

J. S. Boyers, chief engineer, of Magnecord, Inc., Chicago. They described the advantages and operations of the Magnecord, which uses a wire on which the magnetized sound is recorded and reproduced. H. A. Howell of Indiana Steel Products Company, Chicago, presented a paper, "Magnetic Sound Recording on Coated Paper Tape." He detailed the use of Hyflux coating for paper tape, pointing out the greater ease in handling, editing and repairing.

From the above brief survey of most pertinent information disclosed on the future prospects of practicability of magnetic recording for various phases of film sound, it can be readily realized that another valuable and economical tool will be made available—especially for the amateur enthusiast and those professional producers far removed from regular production centers with access to regulation sound equipment—within a few short years. For those who might be interested in studying the complete papers described, copies of the SMPE Journal, January 1947 issue, may be ordered from Society of Motion Picture Engineers, Hotel Pennsylvania, New York 17, N. Y. Many public libraries in the larger cities of the United States have files of the SMPE Journal which are accessible to those interested in referring to certain issues from time to time.



- \* Linear response makes processing easier especially on density recordings.
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  - \* Fine focus adjustment with one-sixteenth-inch range is built in.
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  - \* Proven performance. Hundreds of similar units are now making recordings in the popular Auricon Comoros and Recorders.
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## Photographing in Sweden

(Continued from Page 203)

been very cold all the time I have been here.

During my visit I have seen all the currently-released Swedish films. They are good for the Swedish market; but, if they ever plan to make pictures in English, they will need American or British directors and cutters to teach them the timing our audiences expect in pictures two hours long. Yet, a good director with extensive Hollywood experience, who brings along his own film editor, can produce here. There are enough people well-versed in all phases of acting and production to do a good job. Actors are available who speak English, and I don't mean American. This is a country rich in native color and colorful subject matter. My little pictures will prove this. I flew my first batch of negative to Hollywood and ran color prints here that were flown back. Sweden is as anxious for good color as Hollywood is. They have had many excellent Russian Agfa-color pictures here. And it is real competition for American companies. Agfa-color is a beautiful color process, which allows for delicate pastel shades.

Making movies can be fun here; despite all the waiting and watching for weather and other delays (Swedes are good company and decidedly friendly) . . . but, cigarettes cost 60 cents!

## Heppberger Promoted

C. E. Heppberger has been promoted by National Carbon Company to join the company's Technical Specialists' Group. Attached to the Chicago office previously, he will maintain headquarters there in his new post to handle special service on lighting carbon applications in the midwest territory. Other technical specialists for National Carbon are: Charles W. Handley, west; P. D. Ries, east, and W. C. Kunzmann, general national activities. E. R. Geib directs the group from Cleveland headquarters.

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**Karl Struss, A. S. C. — 28 Years a Cinematographer**



Karl Struss, A.S.C., cuts a cake on the set of the Seymour Nebenzal production, "Atlantis," in celebration of his 28 years as a Director of Photography in Hollywood. Surrounding Struss are members of the cast and crew of the production, including producer Nebenzal, Jean Aumont, and Dennis O'Keefe.

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**Uniform Vacation Period For B&H Chicago Plants**

In a further effort to step up its output of movie cameras and projectors by maintaining complete production facilities over the longest possible period, Bell & Howell Company will initiate a new vacation policy this year. All of the Company's Chicago plants and offices will be closed from June 30 to July 13, inclusive, but branches in New York, Washington, and Hollywood will not be affected, it is explained.

The two-week shutdown results from an intensive study of the relationship between staggered departmental vacations and production figures. Company officials predict that the new plan will be justified thoroughly by the resulting high level in orders filled.

**De Vry Expands Production**

Overwhelming demand for all types of De Vry motion picture equipment has resulted in company doubling plant facilities and assembly capacity at its plant in Chicago.

**SMPE Fall Convention**

Annual fall convention of the Society of Motion Picture Engineers will be held at the Pennsylvania hotel, New York City, October 20 to 24th, 1947. Technical papers and demonstrations will be focused on new developments and equipment in the theatre engineering field.

**New! TELEFILM'S "Lok-On" Flange**



**Used by Leading Hollywood 16mm Editors and Producers for Editing and Re-winding**

It's Telefilm's latest 16mm. time saver! Sides are of heavy gauge clear plastic. Engraved footage scale on inside surface shows amount of film on spool. One side removable—so you save time by slipping on film without winding. Nothing ever like it for winding short lengths of film into coils quickly, without endangering emulsion surfaces. Outer side has specially-made locking device, allowing removal of film by means of a simple lock. Core takes standard lab pack spools, fits a standard 16 or 35 mm. rewind.

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May be purchased complete, 8 inch size \$17.50 or 9 1/2 inch size \$18.50, or the face side with spool may be purchased separately at half above prices. Immediate delivery. Use it 10 days then money back if not delighted.

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## Aces of the Camera

(Continued from Page 206)

Lloyd re-joined the First National special effects department, mainly specializing on optical printing. After two years he was a top expert in the field, and soon accepted contract with RKO Studios to organize and establish the new special effects department there.

After five years as head of the special effects and optical printing at RKO, Lloyd accepted offer of George Humphries & Co. of London to head a similar department there for services to British producers. He felt it was a great opportunity, as the British film business had started to progress in a big way, and the free lance field there would allow for individual initiative and inventiveness, in addition to the establishment of a profitable business.

At Humphries, the first thing necessary was to build an optical printer and contact all the producers for trick work, montages, process background shots and the like. He managed to buy two Bell & Howell cameras from Paramount in Hollywood, and two Mitchells. The four cameras were put in perfect condition to insure rocklike steadiness. When the plant was in operation for service to British producers, Lloyd launched a campaign to solicit business of process backgrounds in England and the continent from Hollywood studios. With an intimate knowledge of the latter's requirements, this phase developed into a profitable business; and over a period of time the assignments covered virtually all Hollywood and New York studios. Some of the pictures for which Knechtel shot English and European backgrounds included: "David Copperfield," "Yank at Oxford," "Ninotska," "Bluebeard's Eighth Wife," "Balalaika," "Raffles," "Of Human Bondage," "Top Hat," "Gay Divorcee," "Algiers," "Over the River," "Rebecca," "Paris in the Spring," and "Midnight."

Photographing such scenes abroad presents many problems, Knechtel discloses. There is not the flexibility of securing the scenes as exists in the United States. One major problem is customs troubles when passing from one country to another. But Lloyd found the best method of travel—even in those days—was via air, taking camera and equipment along. He had established special contacts through a travel agency which expedited clearances through customs; whereby receipt of an order from a Hollywood studio one day would allow him to start shooting the following day in Paris, Switzerland, or some other continental location.

Naturally, many amusing experiences were encountered. On the Paramount picture, "Midnight," the locale was Paris. Script called for Claudette Colbert to arrive on the Blue Train from the south of France. Lloyd finally secured permission to shoot the Gare de Lyon railroad station—have a train arrive with the required extras aboard. It was a night shot, with script calling for rain

—but it was not raining when the scenes were made. After a great deal of persuasive talking, it was arranged to wet down the cars and the platform with a sprinkler wagon. Process backgrounds were made for an eventual walking treadmill shot alongside the train to be completed at the Hollywood studio.

But then the fun began for Lloyd and Paramount. There had been no rain in Paris for many days, while the numerous required background shots for taxicab process scenes showing wet street reflections along the Champs Elysees seemed stymied by the continual fair weather. Lloyd contacted the City of Paris to arrange for a water sprinkler to wet down the streets—but no luck. "A car might skid on your watered street; someone might be injured or killed; and the City of Paris could be sued." Result was a long wait until it actually rained so that the shots could be made—but Lloyd and his crew out-sat the elements!

For the Walter Wanger production of "Algiers," considerable difficulty was encountered in securing the necessary official permission to photograph the required scenes. Since the latter were urgently needed, it was necessary to use other methods. So Lloyd employed newsreel cameraman Paul Saffer to assist with his governmental photographic permit. And on the day that all scenes had been completed, the officials graciously presented Lloyd with the necessary credentials! But that night he was on his way back to London with everything "in the bag." For this picture, clothes were sent over from Hollywood to be worn by a double for Hedy La Marr, and Lloyd was supplied with full particulars as to height, weight, etc., of both Miss LaMarr and Charles Boyer. Double used for Miss La Marr was the hat check girl at the Aletti hotel, while Boyer's double for the scenes was the head waiter. By a coincidence, he returned to Algiers several years later as an officer in the Signal Corps during the war, and saw both of his actors again—but the hat check girl had married with three children to take care of, and the head waiter also had added to his family.

When the Queen Mary made its first trip across to the United States, Warners wanted rail shots from that boat as it pulled out from the Southampton harbor for process shots. Lloyd, in this instance, practically had to appeal to the King for permission, but the shots were made successfully on the run to Cherbourg.

Knechtel returned from England at the end of 1939, convinced that the United States would soon be drawn into the war. Before he was commissioned a first lieutenant in the Signal Corps in April, 1942, he was associated with Metro-Goldwyn-Mayer on second unit photography including "The Mortal Storm," "Boom Town," "Men of Boys Town," and underwater photography in Florida for "Son of Tarzan."

As an officer in the Signal Corps, he had the express assignment of installing

the special photographic effects department at Astoria, and one week after receiving his commission, was back in Hollywood purchasing \$250,000 worth of equipment for the new enterprise. This equipment was purchased from suppliers, studios, and other sources around the country. Fortunately, the department was completely equipped for operation, and then Lt. Knechtel hopped all over the country making training films, getting promotion to captaincy within a year.

In July, 1943, he headed a photographic unit of three officers and 20 enlisted men which spent three months in Africa before heading for Italy assigned to the Fifth Army headquarters. Later Captain Knechtel was assigned as motion picture photographer to General Mark Clark, and was with the first American troops that entered Vienna after the war. He comments that it was sad to see such a beautiful city devastated by the horrors of war—in sharp contrast to the gay atmosphere of his last visit in 1937. But the valiant people of Vienna had already started to rebuild the ruined.

Capt. Knechtel photographed the German surrender in Italy, but his most exciting experience during the period was the sudden eruption of Mt. Vesuvius as the photographic plane was flying alongside the volcano's crater at a low altitude. The hot lava and rocks bombarded the plane; broke the glass in the pilot's compartment; knocked dents in the ship; and it was fortunate the pilot landed the completely ruined plane.

Lloyd's final assignment in Europe was photographing the first war criminal trial, that of German general Lt. General Dostler, who was convicted and later shot in Rome. He returned to the United States in January 1946 for release from army duties, but two months later signed up for duties—together with several other A.S.C. members—on the atomic bomb tests last year at Bikini. Now back actively working in production, he keeps busy handling motion picture photography and special effects for the major studios, and color shorts for producer Jerry Fairbanks.

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### Paris Pictorial Photography Salon Oct. 25-Nov. 9

Twenty-fifth annual salon of pictorial photography, under auspices of Societe Francaise de Photographie et de Cinematographie will be held in Paris from October 25th to November 9th, 1947. Information can be secured from the secretary of the society, 51, rue de Clichy, Paris, 9.

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### Photographers' Association Sets Chicago Convention

Photographers' Association of America will hold its 56th annual convention at the Hotel Stevens, Chicago, August 25-29. Featured will be the General Picture Exhibit consisting of portrait and commercial photographs, and a special direct color transparency exhibit.

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# Bergman Wins Humane Society Film Contest

Walter Bergman won first prize of \$150 in the recent motion picture contest of the American Humane Society, drawing the nod for the second consecutive year. His entry, "Squeaky's Kittens," was a 16 mm. kodachrome movie play. Second prize of \$100 this year went to John C. Sherard of Kansas City for his "Tar Baby," in 16 mm. monochrome; while Charles Benjamin of Brooklyn won third prize of \$50 for "Safari," a 16 mm. kodachrome zoological reel.

Leo J. Heffernan, director of Metropolitan Motion Picture Club of New York, and widely known as one of the outstanding amateur movie makers of the country, was chairman of the judges' committee, which included: Dr. Irene Cypher, of New York University Department of Education; Louise Branch of United Specialists, Inc.; William Bridges, editor and curator of publications of New York Zoological Society; and James M. Ross, editor of National Humane Revue.

### Comments by Heffernan

"For several years, I have been acting as judge with four others who have been asked to name the winners in the motion picture contest of the American Humane Society. The reason I have been asked to sit in on the judging is that I have made motion pictures on an amateur basis over a period of years and the directors of the Society thought that someone should represent the amateurs on the board of judges.

"This has been fine for me, and I have enjoyed the work but, at the same time, I have felt like getting out and prodding the amateurs who submitted films in the contest—not only those who submitted films, but also those who have not taken advantage of the opportunity to win one of the substantial prizes which have been offered.

"The contest has been successful in arousing interest among the amateurs, it is true, but what the moviemakers have been slow to see is that there is no reason in the world why they cannot concentrate their movie activity on a film which is made with this contest in mind. What better subject could one have for

a so-called home movie than the kind treatment of animals?

"Almost everyone has a pet right in his home who could be called upon to enact the leading part in a story which would be highlighted by the principles of training and loving care of pets which are advocated by the Humane Society—and the film need not be dull because it is on such a high plane. In fact, the Society is seeking films which are entertaining and which are of interest to audiences generally, not teaching films especially. All a moviemaker needs to do is plan his film in such a way that it will come within the scope of the aims of the Society.

"One movie amateur has done exactly that and with startling results. Walter Bergman, ardent movie amateur of Mount Vernon, N. Y., has submitted two entries to the board of judges, one this year, and one last year—and both entries have won first prize. Last year the first prize award was \$100—and this year the first prize was upped another \$50 to make a grand prize of \$150, so it can be seen that making movies with an eye cocked in the direction of the Humane Society Contest might very well be a way of paying for many rolls of that expensive movie film.

"Contrasting Mr. Bergman's system with that of the other contestants, most of whom submitted their films simply because there were some shots of animals in them, shows the difference between the astute and the hit-or-miss filmer. This does not mean that the judges might not go overboard about a film made by a casual filmer. We want everyone to get into this contest. But it does seem to me that filmmakers should roll up their sleeves this summer and plan their movies, or at least one movie, with this contest in mind. You will be so much more likely to win, if your movie conforms in some measure to what the Humane Society is looking for in amateur movies."

### Sound Recording Systems for UN Sessions

United Nations activities will be filmed for lasting records, with the organization securing a single channel newsreel sound recording system from Electrical Research Products division of Western Electric.

According to plans mapped, meetings of the UN Security Council and other prominent groups will be covered for the archives.

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## Eastman Sales Soar

First quarter 1947 consolidated sales of Eastman Kodak Company totalled \$71,500,000, as against \$53,000,000 for the same period of 1946. These figures were disclosed by President Thomas J. Hargrave at annual stockholders' meeting last month. He pointed out that, the increase was attained despite fact that the company has held its average price increase to less than 15% in contrast to 1939-40 price average for products; although raw materials and labor costs had risen 60 and 75% respectively.

Summarizing principal company activities, President Hargrave pointed out that Kodak Park is operating at capacity on sensitized materials, and in the first quarter of the year, output was approximately 15% greater than at the end of 1946.

## English Cinematographer Visits Hollywood

Jeff Unsworth, Director of Photography for Independent Producers, Ltd., with headquarters at Pinewood Studios, England, stopped off in Hollywood for a few days early in May while enroute by air to London from the Fiji Islands. He visited the A.S.C. clubhouse for several hours as guest of Phil Tannura.

Unsworth had spent a month in the Fiji Islands scouting locations and shooting about 3,000 feet of monopack color for the proposed Technicolor production of "Blue Lagoon," which Independent Producers plans to make in the islands this fall.



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# Current Assignments of A. S. C. Members

AS this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A.S.C. were engaged as Directors of Photography in the Hollywood studios as follows:

## Columbia

Burnett Guffey, "Assigned to Treasury," with Dick Powell, Signe Hasso, Maylia, Ludwig Donath, Vladimir Sokoloff.

William Snyder, "The Man From Colorado," (Technicolor) with Glenn Ford, William Holden, Ellen Drew, Edgar Buchanan, Ray Collins.

Fred Jackman, Jr., "The Prince of Thieves," (Cinecolor) with Jon Hall, Patricia Morison, Adele Jurgens, Alan Mowbray.

Vincent Farrar, "It Had to Be You," with Ginger Rogers, Cornel Wilde, Ron Randell, Percy Waram, Spring Byington.

Charles Lawton, Jr., "Double Take,"

with Franchot Tone, Janet Blair, Janis Carter, Lynn Merrick.

Henry Freulich, "The Lone Wolf in London," with Gerald Mohr, Nancy Saunders.

## Eagle-Lion

Jack Greenhalgh, "Adventures of Casanova," with Arturo de Cordova, Noreen Nash, Lucille Bremer, Turhan Bey, John Sutton, George Tobias, Lloyd Corrigan, Fritz Leiber.

Jackson Rose, "A Texas Story," with James Craig, Johnnie Johnston, Lynn Bari, Una Merkel, Sara Allgood, Harry Davenport, Wallace Ford.

## Metro-Goldwyn-Mayer

Charles Schoenbaum, "Good News," (Technicolor) with June Allyson, Peter Lawford, Joan McCracken, Pat Marshall, Ray MacDonald, Mel Tormé.

Harry Stradling, "The Pirate," (Technicolor) with Judy Garland, Gene Kelly, Walter Slezak, Gladys Cooper, Jerry Bergen, Ellen Ross.

Ray June, "Alias a Gentleman," with Wallace Beery, Tom Drake, Dorothy Patrick, Gladys George, Leon Ames, Warner Anderson.

Robert Planck, "Cass Timberlane," with Spencer Tracy, Lana Turner, Mary Astor, Cameron Mitchell, Albert Dekker, Margaret Lindsay.

Robert Surtees, "The Kissing Bandit," (Technicolor) with Frank Sinatra, Kathryn Grayson, J. Carroll Naish. Sono Osato, Mildred Natwick, Edna Skinner, Billy Gilbert, Mikhail Rasumny.

## Paramount

Ray Rennahan, "Whispering Smith," (Technicolor) with Alan Ladd, Robert Preston, Brenda Marshall, Donald Crisp, William Demarest, Fay Holden, Frank Faylen, John Eldredge, J. Farrell MacDonald.

Daniel Fapp, "Dream Girl," with Betty Hutton, Macdonald Carey, Virginia Field, Patric Knowles, John Abbott, Walter Abel, Peggy Wood.

## Republic

John Alton, "Driftwood," with Walter Brennan, Ruth Warrick, Dean Jagger, Charlotte Greenwood, Natalie Wood, Jerome Cowan, H. B. Warner.

Tony Gaudio, "The Red Pony," (Feldman-Milestone Group Prod.) (Technicolor) with Myrna Loy, Robert Mitchum, Louis Calhern.

## RKO

George Barnes, "Mourning Becomes Electra," with Rosalind Russell, Michael Redgrave, Raymond Massey, Katina Paxinou, Henry Hull, Nancy Coleman.

Lucien Ballard, "Memory of Love," with Dana Andrews, Merle Oberon, Ethel Barrymore, Hoagy Carmichael, Artur Rubinstein.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Prod.) with Cary Grant, Loretta Young, David Niven, Monte Wooley, Elsa Lanchester.

## Selznick

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Cecil Kellaway, David Wayne, Albert Sharp.

## Twentieth Century-Fox

Norbert Brodine, "Kiss of Death," with Victor Mature, Brian Donlevy, Patricia Morison, Coleen Gray, Wendell Phillips, Anthony Ross, Henry Brandon.

Joseph La Shelle, "The Foxes of Harrow," with Rex Harrison, Maureen O'Hara, Richard Haydn, Gene Lockhart, Vanessa Brown, Victor McLaglen, Hugo Hass, Dennis Hoey, Charles Irwin.

Harry Jackson, "Off to Buffalo," (Technicolor) with Nancy Guild, Dan Dailey, Charley Winninger, Fay Bainter, Charles Ruggles, Charles Russell, Jane Nigh, Sig Ruman.

Benjamin Kline, "Flamingo," (Sol Wurtzel Prod.) with Don Castle, Virginia Christine, Richard Gaines.

## United Artists

Lucien Andriot, "Intrigue," (Star Films) with George Raft, June Havoc, Helena Carter, Dan Seymour, Marvin Miller, Tom Tully, Phillip Ahn.

Russell Harlan, "They Passed This Way," (Enterprise) with Joel McCrea, Frances Dee, Charles Bickford, Joseph Calleia.

James Wong Howe, "The Time of Your Life," (William Cagney Prod.) with James Cagney, William Bendix, Jean Cagney, Wayne Morris, James Barton, Gale Page.

## Universal-International

Hal Mohr, "The Lost Moment," (Walter Wanger Prod.) with Robert Cummings, Susan Hayward, Agnes Moorehead, Joan Loring, Frank Puglia, John Archer, Eduardo Ciannelli, Minerva Urecal, William Edmunds.

Frank Planer, "The Exile," (Fairbanks Co. Prod.) with Douglas Fairbanks, Jr., Maria Montez, Paule Croset, Nigel Bruce, Robert Coote, Henry Daniel, William Frenk, Otto Waldis, Alla Dunn, Michale Haley, Janna DeLoss.

Maury Gertsman, "Ride the Pink Horse," with Robert Montgomery, Wanda Hendrix, Andrea King, Thomas Gomez, Fred Clark, Richard Gaines, Art Smith.

## Warners

Peverell Marley, "Whiplash," with Dane Clark, Alexis Smith, Zachary Scott, Jeffrey Lynn, S. Z. Sakall, Freddie Steele.

Ted McCord, "The Treasure of the Sierra Madre," with Humphrey Bogart, Walter Huston, Bruce Bennett, Tim Holt, Barton MacLane.

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## Cinema Workshop

(Continued from Page 208)

of varying subjects. It is suggested that practical tests be made before actual shooting of these scenes is undertaken.

### Matte Shots

A great many of our present-day special effects are achieved through the use of masks or *matte*s which hold back part of a scene so that another image may be exposed on the space "reserved." In this way, clouds can be added to a cloudless sky, a simple set can be made to look like a mansion, a scene photographed in a neighborhood grove of trees can be made to appear as if it were taking place in Yellowstone Park or Sequoia.

The mechanical device by which these effects are produced is a rigid rectangular frame or *matte box* which is mounted just in front of the lens itself. The *matte box* is made in frame proportions and is usually coupled with a sunshade. Into its grooves can be slipped *matte*s of various shapes cut of cardboard or blackened thin sheet metal. The shapes of the *matte*s depend upon the composition of the subject, but they are usually made in pairs—the *A* *matte* exactly fitting the cut contour of the *B* *matte*.

The technique of exposing *matte* shots requires a good deal of care and precision. Let us say, for example, that you want to add clouds to a scene having a cloudless sky. You would first set up your main or *foreground* scene, securely anchoring your camera so that no movement is possible. You would then cut your *A* *matte* exactly to fit the contours of the horizon of the scene. You can check the alignment quite accurately if you are using a camera with a rack-over base or a direct through-the-lens viewfinder. With the *A* *matte* in place, you photograph the scene—making sure that no action takes place above the horizon line.

You then wind back your film in the camera or in a darkroom, and set up your camera on a sky full of clouds. Placing the *B* *matte* at the bottom of your frame, you photograph the clouds.

If you have been precise in your operations, the foreground scene will appear with a cloudy sky that has been accurately matched at the horizon-line. If you are able to shoot at an aperture

of f.5.6 or greater, the contours of the *matte*s will be out of focus just enough to feather-edge together smoothly.

It is necessary to expose both scenes very carefully, so that their respective tones and densities will match smoothly. If desired, each scene may be shot on a separate piece of film and the two printed together by a laboratory adequately equipped to balance such effects.

### Simulated Follow Shots

A *follow* shot, as we have noted in an earlier chapter, is a scene in which the camera, mounted on a mobile base, actually *follows* the subject about the set. A routine *follow* set-up is that which shows people riding down the street in a car, while the camera (apparently tagging along for the ride) records the action and dialogue.

In professional filming, this type of shot is made by photographing a stationary vehicle in front of a translucent screen onto which, by means of rear projection, a moving background is flashed. This is a highly complicated and precise process, but there is a far easier and quite satisfactory way of achieving the effect, provided you don't have to show the action against a specific background.

First, the vehicle is placed and the camera is set at a low angle, so that the only background that shows is a cloudless sky. The motor is kept running in order to provide realistic vibration. In addition, one or two assistants out of camera range shake the vehicle to simulate normal road movement. Another assistant, strategically placed off-scene with a large board or the branch of a tree sends shadows across the vehicle at normal intervals. The final touch is for the cameraman to let his camera waver slightly back and forth in order to provide the normal suggestion of "play" that would accompany an actual follow shot. The combination of these five or six elements produces a very realistic effect on the screen.

Special effects, if carefully executed, add greatly increased production value to any motion picture, whether it is a photoplay or commercial film. The main axiom to remember is: The smoother the effect, the less likely it is to be noticed by the audience.

NEXT ISSUE: Part 13—*Camera Tricks*

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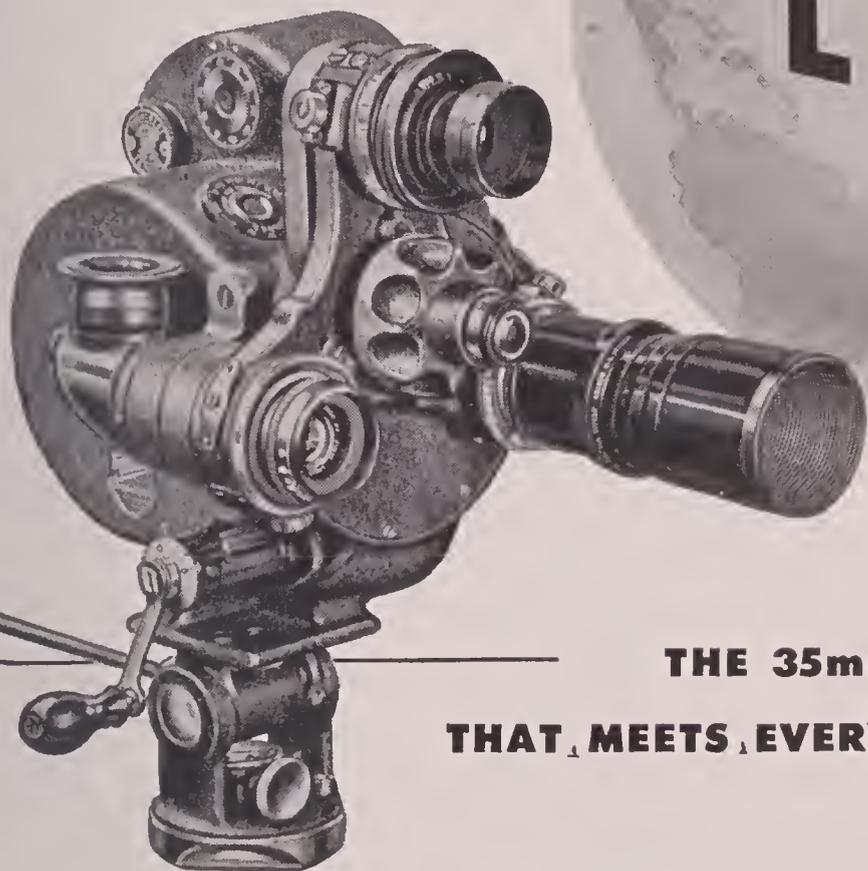


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THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

JULY, 1947

NO. 7

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ON THE FRONT COVER—Ginger Rogers on the set of Columbia's production, "It Had To Be You." Producer and co-director Don Hartman is on the left; co-director Rudy Mate, A.S.C., is in right foreground; while Director of Photography Vincent Farrar, A.S.C. is looking over the star's shoulder. Production marks initial directorial assignment for Mate, long a top-ranking Director of Photography.



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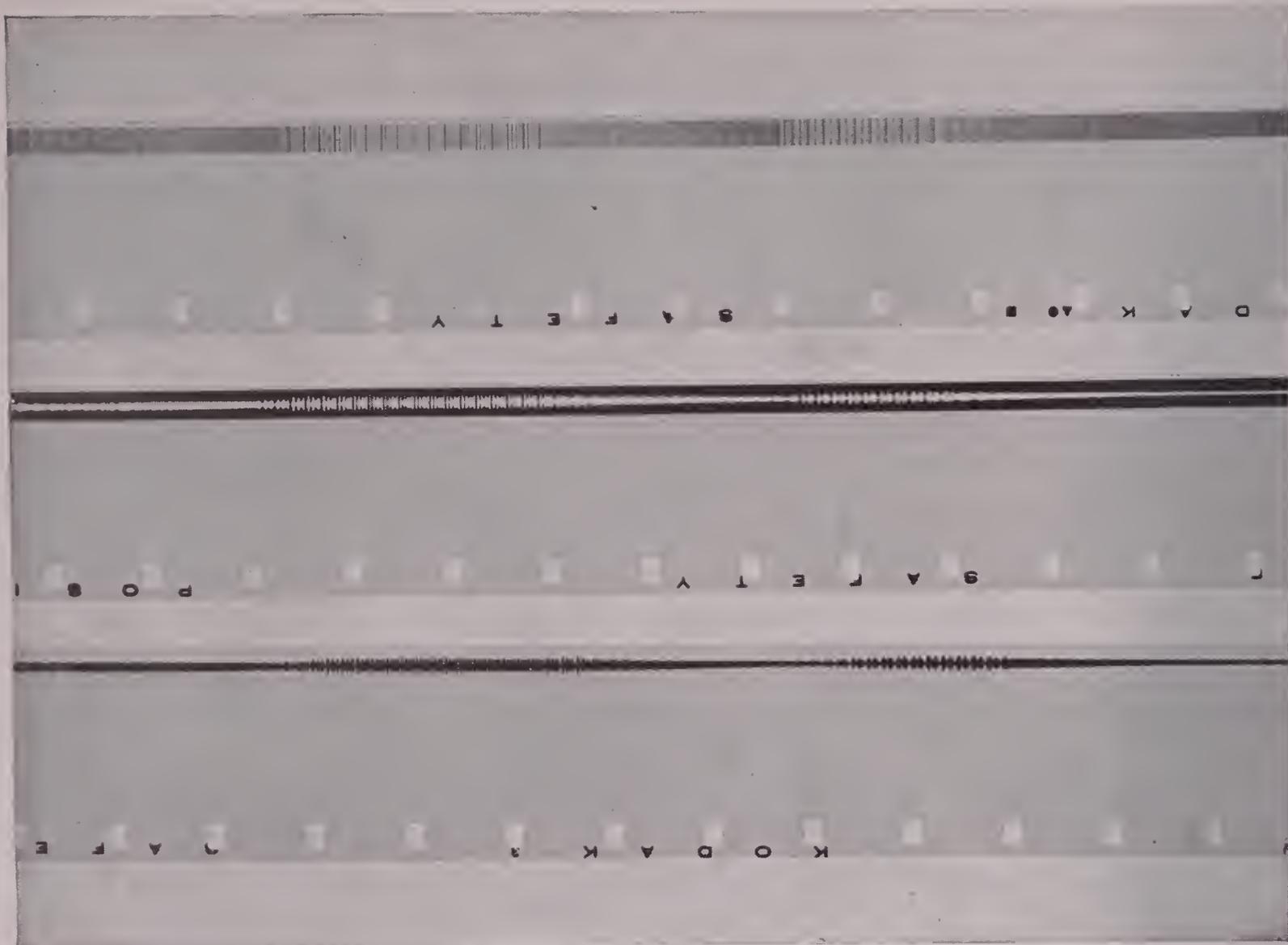
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Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1947 by A. S. C. Agency, Inc.

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# HISTORICAL DEVELOPMENT OF SOUND FILMS

By Earl I. Sponable

(Twentieth Century-Fox Film Corp., New York)

## PART 1.

*(This most informative paper was presented by the author at the October, 1946, convention of the Society of Motion Picture Engineers in Hollywood; and published in the April, 1947, issue of the SMPE Journal. It is reprinted through permission of the SMPE, and, because of extended length, will be presented in three or more parts.)*

### Introduction

**I**N THIS introduction I should like to set down the purpose of this paper, to say something about the way in which I propose to treat the subject matter contained therein, and perhaps even to make a few personal remarks.

First, the purpose. There have been various documents published relating to the history of sound recording on film, but they have not been complete, nor have they, in most instances, attempted to rate the relative value of the contribution made by the various inventors. Since I am somewhat in the same position as the famous chemist Berthelot, who was declared to have been the last one who would know the whole of chemistry, I propose to undertake to arrange the technical contributions leading up to the commercialization of sound motion pictures in chronological order, and to attempt this evaluation. Perhaps I may be forgiven for this apparently egotistical point of view, because I was fortunate to have participated in bringing about the commercial development of sound motion pictures; and for at least a short period of time I was probably the only individual who had heard practically every sound record and knew intimately those engaged in making them. Late in 1926 I was, like Berthelot, overcome by a feeling of helpless futility; it was then that the art began such rapid expansion that I could no longer keep up with the tremendously increased number of sound records.

In dealing with this development, I shall more particularly restrict my remarks to the photographic methods of sound recording and shall list in considerable detail the steps taken in the development of the Fox-Case system. The section of this paper which deals with the work of Theodore W. Case contains abstracts from correspondence which he kindly made available to me, and from the notes of the Case Research Labora-

tory, which he organized shortly after I joined him in 1916; I therefore know, of my own knowledge, that these notes were kept with a high degree of accuracy and detail, and are correct. I have quoted directly from these records in some instances, since they are available to the future historian—the original Case Laboratories having been made a museum in the city of Auburn, New York (now known as the Cayuga Museum of History and Art).

The remaining parts of the paper, dealing with the work of others, may have been treated in somewhat less detail: first, because much has already been written regarding their work and it seems unnecessary to repeat it here (except to the extent required for a clear chronological development of the subject), and, second, because I was more directly and intimately concerned with the work of Mr. Case.

To the uninitiated, this account may prove dry reading at best; it is intended to do no more than appeal to those having a substantial interest in, and present knowledge of, the art. If it enables those now devoting their time and energy to the perfection of sound pictures to see something of the stages by which we arrived at our present state, it will have served its purpose.

### Part 1. Early Steps in the History of Sound Recording

1857: Leon Scott patented in France what seems to be the first method of recording sound. This disclosure shows the use of a stylus connected to a membrane through a series of levers and a method of tracing figures corresponding to speech, song, etc. on paper covered with lampblack. The paper was attached to a cylindrical drum, which could be rotated by hand and moved forward by a screw. He called the instrument the "phonograph."

1862: Another example of early interest concerning the nature of sound is found in the work of one Doctor Jan N. Czarmak of Vienna, who succeeded in photographing the vocal chords in action.

1877: Thomas Edison brought out his epoch-making invention, the first phonograph. It was similar in principle to the phonograph but differed in that he used tinfoil on the cylinder and had his stylus attached directly to the vibrating diaphragm. In his later models, wax was used as the recording medium.

1878: Professor E. W. Blake, of Brown University, published a paper on "A Method of Recording Articulate Sounds by Means of Photography." This describes a mirror actuated by a microphone and the moving of a beam of light over a photographic plate.

1880: A. G. Bell patented the method of using selenium for detecting sound signals sent over a modulated light beam. The experiments in light telephony leading up to this patent were carried on in 1879.

1880: Charles E. Fritts filed a patent application in the United States entitled "Recording and Reproduction of Pulsations or Variations in Sounds and other Phenomena." This application is remarkable in its completeness, broad scope, and length of time in the patent office. As finally granted, on Oct. 31, 1916, it covered 26 pages and had 96 claims. It is doubtful if Fritts did anything practical; he confined himself to putting down a large number of ideas and variations on paper. Claim 84 of his patent reads "The method of making a sound record which consists in photographically affecting a sensitive surface in accordance with sound waves."

1886: A. G. Bell, C. A. Bell, and S. Tainter patented both a variable-area and variable-density method of recording a sound modulated light beam through a small slit upon a photographic film. Both a physical slit and optical slit are disclosed.

This seems to me to be an important patent that has heretofore been overlooked. It clearly anticipates Ries, as may be seen from the following quotation: "According to the record part of the invention a variable beam of light is caused to pass through a fine slit or other opening, and an image of the slit enlarged, diminished, or of the same size is then projected, by means of one or more lenses or other suitable devices upon a sensitized tablet which is moved progressively in front of the slit"; and "Sometimes it is desirable to use a second slit close to the recording tablet."

1887: The work of Hedrick, a Dutch inventor, using flames that could be varied by sound waves, should be noted.

1887: C. J. Hohenstein patented a more sensitive method of recording a sound modulated light beam "by reflecting light from a small pivoted mirror several times, focusing beam of last reflector, which is parabolic, upon a photographic film." This is quite similar to the optics of the recording system later developed by General Electric.

1892: Demeny's "Chronophotophone" combined a disk phonograph and a magic lantern arranged with slides.

1894: Edison brought out the "Kinetoscope." This was peep-show device using ear tubes to catch the sound, and rather crudely brought about synchronization of sound and picture.

1900: J. Poliakoff filed a patent application on the focusing of a light beam upon a photoelectric cell, through a posi-

(Continued on Page 246)

# TWO WORLDS IN TECHNICOLOR

By Herb A. Lightman

ALL TOO RARELY it is the privilege of the moviegoer to view a film which smoothly blends the ultimate in entertainment value with a near-perfect display of cinema technique. Falling neatly into just that category is "Stairway to Heaven," a J. Arthur Rank presentation filmed in England, and currently being released in the United States by Universal-International.

That this motion picture represents Britain's finest cinematic achievement to date is attested by the fact that it was selected from a long list of candidates for showing (under the title: "A Matter of Life and Death") at the recent Royal Command Performance held at London's Empire Theatre.

To the layman, "Stairway to Heaven" represents superb screen fare, a delightful fantasy of mixed humor and poetry, handsomely mounted and frankly slanted to captivate the American film audience. To the critic, the film is an adventure in spectacular camera treatment, a project of such vast scope that it richly merits the adjectives "stupendous" and "colossal" which have been so promiscuously

wasted on less worthy efforts. It applies Technicolor to a series of striking, perfectly-executed special effects with a smoothness seldom before achieved on the screen. It makes effective use of the tricky dye-monochrome process — and, most important, it manages at the same time to be an *audience* picture and a *critic's* picture.

#### Air-borne Fantasy

"Stairway to Heaven" was jointly written, produced and directed by Michael Powell and Emeric Pressburger who have previously brought to the screen such quality efforts as "The Invaders" and "Colonel Blimp." Briefly, it is the story of an R.A.F. pilot caught in his burning plane without a parachute, who, in what he believes to be his last living moments, falls in love with the voice of an American WAC on duty as radio operator back at the air-base.

As he bails out, the scene shifts to that quarter of heaven where good pilots go when they die, and where the doomed pilot is momentarily expected. Great consternation develops behind the pearly gates when he fails to make his sched-

uled appearance. "Conductor 71," a celestial messenger who lost his head in the French Revolution, and who had been assigned the task of escorting the flier to the heavenly portal, explains that he let his charge slip away from him in the pea-soup English fog. He is sent back to rectify his error only to find that in the interval the flier, still very much alive, has met the WAC radio operator and fallen for her with a fervor that makes the promised joys of the happy hunting ground seem tasteless by comparison.

Working on the theory that "Heaven can wait," he refuses to don wings—and from that point on, the film narrative becomes a spirited tug-of-war between the forces of heaven and earth for possession of the flier's soul, culminating in a spectacular heavenly trial sequence in which a "cast of thousands" actually makes its appearance. Needless to say, in the final scene love conquers all, and the audience leaves the theatre feeling that it has seen a corking good picture.

In the presentation of the *heaven* and *earth* locales, normal Technicolor is used to portray the *earth* sequences, whereas the scenes in *heaven* appear in black and white photography. The transitions between color and monochrome scenes are so smooth that there is no apparent mechanical device involved. The black and white image merely seems to take on color bit by bit as the action progresses.

Actually, the effect was achieved by means of the dye-monochrome process, which is not in itself new but which has never before been used with such flawless skill. Any reproduction of a black and white photograph in a Technicolor picture is a dye-monochrome reproduction of the neutral original, the neutral effect being obtained by identical printings of the three reproduction colors used in the Technicolor process.

For the scenes to be photographed in dye-monochrome, a black and white negative was photographed, and from this



Left: A scene from the J. Arthur Rank British production, "Stairway to Heaven," currently being released in the United States by Universal-International. The scene pictured is the check-out room for wings in the aviators' division of heaven—a locale which figures prominently in the film. Right: A climactic scene from "Stairway to Heaven," showing the huge 260-ft. escalator from which the film draws its name. The stairway took three months to construct, and is considered the most expensive motion picture prop ever built.



Left: A scene from "Stairway to Heaven" showing a gallery overlooking the immense records department where heavenly souls are recorded. The "heaven" sequences are printed in black and white by means of the dye-monochrome process, while the "earth" sequences appear in rich full Technicolor. Center: A scene from the celestial trial sequence indicating the forceful wide-angle effects achieved in the film. Right: A scene showing representatives of "the other world" descending to view life on earth. "Stairway to Heaven" was selected from a list of outstanding films to be shown at the Royal Command Performance in London.

three identical negatives were made which were used as if they were separation negatives. The transition effects from black and white to color were actually long dissolves "synced" to the exact frame, so that there was absolutely no jump in action. The most unusual aspect of the effect is that, although the sets were lighted for color, the black and white reproductions of these scenes maintain a smooth velvety quality devoid of the flatness one might expect.

#### The Camera Scores

Although "Stairway to Heaven" ranks high in every department, it is the smooth and original Technicolor photography of Jack Cardiff, A.S.C., F.R.P.S., that is the film's most spectacular asset. Cardiff's boldly experimental camera is a striking complement to the story's fantastic theme. His use of colored light effectively points up the more dramatic episodes, especially the opening sequence which cuts back and forth from the blazing plane to the tense radio control room at the air base. Throughout the film, and especially in the "heaven" sequences, wide-angle lenses are skillfully used to create dramatic composition. The camera moves freely and unobtrusively, establishing an aura of spaciousness accurately in key with the celestial settings.

*Mood*, also, figures prominently in the camera treatments designed for "Stairway to Heaven." The sequence, for example, in which the flier is discovered floating unconscious in the sea following his parachuteless jump, was filmed in the early morning with the faint, somewhat eery, glow of sunrise suffusing the scene. Following the pilot's progress as he struggles ashore, the cinematographer chose a high angle which accentuated the barren vastness of the beach, shooting against the sun to capture the curious effect of backlighting on the water. The entire sequence has a strange, unearthly feeling to it that leaves the audience in

suspense for the moment, wondering if the flier has arrived at heaven, earth, or some weird half-world between the two.

Never consciously "arty," the camera takes full advantage of the scope offered by a theme based on fantasy. In an operating room sequence, for instance, an angle is adopted which is unquestionably the ultimate in *subjective* approach. After conventional establishing shots of the patient on the operating table, the camera takes up a vantage point presumably inside his cranium, and we find ourselves looking out through his eye (with the eyelids and lashes clearly framing the scene) as he stares up at the ceiling. As an anaesthetic is administered, he closes his eye, and the lids slowly come together, blotting out the scene in a dissolve to masses of red and blue specks on a gray field, symbolic of the sensations of a man losing consciousness. In any other film, this would seem a grossly far-fetched effect—but in "Stairway to Heaven" it fits in quite naturally and does much to add punch to the sequence.

#### Designed for Camera

"Stairway to Heaven" represents an achievement in cinematic design in that it casts aside many of the conventions of architectural planning in favor of settings specifically designed for the camera lens. Production designer Alfred Junge visualized the "other world" sets through the eyes of a man who was both poet and flier. These sets have a definite sweep, a modern, clean-cut elegance that seems quite appropriate to a repository for the sky-soaring souls of airmen. The settings have a vastness that seems to melt into space at the edges, so that one can readily imagine an ethereal domain beyond the heavier atmosphere of the Universe.

Sets for the heaven sequences include a massive escalator, a vast amphitheatre, a huge records department a check and

issue room for wings, plus giant statues of such immortals as Socrates, Lincoln, and Beethoven. Designs involved the making of 46 detailed set sketches, 24 complete series of architectural plans, and several large scale models. Designs for the earth sets placed emphasis on a kind of colorful realism, forming an effective contrast with the pearly monotone of the heaven sequences.

Two of the most spectacular sets ever filmed are the stairway itself, a gigantic escalator supposedly reaching from earth to heaven, and the huge amphitheatre where the flier pleads his case before a heavenly tribunal.

The oversized escalator, believed to be the most expensive mechanical film prop ever built, weighed 85 tons and had 266 20-foot steps. A crew of engineers worked for three months on round-the-clock shifts to construct it.

The picture opens with the camera soaring through an elaborately authentic three-dimensional scale model of the Universe. Planets are seen revolving in their orbits; the Milky Way goes by like a cloud of twinkling sequins; a *nova* explodes into a miniature inferno; and the stars glow and twinkle in a way that would seem quite real to anyone seated on a meteor far out in the reaches of space.

#### Magic in the Lens

Great credit is due technicians Douglas Woolsey, Henry Harris, and Technicolor, Ltd. for the smooth special effects that add so much to the film. Never has this reviewer seen such perfection of mechanics in the execution of traveling matte shots and double printing. *Dissolves* from color to monotone, as well as from full sets to miniatures are so smooth that it is difficult to tell where one scene ends and the other begins.

One of the most novel sequences in the picture involves the use of a fascinating

(Continued on Page 263)



# 25 YEARS OF THE "LUBITSCH TOUCH" IN HOLLYWOOD

By Mollie Merrick

WHEREVER camera entertainment is discussed, the name Ernst Lubitsch is magic. Lubitsch in his twenty-five years of picture making in America, has become a unique figure whose talents merit the tag "genius."

His distinctive approach to a subject has been labelled "the Lubitsch touch" by critics seeking to identify its individuality and dignify it with a modicum of isolation.

Lubitsch has, beyond all this, an infallible wit and freshness in story treatment that remain undimmed from much usage.

This Viennese who many years back became an American citizen, actually has been working with cameras for thirty-five years. He began directing in Europe in 1912. Now, at 20th Century-Fox he is preparing his twenty-sixth film adventure, "The Lady in Ermine." Twenty-five successful movies represent his work in this country—one for each year, although they were not made in that precise fashion. Some years Lubitsch completed three, four, or even five movies. Again one or two films seemed sufficient. And during the period when he took over the production destinies of

Paramount, the record is blank so far as directing is concerned.

"Lady in Ermine" deals in fantasy to a considerable extent. In it there are ghosts—ancestors who come to life at midnight, assuming very corporeal identity. It was discussion of these ghosts which brought out Mr. Lubitsch's most interesting theories on the relationship of cameraman and director.

The Lubitsch workshop at 20th is a huge square room with Adam green walls, some modern black and whites in natural wood frames, a grand piano wedged into one corner, its nose to the wall, deep leather furniture and a satis-



A quarter of a century ago, Ernst Lubitsch, after brilliant accomplishments in Europe, directed his first production in Hollywood—Mary Pickford in "Rosita." Left: Lubitsch, with upraised arms, explains a scene to Miss Pickford and Director of Cinematography Charles Rosher, A.S.C. Right: Lubitsch perches on a ladder behind the cameras to line up a crowd shot, with Miss Pickford in right foreground. Paul Perry, A.S.C., and Rosher are at the cameras.

ifying sense of light and space. Preparation of a story and cutting of the finished picture, always take the largest amount of this producer's time. When his picture goes before the cameras Lubitsch knows to a nicety what he wants. Actually he has cut it in his mind so there is little time lost, practically no waste footage, and a minimum of frustrations and futilities.

As a director Lubitsch dislikes a cold script. He works with the writer from the inception of the idea, knows the story more completely than anyone else involved, works out dialogue, situations and dramatic angles with the scenarist. In the case of "The Lady in Ermine," the scenarist happens to be Samuel Raphaelson, a playwright and author who has collaborated many times, and most happily, with Lubitsch. I already knew Lubitsch's attitude towards the writer, so I inquired about the cameraman and where he fits into the Lubitsch program:

"It is most important in making a picture," said Lubitsch, "to have closest cooperation between cameraman and director."

"The director must know what effects he wants to achieve with the camera. But after he has explained this to the cameraman and considered his side of it, he must be satisfied to allow the cameraman to get his effects himself.

You see, a director doesn't want the cameraman to assume the prerogative of direction. So in the same spirit, he should recognize the fact that a cameraman can't function to the best of his ability if the director is trying to control the cameras completely. A wise director will listen to whatever ideas his cameraman may have, even if eventually they do not prove to be feasible. But by listening to the cameraman's ideas, a satisfactory rapport is established between two workmen who have the fate of the picture in their hands.

"In telling his story I feel it is most important for the director to value the camera's part. A director should make it his business to learn just what camera scope is—he should know to a nicety just what can be achieved with the camera. I think too many directors know all too little about this most important angle of movie making.

"The camera, to my mind, has been greatly misused in regard to moving shots. The moving shot is only good if you are not conscious of mechanical movement, just as a comedian is funny only when he doesn't convey the idea he is trying to be funny.

"Unfortunately we have neglected the camera greatly in the last few years. We have failed to tell the story in visual terms. Naturally the spoken word is a terrific asset and carries great power; but we have become so engrossed in words we have neglected to take full advantage of the dramatic power of the visual approach. In my next picture I hope we will have a chance to give more space again to visual effects. I hope to take full advantage of dialogue and

speech, but also I'd like to give enough room for the valuable things we learned and have partly forgotten from the silent days of the motion picture."

At this point in our talk we discussed fantasy—usually a problem on the screen.

"It should not be handled with camera tricks," said Lubitsch decisively. "Fantasy can never be put over that way. My ghosts will be very corporeal people who will move and talk and react just like other actors in the picture. Metro-Goldwyn-Mayer had a story of a ghost—"A Guy Called Joe" was its title and it was a box-office hit—where the ghost was the very substantial Spencer Tracy. You see when you deal with the fourth-dimensional thing you can't afford to run the risk of not getting through to the hearts and imaginations of your audience. If you seek to emphasize your story situation with trickery, you fail because you cannot achieve a dynamic effect in a picture if you let your audi-

ence become conscious of the mechanism behind motion picture making."

Lubitsch has no hard-and-fast rules about fading, cutting, effecting transitions in time and place or emotional content; beyond that one fundamental admonition not to let the audience become conscious of mechanics.

The problem of arriving at a decision as to whether the flow is to be a gentle sostenuto or a staccato one, whether change is to be made through a leisurely fade or a quick ruthless cut, whether the audience will react as you desire if given a brisk jolt, becomes purely a thing of instinct with the director. This, without question, is the part of moviemaking that cannot be taught since no two situations are precisely alike. This is something which calls for a subtle sixth sense, possession of which differentiates the artist from the merely good craftsman. If the need for such decision did not arise, the making of a picture might well

(Continued on Page 258)



Ernst Lubitsch, producer-director on the Twentieth Century-Fox production, "Cluny Brown," rehearses a scene with Jennifer Jones and Charles Boyer.

# FLASHTUBES

## The Newest Light In Photography

BY D. W. PRIDEAUX

(Lamp Department, General Electric Co., Los Angeles)

**F**LASHTUBES, the newest thing in photographic light sources, can produce an amazing quantity of light in a brilliant flash of good daylight color. Flash duration can be extremely brief at reasonable light output values, freezing high speed motion, or somewhat longer flashes are possible at larger values of output. Present flashtubes have been flashed at low loadings with such rapidity as to appear to be a constant source of light.

It is reasonable to expect new developments and improvements in flashtubes as a result of continued laboratory research. As each of the now familiar light sources emerged from the laboratories, they have been studied as a possible source for motion picture set lighting. Incandescent lamps have been eminently successful. The 1, 2, and 5 Kw's are part of almost all sets, while the more recent reflector type—such as the reflector photospots and floods—are finding new applications.

The mercury lamps originally used by the industry in the form known as the Cooper-Hewitt mercury tube, has undergone development, being currently available in several wattages, including a small but high power, high efficiency mercury arc known as the A-H6. These sources have been studied, but as yet, found wanting since the mercury spectrum is not continuous.

It is one which emits energy in definite bands of light in the yellow-green, green, blue, and violet portions of the visible spectrum. Additional development work on mercury arcs is in progress, and out of this work may come a new source of improved color quality and high efficiency. Sufficient progress to prove of great interest to the motion picture industry has yet, however, to be made.

With the advent of fluorescent lamps, daylight color became available at much higher efficiencies than could be obtained by the use of filament lamps and filters. The characteristics of the fluores-

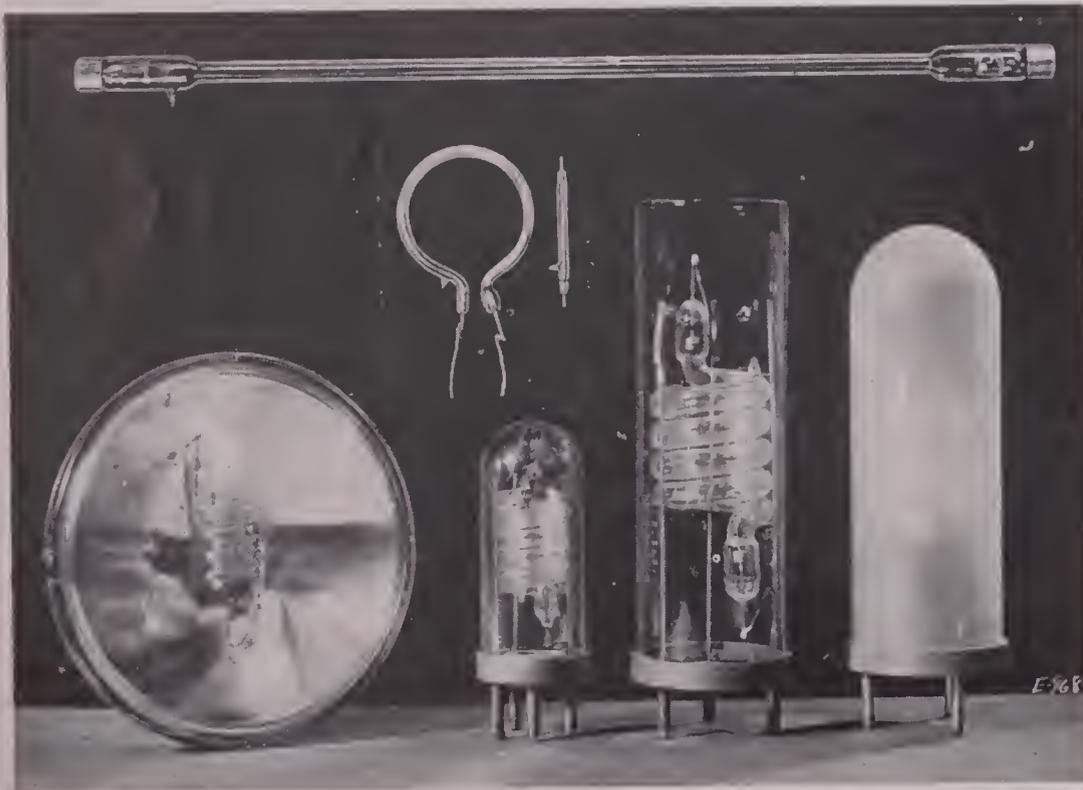
cent lamp, such as the difficulty of DC operation and the large area of the light source, resulting in soft diffused illumination, proved it limited in its application to motion picture set lighting.

The flashtube which, in a sense, is an offspring of the condenser spark discharge in open air, is a much more concentrated source than fluorescent. It was used to a rather small degree in pre-war still and trick photography. During the war, some 27 types of flashtubes were developed and used for military purposes. The flashtube is essentially a glass tube,  $\frac{1}{4}$ " to  $\frac{3}{8}$ " in diameter, of various lengths, with an electrode sealed in at either end, and filled with xenon, krypton, hydrogen, mercury, or some combination of such gases. Figures 1 and 2 illustrate a few types of flashtubes which are currently available.

Light from a flashtube is the result of the discharge of an electric condenser through the tube. This means a power source is necessary which consists basically of a high voltage transformer, a rectifying tube, and a condenser and a triggering device, all suitably connected. The transformer has a secondary voltage of one to several thousand volts. The capacity of the condenser is dictated by the flashtube and the amount of light desired. This capacitor is connected across the flashtube which is triggered, or set off, by an impulse from an ionizing or triggering coil. This triggering lead usually is merely a wire wrapped around the flashtube at one or more points. Refinements of this circuit are desirable, but the basic elements are as described. Figure 3 shows a schematic diagram of the circuit described.

The light output of flashtubes is increased by increasing either the voltage at which the capacitor is charged, or its capacity. An increased voltage for a given capacitance results in a considerable increase in peak lumens, but does not prolong the flash appreciably. An increase in capacitor size produces, at the same voltage, a higher peak in light output but also considerably prolongs the flash. Other characteristics of the discharge circuit can affect the flash duration. Figure 4 shows characteristic curves of a small flashtube under specified conditions. The effective flash duration ranges from around  $1/50$  of a second for a tube fired on 4000 volts and 4500 microfarads to  $1/30,000$  of a second for a tube fired on 2000 volts and 2 microfarads.

The energy input to a given tube is limited for a single flash by the limitations of tube materials and upon the number of flashes expected from the tube. A flashtube made of hard glass, when overloaded, develops a crazing which weakens the tube and may ultimately develop into an air leak. A quartz tube, on the other hand, will stand considerably higher loadings, but an overload may show a white deposit or crack, presumably due to the sputtering of material from the electrodes. At suitable



Figures 1 and 2, illustrating a few of the several types of Flashtubes currently available.

loadings the life of the tubes is indefinite, being at least thousands of flashes.

One of the principal characteristics of flashtubes for still photography is its ability to stop or freeze high speed motion. Many unusual photographs have been taken which illustrate this characteristic. The speed of the flash is sufficient to "freeze" the flight of a bullet, the head of a golf club at midpoint of its swing, the shattering of a vacuum lamp bulb, or the flight of an arrow. In portrait work this characteristic is desirable since it catches expressions otherwise lost.

Figure 4 is a single frame from a strip of motion picture film showing a girl jumping rope, taken with constant incandescent illumination from a photoflood lamp. The motion of the rope is apparent by the blur recorded at the top of the picture. Figure 5 is of the same subject when illuminated by the use of flashtubes, in which case the rope is "stopped" by the brief flash duration.

For motion picture work, such flashtubes would be flashed in synchronism



Figure 4 (left): Photograph taken from a strip of motion picture film, with illumination from photoflood lamps. Figure 5 (right): Single frame of motion picture film—taken with the subject illuminated by two flashtubes. Note that the motion is effectively stopped.

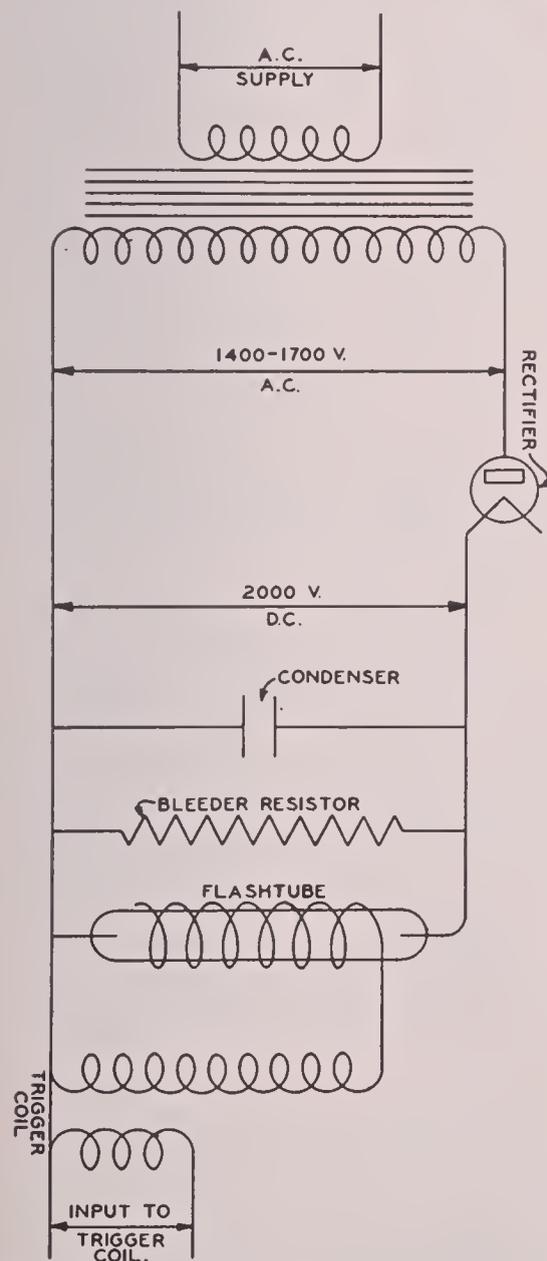


Figure 3. A schematic wiring diagram showing the bare essentials of a circuit for firing a pre-ionizing type of flashtube.

with and during the open portion of the shutter cycle. The psychological effect of the flicker of such a flashlight light on actors requires further study. If the lights flash only once for each picture frame, and is 24 times per second, the flicker is very noticeable. It is possible, however, to increase the flashing rate to 48 times per second, in which case one flash would be utilized in recording a picture, and the other thrown away by occurring during the time the shutter is closed. Such flashing operation is more acceptable psychologically. Further increasing of the flashing rate to 72 times per second means that two flashes may be utilized and the third, in effect, thrown away. Negligible flicker is observed with such a flashing rate. Similarly, 96 flashes per second would presumably use two flashes and discard two flashes. Ninety-six flashes per second would seem to be quite acceptable from the actors' viewpoint.

The addition of a certain amount of constant illumination would materially lessen the objection to the flashing light source. The efficiency of systems which theoretically could be worked out with such flashing sources and constant illumination would mean less energy consumed, hence less heat on the set. The efficiency of the flashtube itself is good, ranging to 50 lumens per watt, depending upon the loading. A further gain in efficiency from the energy used in the flashtube would be realized because the daylight color of this light would mean less energy absorbed in filters for further color correction. Xenon-filled flashtubes are close to 7000 degrees Kelvin on the color scale.

Some of the less desirable characteristics of flashtubes, such as the high cost of the power pack, the effect of transient currents on sound pick up systems, and the noise which the tube itself emits because of the arc discharge, would definitely have to be studied and overcome before this source would be suitable for motion picture work. Then, too, at the present the tube types which are essentially the military types developed for specific purposes, are not suitable for repetitive flashing at the desired high energy inputs. It seems possible, however, that such tubes could be designed, probably with some provisions being made for cooling.

The projected result as seen on the screen, resulting from the use of a combination of constant illumination and flashtubes on the set, is an unknown quantity. It does not seem suitable for scenes where high speed action takes place since a certain amount of actual blur on the film apparently conveys a better impression of motion. When normal motion on the set occurs, it is a question as to whether or not there would be any appreciable change in the results as compared to those of accepted constant light sources. If there is a noticeable difference, only tests will show whether or not it is desirable.

For a more complete technical discussion of flashtubes, the reader is referred to a paper presented to the Society of Motion Picture Engineers by Mr. Frank E. Carlson, which the author understands is to be published in the near future in the SMPE Journal. The author is indebted to Mr. Carlson for much of the above information.

# MOTION PICTURE INSTITUTE IN THE SOVIET UNION

By Suzanne Ross

*(Editor's Note: The Article below is an official release of the Soviet Government. It was delivered directly to us from Moscow, and we are unable to obtain any information on the author, Suzanne Ross. The entire article is printed as received.)*

**R**ISING abruptly out of a stretch of open country, on the outskirts of Moscow, is the modern, streamlined building of a college that is unique in the world. Its full name is the State Institute of Cinematography and it turns out professionals in all fields of cinema art, from scenario writer to cameraman, from movie actor to costume designer.

"Today, when our Institute marks its 25th anniversary," Prof. P. P. Dribasov, the Principal of the State Institute of Cinematography told me, "I am glad to say that it enjoys prestige as an institution which has played an extremely important role in setting high artistic standards in Soviet motion picture production and in giving to the Soviet film world some of its finest personalities."

The Institute of Cinematography was born of the firm conviction that if the cinema is to survive as a vital art, stimulating to the minds of the people, and deeply concerned with the major social problems of the time it must have highly educated, broad-minded people to guide its destinies.

"A pioneer in the field, the Soviet Institute of Cinematography had no model to follow and work from," Prof. Dribasov continued. "It elaborated its own academic programs and study courses, perfected and supplemented them from year to year. And throughout the 25 years of its existence it has been the chief source for supplying Soviet film studios with highly qualified professionals in all fields of cinema art. Among the Institute's famous graduates, to mention only a very few, are the directors V. Pudovkin, G. and S. Vasiliev, the actor B. Babochkin (known to Americans for his impersonation of the

hero in the Soviet film "Chapayev"), and cameraman Mark Troyanovsky.

"There are five principal departments in the Institute—dramatic, directing, scenario, photography, and scenic design. To enter any of these the prospective student must show aptitude and gift in his chosen field and pass a number of rigid tests. It is interesting to note that some 60% of this year's freshmen are young boys and girls from the various national republics of the Soviet Union: Georgia, Kazakhstan, Esthonia, Latvia and even far-off Yakutia. Upon graduation these young people will return to their respective republics to make native pictures.

"The college course is from four to five years," Prof. Dribasov went on to say, "and apart from the special subjects and a good deal of practical and experimental work; covers extensive study in the humanities and general art subjects."

Languages are also taught and as elsewhere the conversation circle flourishes. A few steps away from the principal's office I took a look at the wallpaper, ubiquitous in the Soviet Union, and was surprised to find the articles written in English, a somewhat dated and flowery English, though quite correct. It was the proud handiwork of the college's English conversation circle.

When the shrill ringing of a bell announced the recess period I hurried out into the hall, anxious to see the students. Unobtrusively, I made my way to a bevy of pretty coeds and found myself eagerly catching scraps of their conversation. They were discussing Jefferson and the impact of his statemanship on American history. Evidently, they had just come from a history lecture. What struck me was their simplicity and manner, the complete absence of collegiate affectation. Nor was there any pretense to glamour (after all they hoped to become movie stars!).

But for all their gravity, they were stunning girls with finely chiselled, ex-

pressive features and a beauty more than skin-deep. One of them, a tall, graceful Armenian, her head wound in coils of luxuriant, dark hair, said to me: "I dreamed of going into the movies ever since I was a little girl, and now I am getting the most thorough education I could hope for to prepare me for the career of actress and director as I am determined to be both."

Nearby, surrounded by a group of eager students, stood the girls' professor—Sergei Eisenstein, the world-famous director. He had not changed a bit since the last time I saw him—which was several years ago. There was the same affable manner, the same youthful ardour in the eyes which looked out from under a towering forehead. Eisenstein is not the only distinguished professor at the Institute. Practically all the leading Soviet regisseurs, actors, scenario writers, and scenic artists teach here.

"The Institute has its own film studio and there is every accommodation for making and releasing a picture," Professor Dribasov said. "Graduation classes and individual undergraduates collaborate on pictures for their degrees. One of this year's graduation classes, for example, is working, under the tutelage of Professor Sergei Gerasimov—a well-known Soviet producer—on the screen version of Alexander Fadeyev's extremely popular war novel, "The Young Guard." To get the atmosphere of the scene of the picture which is laid in the little war-shattered mining town of Krasnodon, the students made a special trip to the town. The film is due to be released in November, in honor of the thirtieth anniversary of the Socialist Revolution. Student-cameraman I. Shatrov, shot a fragment from Dickens' "Dombey and Son" for his degree. Two undergraduates of B. Babochkin's dramatic class—V. Bondareva and L. Galimzhabova—received their degrees on the strength of their performances in this picture.

"There is no fear of any of our graduates remaining jobless," Professor Dribasov assured me. "Immediately they get their degrees, graduates are assigned to film studio staffs by the Ministry of Cinematography. Students of the dramatic department are frequently cast in pictures while still at college. Vodinetskaya, a second year student got the part of the heroine in "Zoya Kosmodemyanskaya"; and her splendid, moving performance won the admiration of audiences in the Soviet Union and abroad. Two fourth-year students—Lepatova and Gerasimova—scored a success in the "First Glove," a Soviet boxing picture.

"Extensive research in every field of the cinema is conducted in the Institute's various laboratories by professors and post-graduates. And the Institute has many important papers on the development of the cinema to its credit. Extra-curricular activities include — among other things—previews and discussions of new films, Soviet and foreign," P. P. Dribasov said in conclusion.

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## 13. Camera Tricks

By CHARLES LORING

CAMERA TRICKS, as differentiated from *special effects*, are devices which are deliberately slanted to surprise, bewilder, or amuse the audience. When cleverly staged, they add zest to the motion picture story (especially if it is a comedy), and do much to project the mood of a film based on fantasy.

Whereas a good special effect creates an illusion of reality without letting the audience know of the deception, the camera *trick* makes no attempt to disguise itself. It is judged on the basis of its originality, appropriateness, and technical smoothness. An audience rather enjoys being tricked—but the trickery must be carried off with a professional finish or the whole effect will be cancelled out. At no time should the “wires behind the scenes” be allowed to show through and thus steal attention from the subject matter of the story.

Camera tricks require detailed pre-planning. Rather than being thrown indiscriminately into the script, they should be carefully slanted to gain a specific reaction from the audience. If a trick effect is important to the plot, the scenes which precede it should create a suitable build-up to that effect.

Before a particular trick is attempted, tests should be made and information assembled so that the mechanics of technique will be as nearly perfect as possible. Nothing is as distracting to an audience as a trick that doesn't quite come off.

We shall discuss some of the cinematic tricks which may be executed with standard camera equipment, and which are especially effective in lending a professional touch to the screen presentation.

### Upside-down Filming

*Upside-down filming*, one of the oldest of all camera effects, has been used cleverly and clumsily ever since pictures first began to move on the screen—but it is still an effective device if correctly applied.

The basic mechanics are simple. A camera is mounted upside-down on a special tripod head bracket which may be adapted from the standard head with very little trouble. The scene is shot normally, and after the film has been processed, that scene is cut out and mounted right side-up. When it is projected, the action will seem to be going backwards.

The old *cliché* in the use of this effect (and one which is still good for a laugh in the usual sports film) is, of course, the shot of the diver who suddenly seems

to rear up out of the water and flip himself back onto the diving board. Variations of this trick have fine comic possibilities if specially tailored to fit the story.

Let us say, for instance, that you are making a commercial film for “Crunchies Breakfast Fodder” or some such nutritious concoction. You establish your hero eating his way through a mountain of the stuff, after which he goes out into the yard and, with one mighty leap, bounds to the top of a shed, fence, or other obstacle. Obviously, all that is required to produce this effect is to shoot an upside-down scene of the player jumping down from the height and walking backwards into the house.

The same device can be used as a short-cut to filming certain scenes which might otherwise be difficult to stage. For example, suppose that you wish to film a scene of an arrow flying squarely into the bull's-eye of a new target. Obviously, you would ruin a good many targets by trusting the average marksman's ability to center the arrow. Instead, you would mount your camera upside-down, place the arrow in the bull's-eye just as you want it, tie an invisible thread to the end of the arrow, and, (with the camera running) have someone off-screen suddenly jerk the arrow out of the target. When spliced into the film right side-up, the scene will tell the desired story.

Upside-down filming can also be used to shoot trick titles, such as those which appear to be washed up on shore by a wave, or which materialize out of a pile of children's blocks scattered about the screen.

### Double Exposure

Double-exposing two or more scenes onto the same length of film is a trick widely used in professional filming which has a number of valuable applications.

In a film based on fantasy, dream sequences are often used to convey the hidden thoughts or emotions of a specific character. By double-exposing shots of that character over exaggerated scenes or situations, the idea of unreality can be brought home quite forcefully.

The mechanics of double-exposure are basically simple. The two separate scenes are planned out in advance so that their compositions will complement each other, rather than clash. The first scene is exposed and then the film is rewound (either in the camera or in a darkroom) after which the second scene is exposed

onto the same length of film. Careful exposure control must be maintained so that the two scenes will balance in density and quality.

To achieve the best effect, the principle scene of the two should be lighted so that it contains a relatively dark area where the superimposed image will be placed. The subordinate scene should be played against a completely black background, so that there will be no disturbing overlap of backgrounds.

If a *ghost image* effect is desired, the subordinate scene is under-exposed about a half stop so that it will appear rather transparent, and so that the setting of the principal scene will show through. This device can be used, not only to produce a ghost illusion, but to show a man talking to his own conscience, etc.

Double-exposing color film is relatively difficult, since it involves the problem of color-mixing—but white letters, given sufficient contrast to “burn through,” can be superimposed quite successfully over color backgrounds, thus providing attractive titles.

Because of the possibility of more precise control, *double-printing* is sometimes preferred to *double-exposure*. Instead of exposing both scenes on the same strip of film, they are exposed on separate lengths and then superimposed by printing at the laboratory. The principal advantage is that a greater degree of control can be exercised over balancing the separate scenes so that they have the same quality and density.

### Vanishing Characters

In a comedy or fantasy it is often an effective touch to have a character disappear right in the middle of the scene. This is done by stopping the camera in the midst of the action, allowing the actor to step out of the composition, and then starting the camera again.

Let us say, for example, that we have a sequence in which a magician is to make his assistant disappear. We would start the camera rolling on the scene, and at the instant that the magician waved his wand at the assistant we would stop the camera, the magician would “freeze” his motion and the assistant would step out of the composition. We would then start the camera again and the magician would continue his action. The effect on the screen would be that of the assistant disappearing as the magician waved his wand.

The device can also be used to make objects disappear one-by-one from the scene. To provide a passage of time transition, for instance, you might want to show various courses of a dinner disappearing one-by-one from their plates.

Needless to say, it is equally simple to produce the opposite effect, that of characters or props suddenly appearing in the midst of a scene. It is, of course, essential that you have the camera mounted on a rigid support before attempting this particular trick.

### Fast and Slow Motion

A camera equipped with variable rates of filming speed can be used to create

many effective camera tricks. The basic theory involved is that the faster the scene is photographed (i.e.: the more exposures per second) the slower the action will seem when projected at normal speed. Conversely, the more slowly a scene is photographed, the faster the action will seem when projected.

*Slow motion* is especially effective when used to show the details of action which is normally rather quick. For this reason, it is often used in sports films to show the finer points of diving, skiing, etc. Whereas standard sound speed is 24 frames per second, a rate of 48, 64, or 128 frames per second will produce satisfactory slow motion effects depending upon the degree to which you want to slow down the action.

The device is often used for comic sequences, such as to show the actions of a drunken man or how normal action would appear to his eyes. It is also effective in dream sequences where it is necessary to exaggerate motion in order to convey the proper element of fantasy.

A more utilitarian use of slow motion is to smooth out roughness in scenes taken from automobiles or airplanes. It should be pointed out, however, that any action appearing in such scenes will also be slowed down—often to a ridiculous degree—so that its use should be carefully restricted to scenes which in themselves are static.

*Fast motion* is, of course, the direct opposite of *slow motion*, and it produced

by filming a scene at a rate of 8, 12, or 16 frames per second. It, also, can be used occasionally for comic effect. To burlesque the hustle-bustle of a New York subway, for example, you might show people rushing around and cramming each other into trains at a rate of 8 frames per second.

A more practical application of *fast motion*, however, is the speeding up of chase sequences which cannot safely be filmed at a maximum rate of movement. A car going around a mountain curve at 30 miles per hour is a hair-raising spectacle when shot at 8 or 12 frames per second.

Fast motion can also be used to get spectacular scenes of clouds scurrying across the sky.

#### Single Frame Photography

*Single-frame photography* provides a multitude of possibilities for trick or special effects. The mechanical requirements are not too complicated: namely, a camera with a single-frame lever, and a camera stand or support which is absolutely rigid.

By photographing action a single frame at a time you can telescope a long drawn-out process into a very short period of time. If, for example, you shake up a bottle containing a mixture of water and oil, and you photograph it at the rate of 1 exposure per second, the separation of those two liquids (a process that normally takes several minutes) can be shown in a relatively short time.

Similarly, by exposing a frame at a time during predetermined intervals, you can make a flower appear to unfold quite rapidly, or a plant suddenly shoot up from a tiny sprout in the ground. Two conditions are necessary to accomplish this effect. Firstly, a perfectly rigid camera support must be arranged so that there is absolutely no vibration from frame to frame. Secondly, the light source must be absolutely constant, which means that artificial light, closely controlled by voltage regulation, will give the best results.

Cartoon and figure animation can also be filmed by means of single frame photography. In the case of cartoons, a series of drawings are made to cover a complete action. Each drawing is just a bit different from the other, and they are filmed in continuous order, one frame at a time.

In the case of figure animation, little dolls or puppets or even scientific models are moved a very small distance for each frame, so that, viewed at standard projection speed, they will seem to move quite naturally.

Speaking generally, camera tricks should be carefully plotted and written into the script before a camera turns on the production. Their success will depend upon how appropriate they are to the situation, as well as upon how smoothly they are executed.

NEXT ISSUE: Screen Make-up.

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## Historical Development Of Sound Films

(Continued from Page 235)

tive photographic sound record moving uniformly across the beam, the photoelectric cell being connected to a telephone circuit. This disclosure is interesting in that it mentions the first use of a positive record and also a photoelectric cell for reproducing.

1901: Ernst Ruhmer began publication of his work on sound recording. Since he was a professor, his interest was more academic than commercial. He devised the "photographophon," an instrument something like the sound camera of today. With this he recorded and reproduced speech using arc lights and Gehrke tubes as light sources, and selenium cells in reproducing. His film speed was rather high, being of the order of three meters per second. Ruhmer's original "photographon" and some sound records were brought to this country by the Fox Film Corporation. The apparatus was practical and the records show clear definition of the recorded sounds. Although Ruhmer never commercialized his work, he says in one article:

"For practical uses the application of the photographophon in combination with the kinematograph whereby on one and the same film both motion and speech may be recorded should be kept in mind." Also in another article, "As far as simplicity is concerned the glow light tube surpasses all other previous means for the perception of alternating current curves."

1902: An inventor named Hulsmeyer obtained a patent on producing photographic sound records. This describes "an oscillating mirror which is varied by sound-electric impulses and which reflects a beam through a plate on a photographic strip, through a slit, said plate having a transmission varying in the direction of motion of the reflected beam in proportion to the sine of the angle."

1902: On November 8 a patent application was filed by William Duddell covering a method of variable area recording and reproducing under the title of "An Improved Phonograph." The patent shows a comprehensive knowledge of the subject and mentions making photographic copies.

1903: Wilhelm Asam filed a patent to produce records for photographs using a reflecting diaphragm to modulate a light beam.

1904: F. W. LeTall patented a method for modulating electrically a vapor discharge.

1904: A patent was granted to V. Poulsen (filed in 1901) on a method of magnetizing a moving paramagnetic wire or tape by means of sound waves. It also showed means of demagnetizing or obliterating the magnetic variations along the wire.

1906: Eugene A. Lauste, formerly an Edison employee, with Robert R. Hanes and John S. Pletts filed a patent application on "method and means for simultaneously recording and reproducing

movement and sounds." Although Lauste has been credited by some writers as having the master patent on talking pictures, one is impressed upon examining his patent that he really does not express himself too clearly regarding his technique.

1907: J. F. Dirzuweit patented a photographic method of recording and reproducing sound. He also shows the use of a gas discharge tube for recording. The claims of this patent are rather broad, for instance, "Claim 8—A sound recording apparatus comprising a photosensitive surface and a source of actinic rays movable relative one to the other, and means for exciting said source of actinic rays by and in accordance with sound waves."

1907: Carl Laemmle, of Universal Pictures Corporation, tried to commercialize the "Synchroscope," a system using a phonograph. He achieved some success, but it was found that the regular records used were too short.

1907: Dr. Lee de Forest filed his patent application on the "Audion" covering the addition of a third electrode or grid to the Fleming valve. This became a basic patent of great importance, as it showed the way to make amplification of electrical impulses possible.

1908: A. Manuelli, a resident of Italy, obtained a French patent having "as its object a bicinematographic photophonic machine for public and private displays adapted to insure fixedness of projection, stereoscopic effect, photographic reproduction of sound, etc." He describes a complicated machine using three films.

1908: About this time Edison again brought out another version of his talking picture device, this time called the "Cameraphone." This picture was photographed to synchronize with a phonograph record. As no close-ups were then employed, exact synchronism was not an important factor. It was accepted for a short time only, as a novelty.

1908: J. F. Child patented the making of a photographic record of a manometric gas flame and the use of selenium in reproducing the record.

1910: R. O. P. Berglund, of Sweden, patented recording sound using a mirror attached to a microphone diaphragm, thus modulating a light beam and recording the variations on a sensitive disc or film.

1911: C. C. Timm obtained a Swedish patent similar to that of Berglund.

1911: F. D. Pudumjee, of India, described a method of using a mirror attached to a vibrating diaphragm to produce a photophonograph.

1912: I. H. MacCarty, a resident of the United States, obtained a French patent covering "simultaneous recording by means of photography upon one and the same films of animated views and articulate or other sounds with a view to insure synchronous reproduction of such views and sounds." (His drawing of a combined sound and picture film showed a much keener appreciation of the problem than was shown by Lauste.)

1913: Edison brought out the "Kineto-

phone." This apparatus tried to create synchronism of picture and sound by using a belt connection between a phonograph on the stage and a projector in the picture booth. It had a run of about sixteen weeks in the B. F. Keith theater in New York, but attained no great commercial success.

1913: A patent application for recording sound filed by E. E. Ries was granted in 1923. The following claim from the recording patent gives an idea of its scope: Claim 14—"The method of producing motion pictures and photographic sound records concurrently upon the same photographic film, which consists in moving a photographic film through a camera at a speed adapted to produce a given number of pictures per second, simultaneously moving said film at the same rate per second across the back of a screen having a narrow aperture which exposes the sensitized surface to light in a continuous line or band parallel to the line of pictures and of uniform width throughout its length, limiting the area of exposure to the area of the aperture, and varying the degree of exposure of said line or band in accordance with sound waves impressed upon a sound translating device, whereby said sensitive surface when developed will present adjacent to the pictures a continuous line or band of uniform width and having alternating sections of varying degrees of density of translucency representing continuous waves corresponding to the sound waves impressed upon the sound translating device."

A similar patent covering reproducing was also filed in 1913 and granted in 1926.

In view of the decision in the de Forest-Stanley case, where the Ries reproducing patent was held infringed, it is interesting to note that Ries came to Auburn to see Case in 1923 and offered to sell his patents for one thousand dollars. Also, that opinions by Thompson and Gifford (Mr. Case's patent attorneys) in 1925 were to the effect that it was very doubtful that these patents would be upheld in Court. Ries later sold these patents and several other applications to the de Forest company.

1914: H. G. Stocks filed a patent application covering the process of recording sound photographically by modulating a mercury lamp for the purpose of making an optical phonograph.

1915: H. C. Bullis filed a patent application that was granted in 1920, describing a double system method of recording sound and picture on separate films, running synchronously through a single machine, and the use of marking lights to enable matching of sound and picture after the films were processed.

1916: T. H. Nakken obtained a patent on a means for converting sound waves into light variations; also a patent on means for transforming light impulses into electric current impulses.

The various Nakken patents were purchased by the Warners, after having been offered for sale for some time by the inventor.

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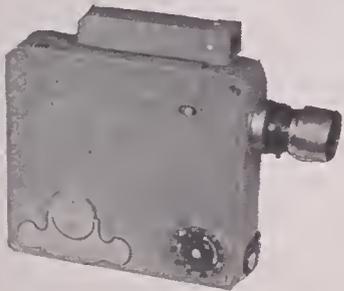
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1918: A. C. Rutzen received a patent to engrave a sound track on a moving picture film adjacent to the picture. J. Ballance received a similar patent in 1906. Again in 1926, E. H. Foley proposed the use of a separate film for an engraved sound record. None of these methods has been practical. F. L. Madelar cut his record on the back of the film in the nitrocellulose base with a diamond stylus. Later, similar patents were granted to A. L. Curtis and J. Kaiser.

1918 on: During the summer of this year, experimental work was begun by the German Tri-Ergon group consisting of Josef Engl, Joseph Massole, and Hans Vogt. They worked out a system

of making sound motion pictures using a glow discharge lamp in photographing the sound. The sound was recorded on special film having standard-sized pictures and a space outside of the sprocket holes for the sound band. At the time this system was brought to this country by Fox (1926) it had many novel features but the results were quite inferior to those obtained by Fox-Case methods.

Tri-Ergon obtained about eighteen patents on their system between April 1919 and July 1923. Some of these patents—such as the printing patent, the flywheel patent, and the photoelectric cell patent—were so basic that they later

were the cause of extensive litigation and nearly became controlling factors in sound recording and reproduction. The Supreme Court reviewed the flywheel patent and held it invalid (Mar. 4, 1935).

1918 on: J. Tykociner, at the University of Illinois, worked out a system for producing talking pictures. This work was quite academic and no attempt was made to commercialize it. Variable-density recording was used. Sound and picture were combined on the same film, the sound track being placed inside the sprocket holes and adjacent to the pictures. The system was called "Phonactinon." The sound was recorded by modulating luminous gas discharge devices. Tykociner's paper contains a rather extensive discussion on recording sound. He made several demonstrations before scientific societies. Later he suggested a novel means of recording that was considered quite seriously by Case at one time. This consisted of forming a glow discharge between two closely spaced semi-conductors in air. The separation of the electrodes acted somewhat like a slit, in that it limited the area of exposure on a photographic film placed adjacent to the glow. So far as I know, the merit of this method of recording has never been verified.

1920: D. A. Whitson filed a patent application for producing sound records by passing a beam of light through a Kerr cell, and modulating the latter magnetically, the resulting light being photographed on a moving film through a slit.

1921: Prof. H. O. Rankine, of England, worked out a method of recording sound photographically using a constant light source and controlling the light beam from this source by means of a mechanical "light valve." He used one fixed grid and one movable unit that was controlled by the sound impinging upon a microphone diaphragm. This work was academic and in the nature of a laboratory demonstration.

1921: Grindell Matthews devised a mechanical method of recording sound photographically by producing vibrations of a beam of light from a constant light source.

1921: A demonstration by Professors Aurbenius and Montellius was described in the London Times, Sept. 24, 1921. Two films were used, one for picture and one for sound. They were run in separate machines geared together. The sound record was produced in a manner similar to that employed by Matthews.

1923: The Peterson-Poulsen system was worked out in Denmark. It used a variable-area method of sound recording on a separate film run synchronously with camera and projector. The sound record was made using an oscillograph and a small slit. The process was exploited by Tonfilm, in Germany. The reproducer used a selenium cell.

1923: A United States patent was issued to E. Peterson, showing a variety of arrangements of a magnetic wire imbedded in the marginal portion of a motion picture film.

(Continued in August Issue)

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| 4. Feather Touch Adjusting Handle (U. S. Patent) | 10. Automatic Leg Adjustment                 |
| 5. Double-Action Auto-Lock (Pat. Pending)        | 11. Finger Grip Carrying Handle              |
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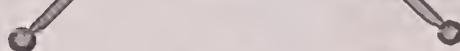
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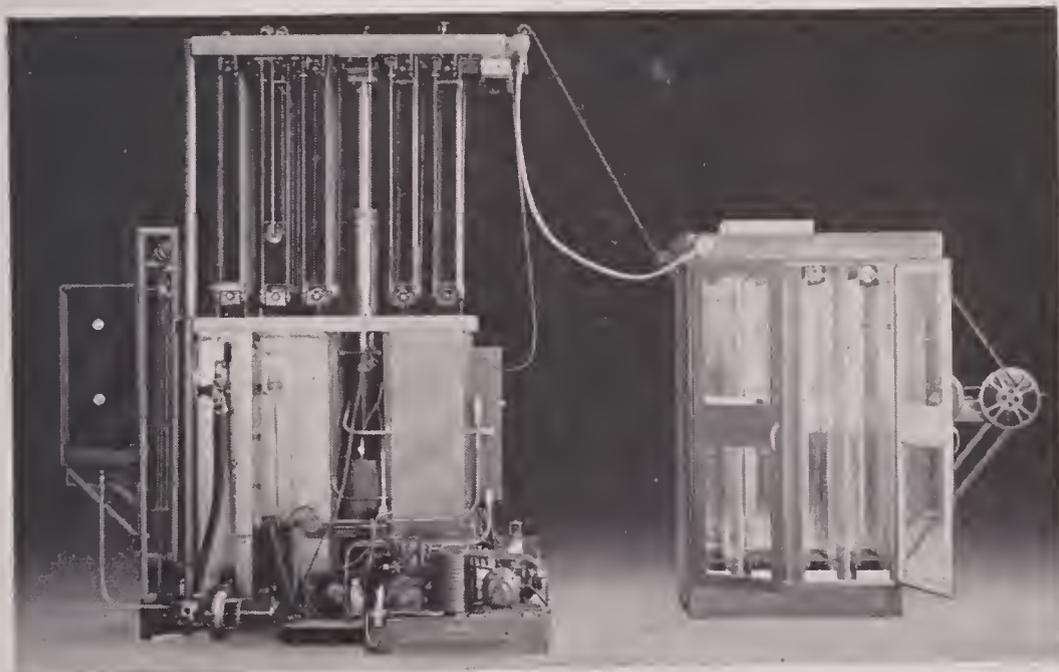
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# AMONG THE MOVIE CLUBS

## Alhambra La Casa

Tenth anniversary of the La Casa Movie Club, Alhambra, California, was held on night of June 16th at the YMCA Building, with capacity audience attending to participate in the festivities. No less than 18 short reels of various subjects were shown by members, including: Hugh S. Wallace, R. H. Rollins, D. M. Gardner, A. S. Litch, A. J. Zeman, R. L. Johns, D. A. Powell, Mrs. R. L. Johns, William F. Axtman, H. A. McHenry, R. A. Battles, Andrew G. Orear, H. P. Carnahan, L. M. Miller, L. W. Lantz, John H. Clay, and C. L. Ritter. Huge birthday cake was cut by Mrs. Frank A. Manuel.

Interesting information disclosed in club bulletin is fact that La Casa has membership of more than 250 representing 21 cities; and average meeting attendance this year was 247. A record which should make the officers very proud!

## Utah Cine Arts

Ted Pope chaired the May 21st meeting of Utah Cine Arts Club of Salt Lake City, and also delivered an explanatory talk on the new tape recording methods for the adding of sound to both 8 and 16 mm. amateur films. A surprise picture opened the meeting—to get members in their seats on time—and other films shown included "France V.E. Day," by new member Earl N. Dorius; and "A Vacation in Honolulu," by Ray Sudberry, another new member.

Prize winning films from other clubs comprised the film program for the June 18th meeting, including "In One Generation," filmed by Utah Amateur Movie Club; "Gold Is Where You Find It," by Dick Thiriott; and "Desert Life," by Henry E. Hird. Al Londema provided the surprise film to launch the meeting.

## Los Angeles Cinema

Special feature of the June 2nd meeting of Los Angeles Cinema Club was "The Trip Had No Ending," a scenario travelogue presented by Charles M. Peters in which his wife and himself were the principal actors in a trip that started in a mountain blizzard, and terminated in blistering Death Valley. Other films on the program were: "Alaska," presentation of a friend's color picture of that country by Max Laney; "America the Beautiful," an excellent picture secured by Mildred Caldwell; and "Squeaky," by Walter Bergmann of Mt. Vernon, N.Y.

Club's dinner and midyear contest awards will be staged on July 7th. Entries for the contest closed on June 25th, with large number of members' films submitted.

## Victoria Amateur Cine

Despite its great distance from the United States, and the large number of amateur clubs in metropolitan cities, Victorian Amateur Cine Society of Melbourne, Australia, appears to be a most progressive organization that can hold its own—in point of activities and accomplishments—with any similar club in this country. Victorian maintains its own clubrooms and theatre, holding meetings every Wednesday night. Currently, members are completing a club production, "Hubby Gets a Hobby," which was produced on Sundays for best availability of production crew and cast.

Junior Trophy competition entries were screened on May 7th, at which time films were entered from members who have been non-winners in any contest. On May 28th, Les Greenhill presented a lecture—with 16 mm. film and 35 mm. slides, on Rodondo Island, a hitherto inaccessible spot.

## Brooklyn Amateur

Charles Benjamin was re-elected president of the Brooklyn Amateur Cine Club at annual election held at May 28th meeting. Other officers include: Eugene E. Adams, vice president; Albert Groman, treasurer; Mrs. Frances Guthman, secretary; and Irving Gittel, Herbert Erles, and Horace Guthman, directors.

Before winding up activities for the summer months, Brooklyn Amateur staged a number of meetings and parties to make up for the layoff period. On May 7th, George A. Valentine of Glenbrook, Conn., provided a program of excellent 8 mm. pictures; for the May 21st meeting, Ralph E. Gray, F.A.C.L., presented his "Paricutin," "Typical Time in the Tropics," and "Primitive Patzcuaro;" on May 28th, in addition to the annual election, film program consisted of "New York Calling," by Fred Beach; and "Kaleidoscopio," by Mr. Machada.

June 4th was "First Film Night," with members asked to dig in their collections and dust off the first films made by the individuals. Pictures dusted off included: "Kids at Play," by Arthur Gross; "Life With Mother," by Louis Dishotsky; "Fox Outing," by Irving Gittel; "Airport," by Sam Fass; and a reel by Anthony R. Barbaro.

Annual dinner party of the club was held at the Village Barn in Greenwich Village on evening of June 20th, and was voted a huge success. On July 20th, members will be guests at the home of the Jay Fox's at Seaford, L.I., for the annual club picnic and weenie roast.

## New York Eight

Ninth annual guest meeting of New York Eight M.M. Motion Picture Club proved to be a huge success, with total paid attendance of 275 enjoying a fine program of films.

Pictures screened included: "The Artist," by George Valentine; Harlan Weber's "Pinocchio's Jack-O'Lantern," "Alpine Vixen," by Anchor Jensen; "George Washington Slept Here," by Mr. and Mrs. Edward Roesken; "It's All Over," by Terry Manos; "The Magnificent Accident," by Mr. and Mrs. Raymond J. Berger; and "Escape," by Harry Atwood of Arizona. Show netted a profit of \$38.47.

## Philadelphia Cinema

Film program for the June 10th meeting of Philadelphia Cinema Club, held in Little theatre of Franklin Institute, comprised "Capping the Climax," by G. A. de Valle; and "Bryce Canyon and Zion Park," by Belford Neff. Discussion period was staged, with experts answering questions and advising on proper film-making practices. On June 15th, club members visited the Morris Arboretum to point cameras at the roses and other flowers in bloom.



Portion of the 130 members and guests attending recent meeting of the Brooklyn Amateur Cine Club, when Ralph Gray presented a special showing of his films on Mexico.



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## Minneapolis Octo-Cine

Eighth anniversary party of Minneapolis Octo-Cine Guild was held on evening of June 24th in Colonial Room of the Hasty-Tasty; and event was one of the few times during the year that wives, girl friends and guests were invited to club doings. Following dinner, entertainment program of films was exhibited, and anniversary cake and coffee climaxed the meeting. Club's annual show will be staged in November, with committee chairman Dr. Lindahl currently lining up subjects for the program.

## Seattle Amateur

Correct methods of editing movies highlighted the June 10th meeting of Seattle Amateur Movie Club; with explanatory talks augmented by display of various types of splicers, viewers, and rewinds. Film displaying the proper use of the pola screen was exhibited, in addition to several pictures supplied by members.

## San Francisco Cinema

"Here and There in America," by Larry Duggan, and "Japan After V.J. Day," by Captain Carl W. Hudson of United Air Lines, provided a splendid film program for the June 17th meeting of Cinema Club of San Francisco, held at the Women's City Club.

Films exhibited at the May 20th meeting included "A Motor Trip to Mexico," by M. L. Dreyfus, and "Skagit," a kodachrome scenic of the mountain region back of Seattle.

## Walla Walla Cinema

Head of the Miller Studios turned up with two pretty models—a blonde and a brunette—at the May 26th meeting of Walla Walla Cinema and Camera Club for a lighting demonstration on both black-and-white and kodachrome shots. Four sequences have been completed for the club movie, according to bulletin; and only titles require to be shot to complete the enterprise.

## San Francisco Westwood

Film program for the May 23rd meeting of Westwood Movie Club of San Francisco included: "Bryce National Park and Grand Canyon," by member Eric Unmack—a winner in the 1946 Union Pacific contest; "Birth of a Nation," courtesy of L. C. Mueller; and "The Tacklebusters," by Edward Kentera. Special midyear contest closed in June, with number of entries getting under the wire for the non-edited film contest of 50 feet of 8 mm. and 100 feet of 16 mm.

## Los Angeles Eight

Ladies' 50 foot contest entries featured the June 10th meeting of Los Angeles 8 MM. Club, held at Arden Farms clubhouse. Harold McEvers is chairman of the Sunday outing travel committee, which is lining up points of interest nearby for group camera trips.

# INGENIOUS CAMERAMAN CATCHES CLOSEUP OF BOWLING BALL IN ACTION



1. Paramount News Cameraman Lou Hutt mounts DeVry movie camera on roller skate and checks focus for difficulty "take" ahead.



2. Hutt "aims" up the alley and traces slowly the course he and his DeVry camera will shortly take full speed behind the ball.



3. Barefoot and intent. Hutt races after the ball, the DeVry camera on its "roller-skate" dolly recording the action.



4. With pins flying everywhere, Hutt's ingenuity and a DeVry camera have filmed a close-up of a bowling ball in action.

# New Master Kodaslide Projector



Eastman Kodak announces a new Master model Kodaslide projector, which company states will be available through dealers within the next several weeks.

Suitable for uses ranging all the way from home to theatrical projection, the Master Model is supplied with a 1000-watt projection lamp and may be used with any of four other lamps of from 300 to 750 watts. Five projection lenses are available for use with it: a 5-inch f/2.3 Projection Ektar; a 7½-inch f/2.3 Projection Ektar; an 11-inch f/3.7 Projection Ektar; a 5-inch f/3.5 Projection Ektanon, and a 7½-inch f/4 Projection Ektanon.

Interchangeable condenser lenses insure maximum efficiency with whatever type projection lens is used. Condenser and projection lenses are Lumenized—coated with a microscopically thin layer of magnesium fluoride to reduce internal reflection and increase light transmission. The most efficient type heat-absorbing glass available is employed in this optical system.

As a result, pictures projected with the Master Model have added brilliance, clarity, and contrast because of the increased illumination and the definition provided by the Ektar and Ektanon lenses.

In addition to the heat-absorbing glass, pressurized air helps guard transparencies against excessive heat. The

fan is designed to send three separate blasts of air past the lamp, the condenser system, and the slide itself. The slide carrier and film gate are so designed that the blast of air directed at the slide passes both sides of the transparency. Slide temperature, as a result, is no greater than in many projectors using projection lamps of wattages as low as 150.

Made of die-cast aluminum and attractively finished in two shades of gray, the Master Model is extremely simple to operate. The lens focusing is controlled by turning the barrel, and a single knob controls the tilting mechanism. A carrying case is provided with the projector.

Used with a 1000-watt bulb, the Master Model will project a transparency 76 feet with the 5-inch f/2.3 Ektar lens, yielding a screen image 228 inches wide. The 11-inch f/3.7 Ektar will throw an image 192 inches wide 140 feet.

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# THE CAPTIVATION OF CLOUDS

By JAMES R. OSWALD

FROM the time an amateur movie maker first takes his newly acquired cine camera in hand and traditionally pans the distant horizon in a 180 degree sweep, it's undoubtedly the fleecy-white cloud-filled sky that has subconsciously, or otherwise, attracted his inexperienced eye toward the scene chosen for this initial attempt at movie making. Or maybe he's not the run-of-the-mill amateur, and has selected, instead, a carefully picked landscape, a rippling lake or stream, or a shaded country lane, to furnish atmosphere for his action shots. But beginner or advanced filmer, it cannot be denied that clouds have to be given credit for adding tremendously to the pictorial qualities of the scene.

More often than not, however, in black and white filming, those beautiful cloud formations which so greatly enhanced the picturesqueness of the scene in real life, and thus were given a preference in film frame area as viewed through the camera's viewfinder, result on the screen as totally blank spaces, entirely void of any indication of clouds. Sooner or later, after a few such experiences, a series of doubts as to the reliability of modern cine cameras, film emulsions, and even processing methods, in bringing out the true-to-lifeness of a scene are set forth. The disgruntled movie maker usually gives out with something like this: "I've got a good camera. I use standard brands of film. Yet those

clouds that played such a prominent part in the original scheme of things are missing. Why, why, why?"

Well, of course, it's neither the camera, the film, nor the processing that's at fault, though it must be recognized that film has certain limitations in comparison with the human eye . . . limitations which must be compensated for if the resultant screen image is to have a perfect resemblance to the original scene. When proper compensation is made, not only is it possible to record faithfully all those desired cloud formations with the simplest of home movie cameras, but, for special effects, such as storm scenes or night scenes, the clouds may be dramatized and overemphasized to almost any degree desired, when it is important that they dominate the scene.

The secret of capturing clouds on black and white films (color films under ordinary circumstances are fully capable of doing a faithful job just as they are) lies in the use of *color filters*. *Color filters* are so called not because they are capable of adding color to a monochrome film, but rather because they, the filters, themselves, are colored, being available in a variety of shades, and in varying degrees of each hue. They come in either glass or gelatin form, in either case merely being slipped in front of the lens when the exposure is made, and held in place by the mount that supports them. The filters we shall speak of here are intended solely for use with black and

white film, and for the purpose of providing a more true black and white rendition of the original scene, particularly of the clouds in which we are primarily interested. The uses of special purpose filters, however, a familiar one of which is the Kodachrome haze filter, are many and varied, each serving a definite purpose, but beyond the scope of this article on *clouds*.

The purpose of color in a filter, then, is to balance or make up for certain deficiencies in black and white film. These are not defects in any particular film, but a characteristic of *all* emulsions.

Sunlight contains vast amounts of ultra-violet, violet, and blue rays, to which all photographic films are especially sensitive. Panchromatic emulsions are also capable of recording the green, yellow, orange, and red light of the spectrum, in lesser degrees. But since both white clouds and blue sky contain such an abundance of light to which all films respond, ultra-violet, violet, and blue, if enough exposure is given to show detail in the rest of the scene, ordinarily we should not be able to distinguish between the clouds and the sky. A way must be found, then, of differentiating between clouds and sky so they will record in their true relationship to each other, unless intentionally accentuated. And herein lies the solution . . . the proper filter, of course.

While white clouds and blue sky both



contain ultra-violet, violet, and blue light, there is a definite difference between the two. The clouds, being white, in reality contain a great deal of green and red light, while that from the blue sky does not. By providing a means, then, of preventing most of the ultra-violet, violet, and blue light, which both the white clouds and the blue sky have in common, from registering on the film, while at the same time permitting the exposure to be made by the green and red light of the clouds, which the blue sky does not possess, we have a decided way of making the clouds appear whiter than the sky in the finished film.

What color filter will serve this purpose? A *yellow* filter's the one to use, in this case. This is because yellow is the color that results if ultra-violet, violet, and blue are removed from white light, it therefore being the *complement* of these colors. Consequently, when placed over the camera's lens, a filter of this color *holds back* the ultra-violet, violet, and blue light, at the same time letting the desirable colors, green and red, pass and register on the film. Thus, the overall rendition of black and white color values is preserved by this *balancing of the emulsion* at the time of exposure.

From this it may be readily seen, too, that by using filters of various shades of yellow, decidedly different effects may be obtained in the finished film, while a red filter provides those highly dramatic effects, with an extremely darkened sky, white clouds predominating. Since only panchromatic type emulsions are sensitive to red, however, a red filter must only be used with such films.

Obviously, the very fact that a filter is colored, and decreases the total amount of light reaching the film, suggests that an increase in exposure time is necessary over that required when not using a filter. The amount of increase depends, naturally, upon the density of the filter, itself, as well as the sensitivity of the film with which it is being used. This increase is known as the *filter factor*. Thus, for example, if a filter has a factor of 2, twice the exposure must be given the scene when that particular filter is used than would otherwise be required without it. The filter factor always accompanies the filter, or may be easily obtained from the manufacturer or through various charts or data sheets. Most authorities agree that, for all practical purposes, if but one filter is to be selected, yellow is the best all-around color to use.

Sunrises and sunsets are about the only scenes in which a filter is not necessary to record the clouds. But even in these two widely separated examples, the difference between one of these shots filmed without a filter and one filmed with one, is beyond comparison. Whether you're in mountainous terrain, down at the seashore, or filming in your own back yard, any shot where clouds are prominent is a *better* shot with a filter!



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# A PRACTICAL COMBINATION SUNSHADE-MATTE BOX

BY AL LINKO

The master of light and shade in Hollywood no sooner would think of shooting without a lens hood than grandpa could be persuaded to doff his long flannel underwear. Their many years behind a camera have taught them that this accessory is an indispensable "must" in their bag of tricks.

Adding other features to its earliest form, they have created the flexible

"matte-box" of today. In order to render it more effective they add another hood and pay particular attention to shielding the sun and "gobbing" their lighting units. That all this additional "annoyance" pays dividends in quality is doubtless proven on the screen of your local theatre. The definition, the absence of flare, the wholesome depth, and roundness of their product attests to the ap-

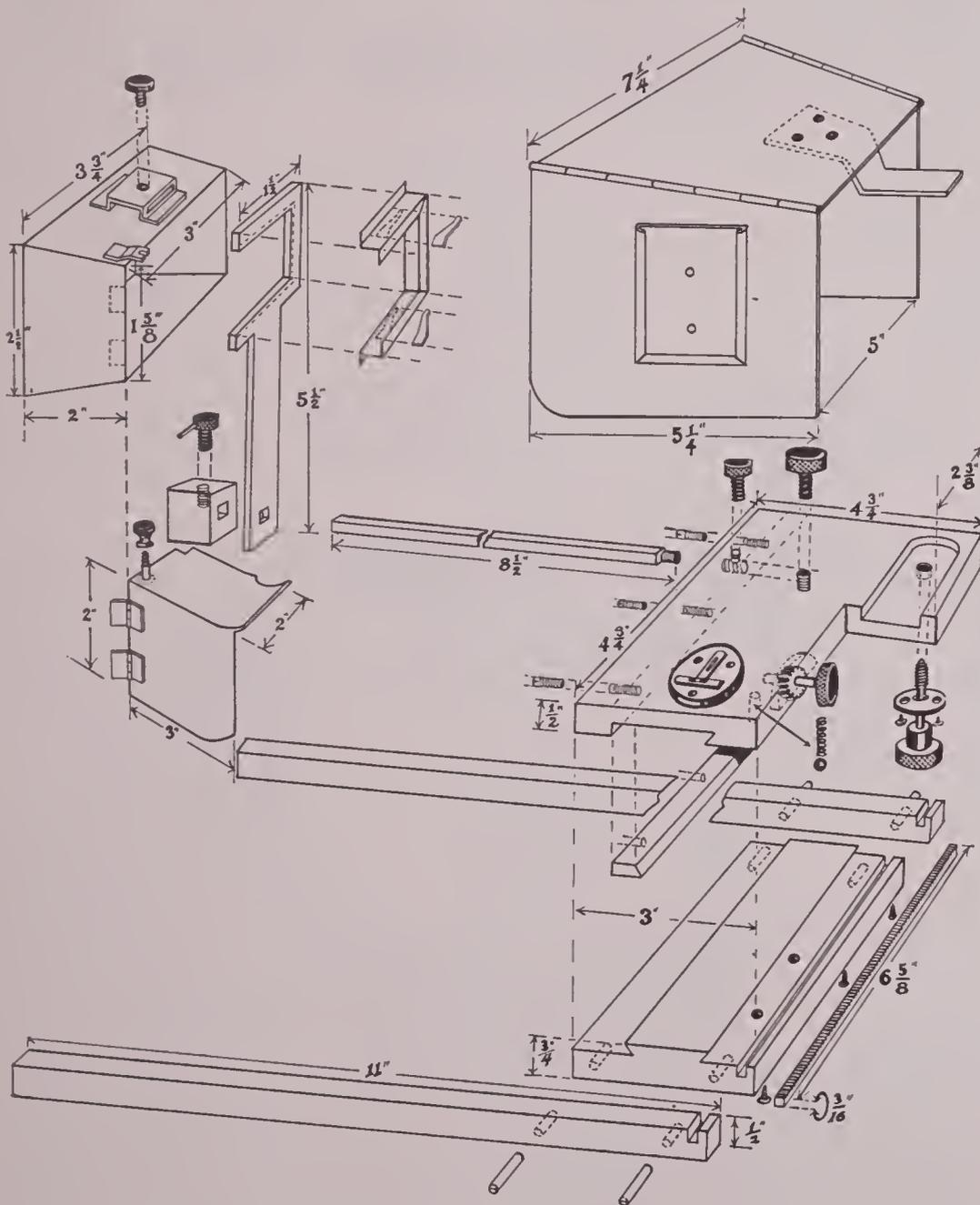
plied efforts of these camera aces.

The comparison between two shots of a scene—one with a hood and one without—will convince the most callous "doubting Thomas." Amateurs particularly will find startling improvement in their results if they would heed this precaution when shooting. I have seen 16mm. film both black-and-white and Kodachrome that defy comparison with 35mm. film when said 16mm. film was exposed with due care for shielding the lens. I set out to do something about it, and the result is the cinematic gadget pictured here. True, it has been augmented somewhat, but only because of the need for other conveniences which were desired at the time. The "gadget," as I refer to it with reverence, is doing more than was originally hoped for.

It was desired to combine the matte-box with a sliding arrangement for alignment of close-ups and titles, and that the combination along with the camera could be mounted on any amateur tripod. This feature is appreciated today when it is necessary to make a quick change to a baby tripod, for example, for a simple turn of the lock-screw frees the entire assembly instantly.

A piece of soft steel  $\frac{3}{4}$ "x3"x5 $\frac{3}{4}$ " served to cut the base to which are added the side arms. A hole is drilled into the bottom and tapped to take a standard tripod screw. For the sliding top to which the camera is secured, a piece  $\frac{1}{2}$ "x4 $\frac{3}{4}$ "x4 $\frac{3}{4}$ " was used. The dovetail joint was then machined to the dimensions indicated. Those readers who have no access to a metal-working shop may have their cutting done by any machinist or, if so desired, the assembly may be constructed of laminated sheets. The remainder of the work is readily accomplished with a few simple tools.

The female member of the dovetail assembly was machined to permit adjustment for tension, as illustrated. This is highly recommended for two reasons: First, the work of cutting need not be so very exacting as would be necessary for any individual camera. Secondly, with a tension adjustment there is no "sag" to the camera in either the viewing or shooting positions. The screws entering the front of the block perform



Detailed drawing for construction of the combination sunshade-matte box.

(Continued on Page 260)



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**HYPAN FILM**

## "Lubitsch Touch"

(Continued from Page 239)

be as simple as the manufacture of shirts or pup tents, according to Mr. Lubitsch.

The Lubitsch touch? It's best described by its creator himself when he gave this answer to an inquiring reporter:

"What exactly, you ask me, is the

Lubitsch touch? It's the king in his bedroom with his suspenders hanging: it's the gondola hauling garbage in Venice while the gondolier sings romantically in the moonlight: it's the husband bidding his wife a melancholy good-bye and then dashing madly for the nearest telephone booth. It's naughty and it's gay. It's based on the theory that at least twice a day the most dignified of human beings is ridiculous."

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## PANORAM DOLLYS BLIMP GEARED HEADS BLIMPS for MITCHELL CAMERAS

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## Ampro's British Manufacture Of 16mm. Projectors

Ampro Corporation of Chicago has completed arrangements for the manufacture and distribution of Ampro 16mm. silent and sound projectors in Great Britain. Manufacture of Ampro equipment will be handled by Kelvin, Bottomly and Baird, Ltd., of Glasgow, Scotland; while Henry Hughes & Sons Ltd. of London will take care of the optical systems required. Both companies have fine reputations for precision craftsmanship.

Newly-formed British company, "Simplex-Ampro, Ltd.," will direct sales of the Ampro projectors in Great Britain, Ireland and the Continental markets. Contracts for the British manufacture of Ampro 16 mm. projectors, from design and specifications of the company in Chicago result from the affiliation of Ampro with its parent company, General Precision Equipment Co., and is in line with plans for developing worldwide expansion programs of the product.

## New B&L Vice Presidents

Ivan L. Nixon and Ben A. Ramaker were elected vice-presidents of Bausch & Lomb Optical Company at recent meeting of company's board of directors. Officers re-elected include: M. Herbert Eisenhart, president; Joseph F. Taylor, vice-president and treasurer; Carl L. Bausch, Theodore B. Drescher, and Carl S. Hallauer, vice-presidents, and Edmond S. LaRose, comptroller.

## Modern Language Instruction Via Soundfilms

Series of ten 400-foot reels of 16mm. soundfilms have been compiled for the teaching of French, and are now available to schools and colleges for newest method of instruction. Under trademark of Langofilm, series was written and produced by Adolphe Pervey, currently assistant professor of French at Swarthmore College, Pa.

## Bell to Paris For Westrex

William L. Bell has been appointed European recording manager for Westrex Corporation, and is currently setting up headquarters in Paris. Westrex is the foreign motion picture equipment and service subsidiary of Western Electric Co.



- \* Linear response makes processing easier especially on density recordings.
  - \* Flat frequency response.
  - \* Requires only 300 milliwatts for full modulation.
  - Can be biased for noise reduction.
  - \* Compact and light weight.
  - \* Mounts in any position. V bed and locking gib permit track position adjustment.
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  - \* Rugged vibrator unit. Will withstand overloads without harm. No strings to break.
  - \* May be used for 16 m/m or 35 m/m tracks.
  - \* Image .070 wide x .0003 thick.
  - \* Proven performance. Hundreds of similar units are now making recordings in the popular Aurican Cameras and Recorders.
- Price \$450.00 F.O.B. Los Angeles.

We also make 16mm Sound Cameras and Recorders, Blimps and Synchronous Motor-drives for the Cine-Kodak Special, and the Automatic Parallax View-range Finder.

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## NEW PRODUCT

Briskin 8 mm. camera is the latest to enter the field of the minnie field. Important feature is magazine loading which eliminates threading, and provides for instant change from color to black-and-white. Ted Briskin, former president of Revere Camera Corporation, is president of the new enterprise; while film star Betty Hutton (Mrs. Ted Briskin) is vice president.

Craig Manufacturing Co. of Los Angeles is again marketing the pre-war senior splicer for 8 and 16 mm. films.

Wollensak Optical is now producing the full line of new Raptar lenses for both still and motion picture photography. Raptar lenses will supersede the Velostigmat lenses which will no longer be made.

George K. Culbertson Company is making immediate deliveries of Fidelity dual turntable, which allows 16 mm. sound projector owners to add continuous sound accompaniment to silent films.

Radiant Manufacturing Co. of Chicago has just issued a new catalogue describing and illustrating the many types and models of projection screens manufactured under the Radiant trade mark. It is designed as a handy reference guide, containing charts showing screen sizes, lens focal lengths, audience capacities and seating plans.

Peerless Camera Stores of New York will introduce and market new photographic products under the Peerless brand name. Initial item is the Peerless Movie Kit.

American Bolex Co. will handle exclusive distribution of Ambolac, a new film preserver which can be applied to film without special equipment.

## EASTMAN KODAK Super X MOVIE FILM at BARGAIN PRICES!

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100 Ft. Roll 16mm \$295

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Some dealers are offering war surplus machines as new models. These 1942 surplus machines will not handle modern film. They were not designed for that purpose.

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All lenses released by Bausch & Lomb are *uniformly* corrected for aberrations—coma, astigmatism, curvature of field, and distortion, and checked for resolving power and focal length, to insure *uniformly high quality* lens performance—an important factor in establishing American-made Bausch & Lomb photographic lenses as the ultimate in quality among photographers everywhere.

## BAUSCH & LOMB

OPTICAL COMPANY  ROCHESTER 2, N. Y.

## Sunshade—Matte Box

(Continued from Page 256)

this function. Another hole for a  $\frac{1}{4}$ " bolt is drilled and tapped to receive the "iris-bar" upon which the matte-box rides. Thumb screws lock the iris-bar and rack-over.

The rack and pinion assembly was restored from an otherwise worthless view camera only after efforts to cut the parts accurately failed. It is important that the parts mesh perfectly, of course.

The rearmost projection on the female sliding piece is recessed to permit snug mounting of the camera. The importance of good routing here cannot be over-emphasized, since, if properly done, the camera may be discounted at will and replaced with assurance that alignment has not been altered. This is convenient, for example, when it is necessary to re-load bulk film in a darkroom or when testing for superimpositions, etc. A



The assembled accessory, showing mounting procedure.

U-shaped metal piece screwed to the member would substitute for the routing—this for the man without equipment. A  $\frac{5}{16}$ " hole is then drilled to receive a standard tripod screw. A washer underneath retains the screw and prevents its dropping out. A  $\frac{3}{16}$ " hole is drilled  $\frac{3}{8}$ " deep into the underside of the female member to accommodate a spring and ball bearing. As the member is moved across the base, the bearing under tension from the spring, rides with it and engages one of two circular niches; one for finder alignment, the other for lens alignment. Locating the latter is accomplished by placing a piece of ground glass or tissue in the camera gate, carefully centering on a focus test card, and marking the spot to be drilled. Having done this the camera is moved to the right as far as it is necessary to place the finder in the same relative position as that occupied by the objective, as viewed on the card. This spot is then marked and the niches drilled to a depth of  $\frac{3}{32}$ ", just enough to engage the bearing without lodging it. A T-type level is screwed to the side nearest the operator. The rack is secured in the base in a recess by means of screws inserted from underneath.

The side arms provide a means of mounting celluloid cloud filters, large mattes, vignettes, gobos, or lightweight fill-in lamps near the lens. The parts were then cadmium plated to prevent corrosion and the unit reassembled. Some of the moving parts will require some working over since the thin coat of plating hampers smooth operation. A bit of

steel wool rubbed over the offending surfaces will usually eliminate the roughness.

For the matte-box proper,  $\frac{1}{32}$ " galvanized tin sheeting was used. This material lends itself well to cutting, bending, and soldering, and forms a sturdy unit. Since it was desired to keep three particular lenses on the turret during most of the shooting, a bit of experimenting with cardboard frames was necessary to determine the size of the lens shade and filter receptacle. The latter is just a trifle over  $1\frac{1}{4}$ " square inside and fits flush with the shooting lens without meeting with obstruction from any other combination on the turret.

Brass springs soldered inside the receptacle on top and bottom retain the filter or matte. The addition of the hinged portion offers further protection from stray light and shields the finder lens as well. The upright was cut from sheet steel  $\frac{1}{8}$ " x  $\frac{3}{4}$ " x  $5\frac{1}{2}$ " and soldered to the cubic base properly drilled and filed to slide along the iris-bar.



The author demonstrates its practicability.

A pin inserted in the head of the lock screw facilitates adjustment. The top of the upright is soldered to the lens shade on the front and to the matte receptacle to the rear. Piano hinges riveted to three aluminum sheets comprise the collapsible hood. A discarded flash-gun provided the arm and cleat for quick mounting to the matte-box. The completed matte-box and hood were then covered with a matte crackle-finish paint and baked in a heat-treating oven. A paint that produces a crackle-finish without the necessity of baking is now available.

Four-way brackets built to slide along the side arms are used to mount "dinkie-inkies" or other fill-in lighting units as well as the mattes, etc., mentioned earlier in this article. The gadget weighs about seven pounds complete, is well balanced, and affords smooth steady camera manipulation.

### Long Joins Radiant

George Long has joined the executive staff of Radiant Manufacturing Co. and will handle sales activities in the mid-western area. During the war, he produced many films for the Navy training program.

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## New Sound Re-Recorder Announced by WE

Electrical Research Products division of the Western Electric Company has announced a new re-recorder, the RA-1251, which differs radically in both appearance and design from former conceptions of film re-recording machines for professional 35 mm. work.

The complete machine is installed in a panel type cabinet which may in turn be mounted on a cabinet of similar appearance containing a loop rack for loops up to 30 feet in length. Facilities for use of reels are also provided in the main cabinet. Glass doors permit observation of operation while excluding dust. This package not only permits installation of a greater number of re-recording units in a given space, but by its functional design greatly facilitates operation and maintenance.

Employment of a new and novel film pulling mechanism has reduced inherent flutter content to an extremely low point. The flutter generated by the RA-1251 does not exceed 0.05 percent in any particular frequency band, with total flutter no more than 0.07 percent.

Accurate fixing of the loop is assured by an automatic loop setter which obviates observance of a threading guide or any similar device during threading. To further assure precise operating synchronization, a motor disconnect clutch permits the operator to thread the synchronous starting mark on the film at any point in sight and then roll the mark to the scanning point by pressure of a push-button which provides positive de-clutching. In this way, the driving machines may be set in proper position for starting.

During operation, the RA-1251 may be adjusted by as much as two sprocket holes by a simple adjustment which is made on the front of the main casing. Its method of vernier synchronization gives accuracy of better than one sprocket hole.

The main casing of this re-recorder, containing optics, scanner assembly, and filter arms, is isolated by special mounts from the driving equipment, reducing vibration in the optical system to a minimum.

The optical system, itself, is capable of uniformly scanning within a db any track width falling within the 220 mil scanning beam, making possible the scanning of all existing types of 100 mil and 200 mil tracks without moving optics or film. The frequency response closely approximates the theoretical for a one mil slit.

Greatly simplified rewinding is provided by the separate motor driving unit which is arranged to supply rewind to the upper reel. The speed of rewind may be adjusted, while an automatic rewind cutoff stops the rewind motor when the film is completely rewound.

Designed in close cooperation with the motionpicture industry, the RA-1251 Re-recorder marks an advance in the sound recording field.

## Monson Retires From Ampro

Axel Monson, founder of Ampro Corporation and president since its inception more than 32 years ago, is retiring from active duties, according to company announcement. He will retain his connection with Ampro as chairman of the board, in addition to functioning in a consulting capacity.

A. J. Palmer, former vice president of General Precision Equipment Corporation, Ampro's parent company, will succeed Monson as president and general manager. Monson has long been recognized as a pioneer in the development and production of 8 and 16 mm. silent, and 16 mm. sound projectors.

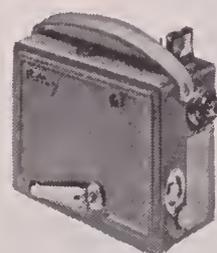
## T. Albert Potter Elected to Bell & Howell Board

J. H. McNabb, Bell & Howell Company President and Board Chairman, has announced the recent election of Mr. T. Albert Potter, President of Elgin National Watch Company, as a Director of Bell & Howell Company.

According to Mr. McNabb, the election of Mr. Potter should prove highly advantageous to both companies inasmuch as "many problems peculiar to high-precision manufacture are shared in common by Elgin National Watch and Bell & Howell, and the closer liaison between executives of the two firms should show gratifying results."

## DeVry Projectors on Matson Ships

DeVry film projectors and sound systems are currently being installed on passenger ships of Matson Navigation Co., which ply between west coast ports and Hawaii, Samoa, Fiji, New Zealand and Australia. Movies will provide major entertainment for passengers during the trans-Pacific crossings.



Write for colorful literature on DeVRY 16mm. and 35mm. movie cameras; also DeVRY's movie snap street cameras.

DeVry Corporation  
1111 Armitage, Chicago 14  
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## U. S. Films Entered in Brussels World Film Festival

Total of 23 non-theatrical film subjects in 16 mm. size have been entered in the World Film & Fine Arts Festival in Brussels by the Committee on American entries. Latter committee was appointed by William F. Kruse, president of the Allied Non-Theatrical Film Association. Among the group of films shipped were nine produced by various government departments, and 14 made as commercial and educational subjects.

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# Miniatures and Puppets Used in Religious Film



Animation, miniatures and puppets were utilized for production of "The Way To Peace," a religious picture. At left: Wilbur George (center) is busy on animation sketches while Carl Ryan and William King work on the set. On right: Wah Ming Chang focuses the camera as art director Blanding Sloan puts some final touches on the miniature set.

"The Way to Peace" is a religious picture produced by Wah Ming Chang and Blanding Sloan of the East West Studio, Los Angeles, for the Wartburg Press of Columbus, Ohio.

The story was written and directed by Frank Tashlin from the original conception and technical supervision of Rev. H. K. Rasbach of Christian Films in connection with the American Lutheran Church. The musical score was composed and conducted by Eddison von Ottenfeld in accompaniment to the narration by Lew Ayres. Blanding Sloan rendered the art direction while Wah Ming Chang conceived the puppet design and accomplished the photography—with a staff to

assist both—being Carl Ryan and William King (puppet makers), Wilbur George (set maker), Richard Lord (prop maker), and Gene Warren and Herbert Johnson (animators). The composite of audio-visual mediums were expertly edited to this completed film by Stuart O'Brien. Glen Chang, wife of Mr. Chang, is credited with doing the stills.

The picture, made with miniatures and puppets and taking some eight months to produce, is very interesting and well done. The montages, lighting and lap dissolves are quite perfect. The story is timely and holding. Beginning with the creation of the earth and of human beings, then came a sequence depicting the

walls of hate that grew in men's hearts. This was very well told in a montage of animated blocks and creeping shadows.

Several beautiful scenes portraying the Star in the East and the locale around the birth of Christ, his teachings to the multitudes, crucifixion, etc. . . . but by this time we had almost forgotten that the actors were little puppets and the scenes but little miniatures that would hardly cover the top of a table.

The last sequence of "The Way of Peace" is quite terrifying for it dwells on the modern atomic bomb and the gradual destruction of all mankind, ending up with the earth but a burning mass whirling off into space.

The picture, while religious, is universal, for it does not speak of or show any beliefs, creeds or denominations whatsoever. It is a picture in its entirety for the grown-ups; it has a message against hate for them and the teenagers; but for the smaller children, I feel any father or mother would want to show them the picture minus the atomic sequence, and this much of the picture I think will become a classic to exhibit around Easter and Christmas time.

*Reviewed by Glenn R. Kershner, A.S.C.*

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This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The blimp has these exclusive features: • follow focus attachment for changing lens calibrations while the camera is in operation • viewing magnifier mounted on top of blimp for focusing while camera is mounted in blimp • arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp • pilot lights to illuminate lens calibrations and film footage indicator.

Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

Manufactured exclusively by the Makers of "Professional Junior" Tripods and Other Fine Camera Accessories.



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## Two Worlds in Technicolor

(Continued from Page 237)

device known as the *camera obscura*. Appearing in a motion picture for the first time, this clever arrangement of mirrors and prisms reflects on the screen of a darkened room a panoramic view of the countryside surrounding the "hobby tower" of one of the characters in the story. The mechanics necessary to simulate this effect involved the development of several new techniques of trick projection.

At several points in the film, miniatures are used to provide long shots of some of the more spectacular sets, but they blend in so perfectly with the real thing that there is no effect of unreality. The escalator is shown several times in this manner; and in the heavenly trial sequence, as the camera begins to pull back from the set, there is a dissolve to a super-long shot of the amphitheatre (in reality a miniature), which blends in smoothly with shots of the actual set.

"Stairway to Heaven" is an example of top-notch entertainment combined with a craftsmanship that shines proudly from every frame. In itself it is a tribute to the skill and good taste of Messrs. Rank, Powell, and Pressburger—who prove in this sparkling length of celluloid that it is possible to combine "art" with "box office."

## Photography Wins!

The art of photography, whether it be still or cinema, can "make unbelievable realities believable." This fact is pointed out in an article appearing in Time Magazine of June 2nd, 1947, page 53, which is printed in full by special permission below:

### Camera v. Brush

The snow-capped spine of the U.S. and the grandeurs of the West must be seen to be believed. This week Fortune readers got the next best thing: pictures of western national parks through the eyes of four artists and a photographer. The photographer won.

The artists had done their best. Surrealist Max Ernst contributed a waxy "translation" of Utah's Bryce Canyon. Jane Berlandina's abstractions of the Sierra peaks were appropriately lonely and cool, inappropriately pretty. David Fredenthal had taken a pack trip into the gouged, crumpled high country of Glacier National Park. Dong Kingman had made Grand Teton Mountain burst like a cloud-breathing dragon out of the plain, but the mile-deep solidity of its pine-covered ribs had escaped him.

The cold glass eye of Ansel Adams' camera, however, recorded precisely what it saw. The results helped explain why, since the perfection of photography, artists have come to scorn "naturalism" in painting, and wandered off into the by-paths of impressionism, abstraction and surrealism. When it came to making unbelievable realities believable, the camera had it all over the brush.

# Houston Processing Machines Used the World Over

In almost a score of foreign countries, Houston machines are now serving to process films where special technical excellence is wanted. Regularly, new names are being added to the list.

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Highest quality film processing under full automatic control. Constant temperature of solutions thermostatically maintained by heat-cooling coils. Economical operation.

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HOUSTON MODEL 11 . . . for daylight processing of 16mm positive, negative or reversal film up to 22 feet per minute.



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# Current Assignments of A. S. C. Members

As this issue of AMERICAN CINEMATOGRAPHER goes to press, members of the A.S.C. were engaged as Directors of Photography in the Hollywood studios as follows:

## Columbia

Vincent Farrar, "It Had to be You," with Ginger Rogers, Cornel Wilde, Ron Randall, Percy Waram, Spring Byington.

Charles Lawton, Jr., "I Love Trouble," with Franchot Tone, Janet Blair, Janis Carter, Lynn Merrick.

Henry Freulich, "When a Girl's Beautiful," with Adele Jergens, Marc Platt, Stephen Dunne, Patricia White.

Joseph Walker, "The Mating of Millie McGonicle," with Evelyn Keyes, Glenn Ford.

## Eagle-Lion

Jack Greenhalgh, "Adventures of Casanova," with Arturo de Cordova, Noreen Nash, Lucille Bremer, Turhan Bey, John Sutton, George Tobias, Lloyd Corrigan, Fritz Leiber.

## Enterprise

Russell Harlan, "They Passed This Way," with Joel McCrea, Frances Dee, Charles Bickford, Joseph Calleia.

## Metro-Goldwyn-Mayer

Harry Stradling, "The Pirate," (Technicolor) with July Garland, Gene Kelly, Walter Slezak, Gladys Cooper, Jerry Bergen, Ellen Ross.

Robert Planck, "Cass Timberlane," with Spencer Tracy, Lana Turner, Mary

Astor, Cameron Mitchell, Albert Dekker, Margaret Lindsay.

Robert Surtees, "The Kissing Bandit," (Technicolor) with Frank Sinatra, Kathryn Grayson, J. Carrol Naish, Sono Osato, Mildred Natwick, Edna Skinner, Billy Gilbert, Mikhail Rasumny.

George Folsey, "If Winter Comes," with Walter Pidgeon, Deborah Kerr, Angela Lansbury, Binnie Barnes, Reginald Owen, Janet Leigh, Rhys Williams.

Charles Rosher, "On An Island With You," (Technicolor) with Esther Williams, Peter Lawford, Jimmy Durante, Ricardo Montalban, Cyd Charisse, Xavier Cugat.

Joseph Ruttenberg, "Killer McCoy," with Mickey Rooney, Elizabeth Taylor, Brian Donlevy, James Dunn.

## Paramount

Ray Rennahan, "Whispering Smith," (Technicolor) with Alan Ladd, Robert Preston, Donald Crisp, Brenda Marshall, William Demarest, Fay Holden, Frank Faylen, J. Farrell MacDonald, John Eldredge.

Daniel Fapp, "Dream Girl," with Betty Hutton, Macdonald Carey, Virginia Field, Patric Knowles, John Abbott, Walter Abel, Peggy Wood.

## Republic

Tony Gaudio, "The Red Pony," (Feldman-Milestone Group Prod.) with Myrna Loy, Robert Mitchum, Louis Calhern.

## RKO

George Barnes, "Mourning Becomes Electra," with Rosalind Russell, Michael Redgrave, Raymond Massey, Katina Paxinou, Henry Hull, Nancy Coleman.

Lucien Ballard, "Memory of Love," with Dana Andrews, Merle Oberon, Ethel Barrymore, Hoagy Carmichael, Artur Rubinstein.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Prod.) with Cary Grant, Loretta Young, David Niven, Monty Woolley, Elsa Lanchester, James Gleason, Isabel Jewel.

Nick Musuraca, "I Remember Mama," with Irene Dunne, Barbara Bel Geddes, Oscar Homolka, Philip Dorn, Sir Cedric Hardwicke.

J. Roy Hunt, "Return of the Badman," with Randolph Scott, Anne Jeffreys, Gabby Hayes, Robert Ryan, Robert Armstrong.

## Selznick

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Cecil Kellaway, David Wayne, Albert Sharp.

## Twentieth Century-Fox

Joseph LaShelle, "The Foxes of Harrow," with Rex Harrison, Maureen O'Hara, Richard Haydn, Gene Lockhart, Vanessa Brown, Victor McLaglen, Hugo Haas, Dennis Hoey, Charles Irwin.

Harry Jackson, "Off to Buffalo," (Technicolor) with Nancy Guild, Dan Dailey, Charles Winninger, Fay Bainter, Charles Ruggles, Charles Russell, Jane Nigh, Sig Ruman.

Lee Garmes, "Nightmare Alley," with Tyrone Power, Joan Blondell, Helen

Walker, Coleen Gray, Ian Keith, Mike Mazurki, Taylor Holmes.

Arthur Miller, "Gentleman's Agreement," with Gregory Peck, Dorothy McGuire, John Garfield, Anne Revere.

Charles Clarke, "Green Grass of Wyoming," (Technicolor) with Peggy Cummins, Charles Coburn, Burl Ives, Lloyd Nolan.

Benjamin Kline, "Roses Are Red," (Sol Wurtzel Prod.) with Don Castle, Peggy Knudsen, Patricia Knight, Joe Sawyer.

Leon Shamroy, "Daisy Kenyon," with Joan Crawford, Dana Andrews, Henry Fonda, Peggy Ann Garner.

## United Artists

Lucien Andriot, "Intrigue," (Star Films) with George Raft, June Havoc, Helena Carter, Dan Seymour, Marvin Miller, Tom Tully, Phillip Ahn.

James Wong Howe, "The Time of Your Life," (William Cagney Prod.) with James Cagney, William Bendix, Jean Cagney, Wayne Morris, James Barton, Gale Page.

Joseph Valentine, "Sleep My Love," (Triangle Prod.) with Claudette Colbert, Robert Cummings, Don Ameche, Rita Johnson, Keye Luke, Maria San Marco.

Mack Stengler, "Coward's Castle," (Hopalong Cassidy Prod.) with William Boyd, Andy Clyde, Rand Brooks, Mary Sawdon.

## Universal-International

Frank Planer, "The Exile," (Fairbanks Company Prod.) with Douglas Fairbanks, Jr., Maria Montez, Paule Croset, Nigel Bruce, Robert Coote, Henry Daniel, William Trenk, Otto Waldis, Alla Dunn, Michele Haley, Janna DeLoss.

Russell Metty, "Ride the Pink Horse," with Robert Montgomery, Wanda Hendrix, Andrea King, Thomas Gomez, Fred Clark, Richard Gaines.

Lionel Lindon, "Tap Roots," (Technicolor) (George Marshall Prod. presented by Walter Wanger) with Van Heflin, Susan Hayward, Boris Karloff, Julie London, Ward Bond.

Milton Krasner, "Imagination," (Kanin Prod.) with Ronald Coleman, Signe Hasso, Edmond O'Brien, Ray Collins, Philip Lobe.

## Warners

Ted McCord, "The Treasure of the Sierra Madre," with Humphrey Bogart, Walter Huston, Bruce Bennett, Tim Holt, Barton McLane.

Sid Hickox, "Silver River," with Errol Flynn, Ann Sheridan, Thomas Mitchell, Barton McLane, Tom D'Andrea.

Ernest Haller, "Ever the Beginning," (United States Prod.) with Lilli Palmer, Sam Wanamaker, Akim Tamiroff, Gale Robbins, Hugo Haas, Benny Baker, Stella Adler.

Karl Freund, "Mary Hagan," with Ronald Regan, Shirley Temple, Rory Calhoun, Charles Kemper.

Carl Guthrie, "Love at First Sight," with Joyce Renyolds, Robert Hutton, Cecil Kellaway, Ernest Truex.

Edwood Bredell, "Romance in High C," (Technicolor) (Michael Curtiz Prod.) with Jack Carson, Janis Paige, Oscar Levant, Daris Day, Don DeFore.



# A Super 16mm Sound Projector

By Paul F. Ruckert, Brisbane, Australia

BEING a commercial projectionist as well as a 16 mm enthusiast, I was never completely satisfied with the appearance and performance of any available 16 mm sound projectors. As most commercial 16 mm sound jobs had been made for amateur use, therefore being as light and portable as possible, I decided the only way to get a projector suitable for 16 mm commercial use, was to build one to 35 mm specifications. As the projector is entirely for theatre use, size and weight was unimportant. Therefore suitable 35 mm parts were used where possible, and the finished 16 mm. projector is impressive in appearance and performance.

A Kodak E E was chosen for the film movement, as all guides sprockets rollers, and gate are already made to take sound film. The E E was virtually stripped to the film movement; the base, spool arms, motor drive, and lamp being removed.

The movement was then mounted onto an old 35 mm soundhead which was bolted to a standard 35 mm solid base. A 1/4 H.P. A.C. motor is used for the drive, and the motor spindle was extended to take an 8 inch fan for blower, to keep gate and film cool. A standard 35 mm high intensity arc, and lamp-house is used for projection, thus eliminating the yellow light given out by projection lamps. Two 35 mm spool boxes neatly take 1600 ft. reels of 16 mm film.



The super EE 16mm. projector built by Paul Ruckert.

A third sprocket was added for the sound head, which is built to usual 16 mm standards, consisting of a flywheel weighted drum, and a series of spring loaded rollers to eliminate "wow." The optical system is not conventional, as it uses the scanning method instead of the usual projected slit. In this method the image of the sound track is projected onto a slit in front of the photo cell.

In projection, change-overs from 35 mm to 16 mm are not noticed, as this Super-16 projector has been carefully matched to 35 mm standards.

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Close-up, showing how blower is directed on back of gate.

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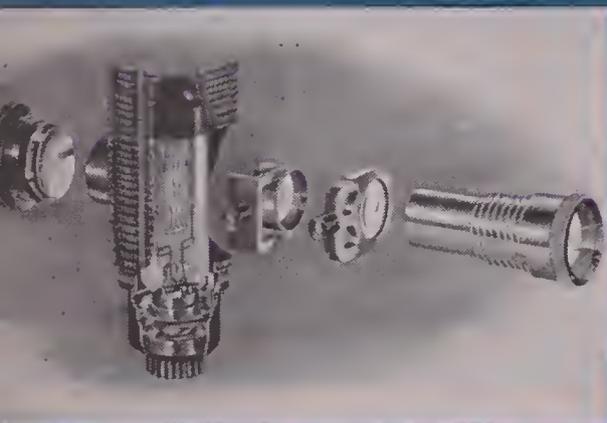
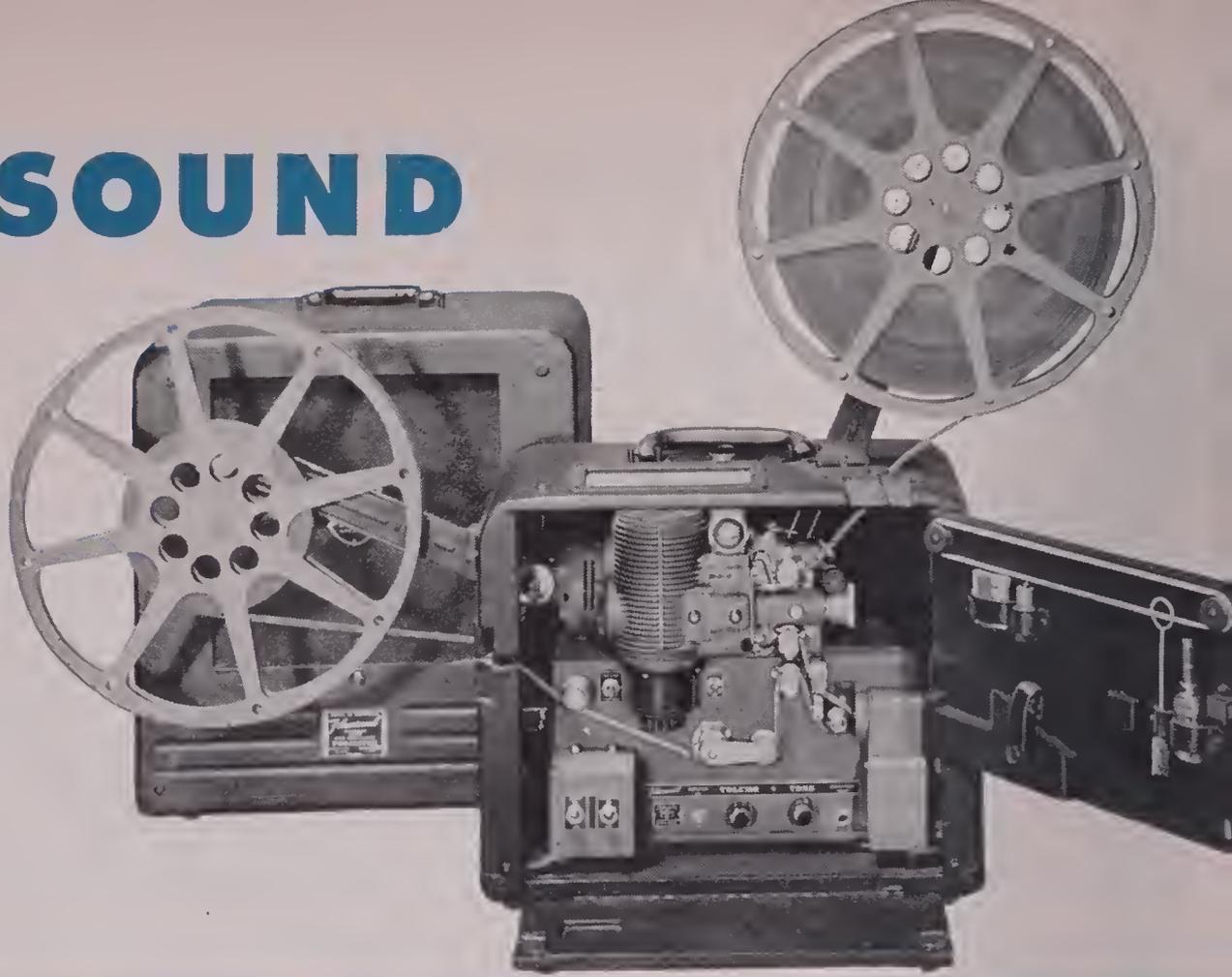
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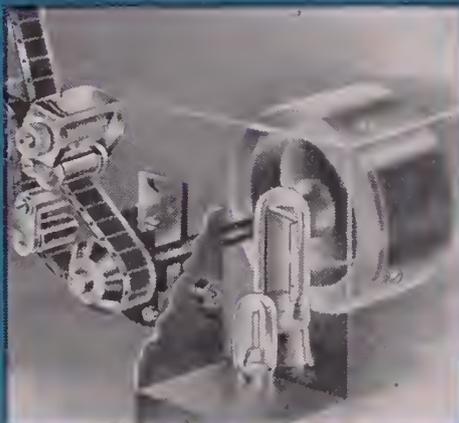
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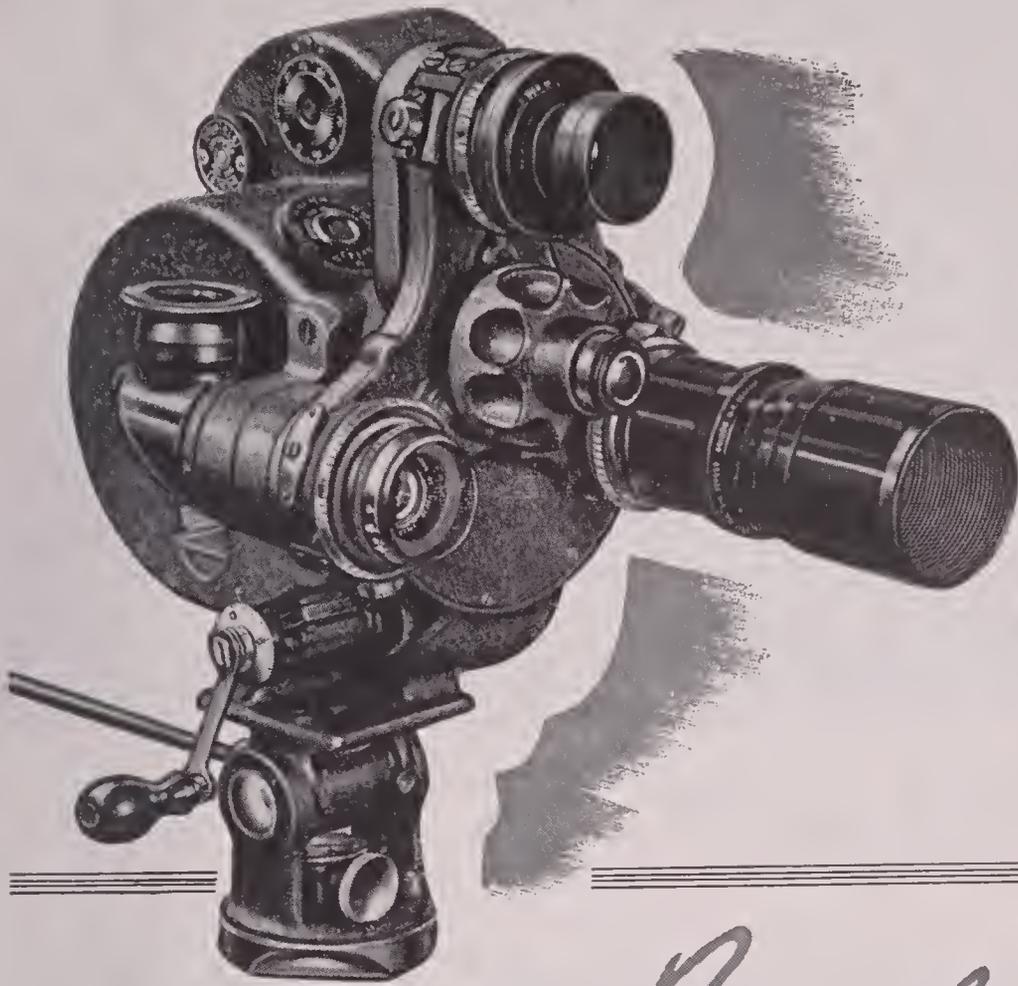


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# AMERICAN KODAK INEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

AUGUST, 1947

NO. 8

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ON THE FRONT COVER—Karl Freund, A.S.C., checks final light meter reading for the Romeo and Juliet balcony scene in "Mary Hagen," Warner Bros. production starring Shirley Temple. Latter is shown on the balcony with Freund, while Ray Montgomery portrays Romeo.



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Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1947 by A. S. C. Agency, Inc.

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# A New Color Tester For 16mm Kodachrome Duplicates

By WILSON LEAHY, A.S.C.

(Acme Film Laboratories, Hollywood)

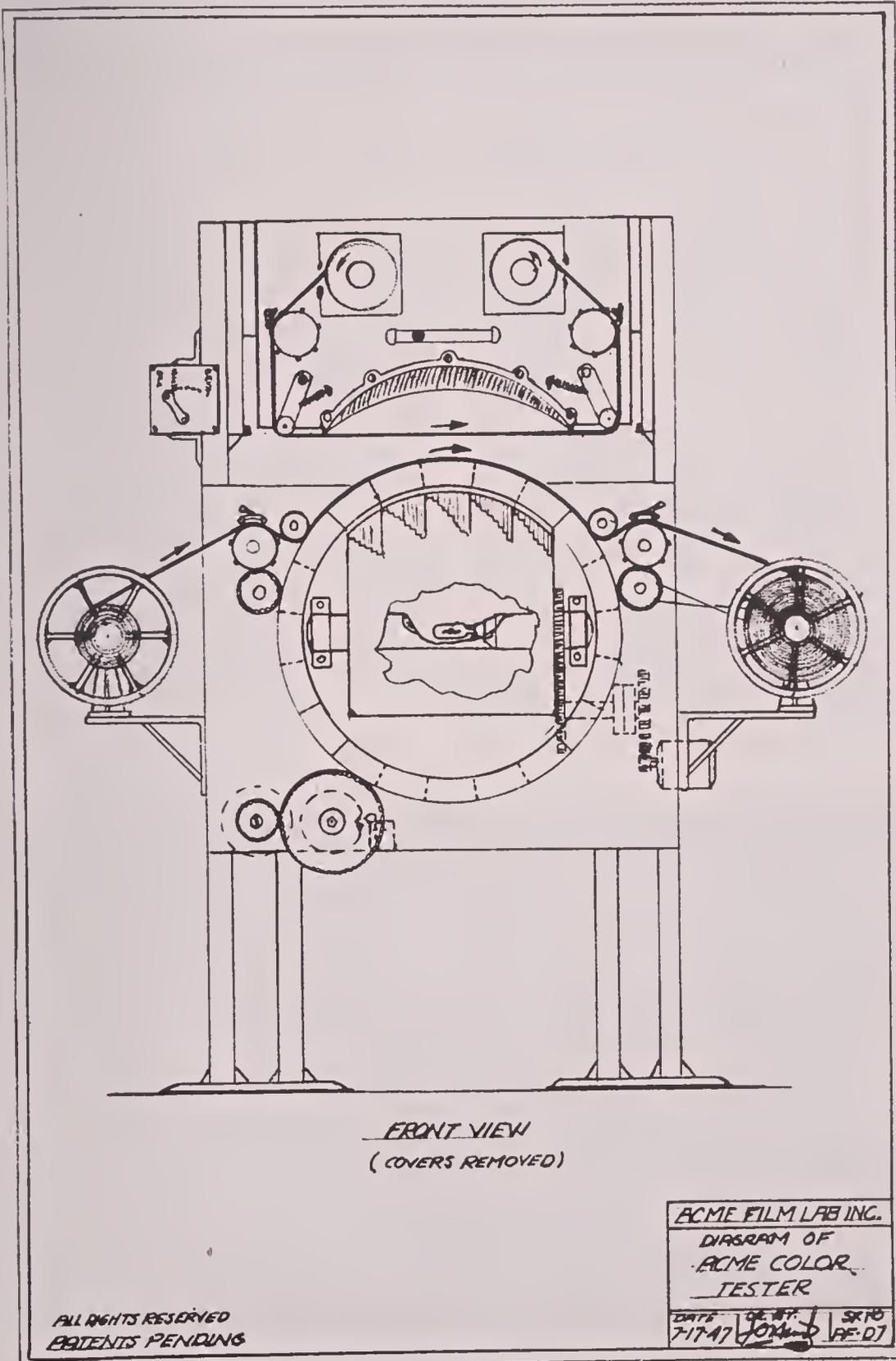


Diagram of 16 mm. kodachrome color tester designed by Acme Film Laboratories.

YEARS ago, the writer was made painfully conscious of a sign erected just inside the main gate of what was then the largest motion picture studio in the world. It read, "Being an expert is making the most of the tools you have, however inadequate." The precept was no doubt inspired by the necessity of making a little go a long way in those early days of picture pioneering. At any rate, to one then engaged in film processing, the sign carried a special significance; due principally to the fact that the tools supplied and considered adequate by the management generally consisted of a hoe, a rubber band and sweat supplied free by the employee.

In many ways there is a marked analogy when comparison is made of the printing and processing of black-and-white in the early twenties and the commercial printing of kodachrome duplicates today. It can be stated, and proven, that in at least one phase of the operation, the technique employed today is not as advanced or efficient as the earlier catch-as-catch-can methods of the silent days. Specifically that phase is timing of the print.

Most of our conclusions are based on experience and the result of long observation. This is particularly true of photographic processes, which are conceived and then refined by tedious trial and error, until controls are established and optimum quality obtained. The timing of a print in film laboratory procedure has always been a delicate operation, requiring exact coordination of chemical, mechanical and human factors. Without a lengthy dissertation it can be accepted as fact that the operating economy—and the very reputation of a film laboratory—rests on such coordination, and that furthermore, in all the multiform aspects of the camera-to-screen application of photographic technique, the timer stands the highest in importance.

Years ago all timing was done by eye. There was no predetermination of density by the use of a graduated strip such as a Cinex test. Development of negatives and positives was by visual examination as well, and developing times were affected first by the fact that a cameraman had no standards to which he could time his exposure and second by the inevitable errors of eye development. The result was negatives of disuniform density and contrast and the condition was further aggravated by eye timing of the print. When the Cinex Tester was adopted, some alleviation was found; at least to a degree that one human factor was eliminated and the usual bilious appearing film took on some semblance of craftsmanship. In the end it was applied sensitometric and pH controls which brought relief by stabilizing solutions, but the graduated strip for timing is still the dominant element in print uniformity.

It can readily be seen by the foregoing that it required time, ingenuity, and

(Continued on Page 298)

# "ODD MAN OUT"

## Suspense In Black and White

By HERB A. LIGHTMAN

**I**N a review of the current Universal-International release, "Odd Man Out," Life magazine's usually conservative reviewer kicks over the traces to observe: "Few movie-makers will see 'Odd Man Out' without being envious, and few movie-goers will leave the theatre without being impressed."

Critics both here and abroad have been even more outspoken in their praise of this fine British film, comparing it favorably to John Ford's masterpiece, "The Informer." They heap well-deserved praise upon the shoulders of director Carol Reed ("The Stars Look Down," "Night Train," "The True Glory"), and leading man James Mason ("The Man in Grey," "The Seventh Veil," "Wicked Lady"). They agree quite unanimously with press releases that call the film: "an adventure in unbearable suspense."

Actually, it is far more than that. It is a *tour de force* of creative cinema—probably the finest example of pure filmic mood to hit our screens so far this year from England.

### Story Behind the Script

"Odd Man Out," adapted from the F. L. Green novel of the same name, is a moral melodrama woven upon a framework of that most stimulating of dramatic devices, the *chase*. It is the somber story of Johnny MacQueen, idealistic leader of an Irish revolutionary organization, who accidentally kills a man during a mill robbery and is relentlessly

pursued by the police for a hair-raising eight hours, finally being killed at midnight just as he is about to make his escape.

The film is a drama of character rather than plot. The protagonist, a sympathetic but rather neutral personality, is the catalyst to a number of incisively sketched situations. As he flees from one shaky refuge to another, he encounters characters (expertly interpreted by the Abbey Theatre Players) who personify a wide gamut of human emotions: fear, love, hate, loyalty, greed and duty.

Thus it is that the film takes on an allegorical symbolism which lifts it far out of the category of mere chase melodrama. Its stature as cinematic art springs from the professional integrity of director Reed and cinematographer Robert Krasker, both of whom were intent upon holding a mirror up to Nature—no matter how unglamorous that might be.

### Imaginative Camerawork

The photography in "Odd Man Out" is of an excellence that prompted Life's reviewer to write: "There has not been such lighting and imaginative use of the camera since Orson Welles's 'Citizen Kane'."

Indeed, the camerawork in the photography is pretty much in a class by itself. It is a fine blend of realism and technical smoothness. It is a separate artistic entity—and yet it merges smoothly with direction, script and action to result in a perfectly blended production. Krasker's

photography is alive with a vital realism, yet unlike the harsh documentary brand of realism, it has depth and finish.

A good bit of the action was filmed in Belfast and in the streets of suburban London. Here, art direction could not achieve its usual miracles as compositional ally to the cinematography—yet Krasker, by intelligent placing of his camera, evolved some striking compositions. He took full advantage of the converging lines formed by rows of urban tenements, of reflections shed by street lights onto damp pavement, of the web-like shadow patterns cast by catwalks and fire-escapes.

Unlike many cinematographers, he did not commit the artistic error of over-lighting his night street scenes. Rather, he spotted in highlights at specific areas, allowing the remainder of the composition to go appropriately dark. One of the most dramatic sequences in the film is that in which the main character is forced to take refuge in a brick air raid shelter. The only light source is a patch of moonlight reflected through the doorway of the shelter. The remainder of the set is thrown into darkness of such a low key that you *sense* rather than *see* the figure cowering against the wall. It would have taken an unmotivated light source to adequately light such a set, but the cinematographer preferred his own pure type of undiluted realism to any such forced device. The sequence is much stronger for it.

The use of the camera to create sus-



One of the tense dramatic moments from "Odd Man Out" (left). This setup is typical of the wide-angle perspective and cross-lighting which add so much to the force of action. At right, soft, low-key lighting provides a somber—yet mellow—atmosphere for interiors of "Odd Man Out." Sever self-conscious, the camera work in this fine British production helps infuse a moral melodrama with the suspense of the chase.



(Left) On the set of the Universal-International release, "Odd Man Out," starring James Mason, with camera crew preparing to shoot a close-up. Seated next to the camera is Director of Photography Robert Krasker; while operating cameraman Russell Thompson makes adjustments through the viewfinder, and director Carol Reed (extreme right) prepares to start the action. At right, the same sequence as it appears on the screen. Stunning realism and flawless photographic technique combine to make this J. Arthur Rank presentation an outstanding photoplay.

pense is admirably demonstrated in the film's opening sequence, during which the band of revolutionists drives to the locale of the robbery, robs the mill, and then drives frantically from the scene of the crime. Here, intercutting of extreme close-ups of the main character's face with weirdly angled shots through the windshield of the rushing automobile creates a pattern of mounting expectancy.

As the gang flees from the scene and the main character, half in and half out of the car, hangs precariously out the door, a subjective use of the camera sharply conveys his sense of panic. We see the whirling pavement as it looks to him, dramatic angles of his henchmen as they try vainly to pull him into the car, the sweating face of the panic-stricken driver too terrified to slow down.

#### Lighting and Camera Angles

The photography in "Odd Man Out" achieves its powerful impact through a combination of low-key lighting, wide-angle compositions, and low camera angles.

The picture's somber theme makes it definitely a low-key subject. Much of the action takes place at night, both in the streets and in dimly lit interior settings. The street scenes are highlighted by simple, direct light sources, forming dramatic patterns of darkness edged with light. Interior sets are lit to simulate light sources such as lanterns, gas lamps, etc. This style of lighting is emphatic because it concentrates audience attention at the focal point of action. Cross-lighting, used quite frequently throughout the film, gives depth and texture to the subjects.

Particularly effective is the use of low angles in dramatic sequences of the picture—especially those which concern the main character, Johnny MacQueen. While the film does not take sides in the political struggle about which the action

revolves, it does portray the central character as an idealistic, almost heroic figure—a man of purpose and dignity. The low angles used in photographing him serve the psychological purpose of enhancing this impression. He is given added stature; he looms importantly into the scene and dominates the action.

The wide-angle lens, too, is employed with extraordinary skill. Its use in the chase sequences forces the perspective of long, labyrinthine tunnels and alleyways, creating a veritable maze of frustrated escape for the protagonist, and deftly utilizing foreground objects to frame powerful compositions.

Although camera movement is held to a minimum, its use in various sequences is smooth and skillfully paced to the action. The photography depicting the main character's hallucination in the artist's studio is perfectly motivated and very well executed from the technical point of view.

#### The Man Behind the Lens

Director of cinematography on "Odd Man Out," Robert Krasker, is a young man whose talent with light and shadow has earned for him the reverent title of "Lighting Expert." It is with this designation that he filmed such recent British film successes as "Henry V," "Caesar and Cleopatra," and "Brief Encounter."

Born in Australia of French and Austrian parents, Krasker received his early schooling in Paris, and remained there to study art. After a brief bout with painting, he decided that the camera was his best artistic medium and went to Germany to study optics, later returning to Paris where Phil Tannura, supervising technical director of Paramount's Joinville studios, gave him a job as an assistant cameraman. Here he worked under the American "ace," Tannura, for his fundamental training.

In 1931, he went to England's Elstree studios as operating cameraman for Alexander Korda. He stayed with Korda

for ten years, during which he operated on such films as "Henry the Eighth" and the H. G. Welles fantasy, "Things to Come."

It was then that history repeated itself in Krasker's career. Just as it was an American cinematographer who gave him his first camera assistant's job—it was also an American producer in Britain who realized that Robert Krasker was ready to take on his first assignment as director of cinematography. Hollywood producer William Siström, who was making "The Saint" series in England, gave Krasker the job of photographing one of them.

He did so finished a job that he began to receive increasingly more important assignments. He photographed two of the late Leslie Howard's last films, "The Gentle Sex" and "The Lamp Still Burns"—after which he was assigned by the J. Arthur Rank organization to photograph Laurence Olivier's monumental production of "Henry V." It was Krasker's dramatic camera angles and striking Technicolor lighting which added so much to the epic sweep of this Shakespearean film.

His next assignment was "Caesar and Cleopatra," in which pastel lighting did so much to accent the desired mood. His last picture before "Odd Man Out" was the Cineguild production of Noel Coward's "Brief Encounter," a film characterized by an extremely artistic type of soft low-key lighting.

Ever the individualist, Krasker has no set style of photography, but prefers to key his cinematic treatment to the particular demands of each subject. He has a definite feel for depth and form which is evident in the three-dimensional modeling he manages to impart to a subject. His early artistic training has given him a flair for composition which brings out the forceful best in each screen situation. But above all, it is his skill in lighting that has made him one

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# HISTORICAL MUSEUM AND INSTITUTE AT EASTMAN HOUSE

THE first museum for the display and demonstration of historical landmarks in the progress of the art and science of all branches of photography, will be established permanently in the palatial Georgian Colonial home of the late George Eastman in Rochester, N. Y. Joint statement announcing the project was made recently by Alan Valentine, president of the University of Rochester, and Thomas J. Hargrave, president of Eastman Kodak Company.

Institute, to be known as George Eastman House, Inc., will be set up as an educational center to serve as an instruction and demonstration project covering photography from its earliest beginnings to its latest developments. In it will be placed the invaluable historical photographic collection assembled over a three decade period by Mr. Eastman and later by Eastman Kodak Company—recognized as the most complete in the world, and covering the entire photographic field.

Anticipated to be in operation within two years, the institute will be more than a museum; as it will also provide a "dynamic demonstration of the history and continuing progress of photography in all its stages." Sponsors hope that it will be "an instructive and internationally renowned collection of photography from its inception through the latest apparatus, processes, and products; and the most interesting historical institute of photography in the world."

At the time of his death, Mr. Eastman willed the 37 room, three story, fire-proof residence with 10 acres of landscaped ground—together with a \$2,000,000 endowment fund for maintenance—to the University of Rochester as a home for the University's president. In turning over the home for the museum, the University will provide other quarters for its president and family.

Structural and architectural changes will be held to a minimum, the announcement states, while cost of such changes, museum contents, and exhibits estimated at \$300,000 value—plus operating cost of about \$100,000 annually—will be contributed by Eastman Kodak Company for minimum period of five years.

Through charter issued by the New York Board of Regents, the institute will be operated as an educational corporation under a board of trustees composed of seven members. This board will be responsible for establishing and operating the institute as a working, teaching enterprise "to instruct in the progress of photography as the world's most facile medium of communication" and "to show how photography plays a manifold part in the progress of nearly all human activities."

Indication of the close interest, although unofficial, that exists between Eastman Kodak Company and University of Rochester is seen in the members of the board for Eastman House, who comprise: Raymond N. Ball, president of Lincoln Rochester Trust Company; Albert K. Chapman, vice president and general manager of Eastman Kodak; James E. Gleason, president of the Gleason

Works; Thomas J. Hargrave, president of Eastman Kodak; Charles F. Hutchison, Kodak executive; Dr. Albert Kaiser, city health officer of Rochester; and University president Valentine. All but Chapman are University trustees.

President Valentine stated: "No memorial could express more appropriately the respect and gratitude we feel toward George Eastman; and no finer use could be made of the home he created and built. It will, we hope, make George Eastman House a cultural center for Rochester and far beyond and a center of those photographic arts of which he was the chief creator. Under this plan, the house should be a living, active, constantly developing cultural force carrying forward the very arts which Mr. Eastman in his lifetime so notably advanced."

Mr. Hargrave, Kodak president, expressed the belief that George Eastman House would draw visitors from all parts of the world and said:

"We anticipate that it will become a focal point for national and international conferences on the art and science of photography; for meetings of many in-

terested groups; for regular educational tours for the school children of Rochester and other communities; for meetings of camera clubs, photographic societies, and other organizations; for exhibitions of the best local, national, and international photographic salons; for demonstrations of the latest apparatus and processes; and for other allied purposes.

"Such an institution with exhibitions, demonstrations, and motion pictures of photographic processes will surely be a mecca not only of the pictorial world, but also of the growing number of people interested in the uses of industrial photography, of photographic magazine editors and technical editors of the press, and other amateur snapshooters."

Scope of Eastman Kodak Company's historical photographic collection embraces the entire photographic field, according to University board of trustees chairman, M. Herbert Eisenhart, who said: "It covers the development of cameras, lenses, and other apparatus; motion picture equipment of all kinds; apparatus for manufacture, testing, control, and research; specimens of all types of photographic processes from the earliest days and also pre-photographic devices such as camera obscura; a very extensive collection of material on the development of color photography; historically important literature; and scientific and technical applications of photography."

Many features of interest, Eisenhart disclosed, include the large collection of Daguerreotypes, Calotypes, the unique collection of wet collodion outfits, albumen prints, large groups of 19th century candid and miniature cameras, and the photographic albums of Victor Hugo, Napoleon III, and Queen Victoria. Historical material shows the development of dry plates and plate cameras, roll film and roll-film cameras, lenses, printing processes, the motion picture camera and projector, and material for color photography. Eastman Kodak will make available a 23,000 volume photographic library—the most complete in existence.

Mr. Eastman's principal benefactions in the fields of education, music, and medicine, for various humanitarian projects, totalled about \$100,000,000.



How a professional photographer of the 1870 period operated. His "portable" wet plate camera also contained a laboratory, where plates had to be developed immediately following exposure. This camera is one of the many in the Eastman collection.

# GEORGE EASTMAN

## His Significance In Photography



**I**N the fall of 1877, a young Rochester bank clerk dipped into his hard-earned savings, bought \$94.36 worth of "sundries and lenses," and paid a local photographer \$5.00 for lessons in "the art of photography."

Luckily, the enthusiasm that impelled the 23-year-old George Eastman to make these investments was not fleeting. He was planning a vacation. Someone suggested that he should take some pictures of his trip. He liked the idea—and when Eastman liked something, he followed it through.

Picture-taking in those days was by no means so simple as it is today. You didn't just take a camera with you; rather, you accompanied the outfit of which the camera was a part—if you were lucky enough to have some means of transport. Otherwise, you toted, pack-horse fashion, a titanic mass—and mess—of equipment that included: a bulky camera and stand; heavy glass plates that had to be sensitized immediately before exposure; bottles of solutions for preparing the plates; a nitrate bath; a water container; and a dark tent in which to sen-

sitize the plates, load them in plate holders, and develop and "fix" them after exposure.

They called it "portable," this cumbersome paraphernalia of the photographer of the 70's. George Eastman gave it a try, and resolved to do something to lighten the load. He began a thorough study of photography and subscribed to the leading photographic publications of that time.

In an English magazine, he read a discussion of the possibilities for gelatine dry plates to supplant the wet plates and make photography less laborious. Soon he was experimenting.

His mother's kitchen sink was the first Eastman "research laboratory." His dry plates were so successful that he decided to market them. By 1880—within three years of his taking up photography as a pastime—he was in business for himself, a one-room, one-helper business on the third floor of a State Street music store. He worked in the bank during the day, prepared his emulsions at night, and coated the glass plates with an apparatus he devised.

Within seven years, George Eastman was manufacturing a roll film. Plates of any kind, wet or dry, were no longer necessary for the amateur photographer.

And within eleven years, a sizeable percentage of the population of the civilized world had either taken a snapshot or been the subject of one.

George Eastman had achieved his goal: the simplification of photography. In doing so, he had introduced an entirely new system: the Kodak system.

The most famous Eastman products is, undoubtedly, the Kodak. The first model was a simple oblong box. It included an instantaneous shutter which was set by pulling a string and released by pressing a button. The camera took round pictures, two-and-a-half inches in diameter and it was loaded for 100 exposures. The price, complete, was \$25. When you had exposed a roll of film, you sent the Kodak back to the factory, along with your check for \$10. There the film was removed, developed, and printed; your camera reloaded and returned to you along with the prints. "You press the button, we do the rest," put the simplicity of the operation into a neat phrase that became the first Eastman slogan.

In 1889, a year after the Kodak made its bow, Eastman and his staff discovered a practical method of producing from nitrocellulose a transparent, flexible film. The invention not only laid the foundations of amateur and professional photography in their broadest senses but also made possible the motion-picture industry.

Thus, by the turn of the century, George Eastman had revolutionized photography and made picture-taking a delight for the millions rather than the burdensome, time-consuming pursuit of the few.

Such, very briefly, were the beginnings of modern photography and the initial

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The Georgian Colonial home of the late George Eastman in Rochester, N. Y. (left) will soon house the most complete photographic collection in existence as a permanent museum. At right, Mr. Eastman, founder of modern photography, and the late Thomas A. Edison, inventor of the motion picture camera, shown together in the Eastman House gardens in 1928.

# HISTORICAL DEVELOPMENT OF SOUND FILMS

By Earl I. Sponable

(Twentieth Century-Fox Film Corp., New York)

## PART 2.

*(This most informative paper was presented by the author at the October, 1946, convention of the Society of Motion Picture Engineers in Hollywood; and published in the April, 1947, issue of the SMPE Journal. It is reprinted through permission of the SMPE, and, because of extended length, will be presented in three or more parts.)*

### Part 2. The Work of Case and de Forest—1911-1925

The results secured by the early workers were, by limitation of existing equipment, rather crude and did little more than demonstrate the principles of sound recording and reproduction. It was Theodore W. Case who, more than anyone else at this time, began to realize that, if sound pictures were to serve as a medium for entertainment, it would be necessary to perfect the system to such an extent that the illusion created in the reproduced sound and pictures be good enough to make one forget the mechanics of the system and think only of the event portrayed. Accordingly, in putting together the Case system each step was studied and developed with the idea of incorporating the best engineering practice available at the time. The way was made easier because of the developments made during the first World War, including improved microphones, better vacuum tubes, amplifiers, loudspeakers, etc.

1911: Case began experimenting on sound recording while a student at Yale. In a letter to his mother, Jan. 22, 1911, he writes: "Most of my time now is taken up in experimenting with my Selenium Cell with the idea in mind of photographing sound waves and using the positive as records for a new kind of Phonograph or rather it would be called a Lithograph I suppose."

And on Feb. 12, 1911 he writes: "Yesterday I at last succeeded in transmitting sound by light. I used the principle of the manometric flame. The eye could not detect the variation of the light at all but it was registered perfectly in the varying of the resistance of the selenium. The reproduction of the voice was perfect. Next, I have to set up an apparatus for my delicate photographing of the light variations. It is very interesting

work and gives me something to do all right."

1913: Case began experimenting at Auburn, New York, and devoted himself to trying to find a practical means of converting light into electricity.

1916: E. I. Sponable, upon graduating from Cornell, joined Case and with him started the Case Research Laboratory. Case's experimental work was moved from the cellar of his home at 196 West Genessee Street to a new laboratory designed by Sponable and built at 205 West Genessee Street. A three-stage audion amplifier was purchased from the de Forest company. This was used to test a large number of crystals and minerals for the property of changing resistance when illuminated. About nineteen new substances were found and studied. It was at this time that Case first met de Forest.

1917: The "Thalofide" Cell (containing a light sensitive change-of-resistance material similar to selenium but a form of thallium oxy-sulfide particularly sensitive to infrared radiation) was discovered. This was used as the receiving element in an infrared signal and communication system developed for and used by the Navy during the first World War. During this time the Case Research Laboratory, working in conjunction with the Naval Experimental Station at New London, Connecticut, was entirely devoted to war work and carried on extensive research in the transmission and amplification of speech and signals in connection with its infrared system.

1918 to 1922: De Forest began work on talking motion pictures. He filed patent applications on methods of recording in 1919, and during 1922 carried on experiments in Germany trying to record sound by modulating a high-frequency gas discharge tube.

1920 to 1922: Case discovered the barium photoelectric cell and began its development. In its final form it was used in a recorder for making permanent records of the light variations of daylight and sunlight.

1920: De Forest purchased Thalofide Cells from the Case Research Laboratory.

Oct. 1922: Case saw de Forest in New York regarding extraneous noises in

Thalofide Cells that de Forest was trying to use for reproducing sound.

Oct. 1922: Case, while in London, witnessed a demonstration of Rankine's experiments in sound recording.

Nov. 1922: Upon his return from abroad, Case was invited by de Forest to visit his studio. De Forest spoke of trouble he was having in trying to record sound with high-frequency discharge tubes. He exhibited and reproduced a short piece of sound film. This was barely understandable. He apparently was about at the stage he speaks of in his SMPE article—"I will remember the grim satisfaction I felt when, for the first time in reproducing a photographic record of my voice, I was able clearly to determine whether or not it was being run backwards!"

Nov. 1922: A crude sound camera was made at the Case Laboratory and a sound picture made of a modulated oxy-acetylene flame. This was the same manometric flame that had previously been developed for use in infrared telephony.

De Forest at this time tried recording with tungsten filament lamps with practically no success. Case suggested to him the use of a hydrogen-filled lamp as having faster reaction. The Case Laboratory made up several hydrogen-filled flashlight lamps for de Forest, and also tried some of them for sound recording using a four-stage amplifier. The results were poor because of the large amount of unmodulated light.

Dec. 1922: De Forest's relations with Case are indicated in the following excerpt from a letter from de Forest to Case:

"As per our telephone conversation I am mailing you today six blanks, two of each capillary diameter. Kindly fill these with nitrogen and exhaust as soft as possible, i.e. to give them maximum brilliancy and minimum voltage. Paint with bronze the two balls at each end of the tube and wrap same carefully with tinfoil and glass. Then apply to these terminals alternating high voltage.

"I hope you can get these tubes to light up at 3000 or 4000 volts. You might put in a needle spark gap in shunt as approximate voltage indicator.

"I suggest that you put a drop of mercury in some of these tubes to see if this does not considerably soften the discharge, at least when the tubes get hot enough to liberate the mercury. I am also requiring you to be so good as to make up two or three ballast resistances using very fine tungsten filament and hydrogen gas. Believe that the bulb lamps are usually filled with hydrogen at atmospheric pressure, but am not informed on this point.

"I believe if I can get a proper ballast system in series with the short filament lamp I can record the voice photographically by this means. This, of course, is an ideally simple matter compared with the high-frequency light.

"I shall await receipt of these tubes and your further suggestions with great interest."

1922: Case found that the gas discharge in an argon-filled vacuum tube whose filament was coated with alkaline earth oxides could be easily modulated at a low voltage, and it seemed to Case suitable for sound recording purposes. This tube had been previously used in his infrared signal system. This observation led to the development of the Aeolight, and was a big step in making this system of sound recording practical. Previous to this discovery by Case, de Forest had been using nitrogen-filled tubes operating on a high-frequency circuit at 3000 to 4000 v and giving a very limited photographic light output. The Aeolight operated on direct current at 200 to 400 v, and gave off radiation which was highly actinic.

1922: A Powers projector was converted into a sound camera at the Case Laboratory. Also the Aeolight was improved by using helium gas instead of argon, thus increasing its actinic light. Soon it was found that these recording lights could be operated without heating their cathodes.

The following abstracts from the Case Research Laboratory records indicate the stages in the development of sound recording during the period from 1923 to 1925, inclusive:

Jan. 10, 1923: A conference was held among Case, Sponable, and Thompson (patent attorney for Case) to discuss the patentability of Helio light (later named Aeolight).

Jan. 11, 1923: It was found that non-oxide coated filaments in vacuum tubes were not good for sound recording and that a cathode discharge was more desirable.

Jan. 13, 1923: Case wrote to de Forest telling him that oxides in the recording lights effected an improvement when the filaments were operated cold. Later it was found that this oxide coating was photo-active.

Jan. 26, 1923: A letter was received by Case from de Forest about the lights containing oxides. It also mentioned trying two small ball electrodes, oxide coated. This proved impractical because the area was not great enough on small ball electrodes and an arc discharge started too easily.

Feb. 10, 1923: Case suggested to de Forest that he remove the lens from the Helio light system to get rid of "blasting" he had been getting.

Feb. 14, 1923: A new sound camera designed by Sponable and built by the Precision Machine Company of New York was completed and first tested. Sound records were made with good results.

Feb. 23, 1923: Case and Sponable visited the de Forest studio in New York. De Forest's first combination of pictures with sound was seen and heard. These were made using Case Helio lights. The forming of a company was discussed and a contract permitting de Forest to make commercial use of Aeolights and Thalofide Cells was negotiated but not signed.

Mar. 5, 1923: De Forest notified Case he had completed eight combination pictures.

Mar. 13, 1923: De Forest exhibited his sound motion pictures to newspaper men at his New York studio. At this exhibition, the sound system included a Case helium-nitrogen filled barium-oxide-coated recording lamp operating on direct current at low voltage and giving a moderately concentrated glow on the plate cathode. A Western Electric amplifier provided the driving power for the Helio light. The Case Thalofide Cell was used in the reproducing system. De Forest, in his discussions with the press, referred to the Case Helio light as his "Photion." The reproduced sound showed bad mechanical motion and poor quality.

Mar. 14, 1923: Case suggested, in connection with his recording lights, the use of an oxide-coated filament as a cathode. This resulted in more light and longer life.

Mar. 17, 1923: De Forest wrote to Case saying that the latter's efforts "to improve his photion light were well justified so Phonofilm could be brought out soon" and that Case was entitled to broad claims on the oxide-coated filament. De Forest said he would give Case full credit for work done in perfecting his Photion tube.

Apr. 4, 1923: De Forest gave a demonstration of his sound pictures before the New York Electrical Society. In describing his recording light he stated he was using a high-frequency gas light; he gave Case credit only on the Thalofide Cell, and for valuable suggestions and improvements to "Phonofilm."

Apr. 15, 1923: The first public exhibition of de Forest "Phonofilm" was given at the Rivoli Theater, New York.

Apr. 18, 1923: Case perfected the Thermophone for use as a microphone. This was used in making many of his early sound records.

May 7, 1923: It was found that helium purified in a calcium arc further lowered the operating voltage of Helio lights.

May 13-14, 1923: Case and Sponable visited the de Forest studio and observed weaknesses in de Forest's methods of sound recording and reproduction.

June 28, 1923: The Precision Machine Company rebuilt Case sound camera in an effort to reduce the amount of flutter it was causing in the recording of sound tracks.

July 3, 1923: A letter received from de Forest said that the Case Helium Photion light "had gone bad." It had been in use since May 7, 1923, and the letter raised the question as to whether it should be recoated. De Forest suggested that adding a trace of mercury would avoid certain British patents.

July 11, 1923: De Forest cited a German patent which contained an admission that it is old in the art to use a discharge containing metallic vapor. De Forest used this patent on which to base his belief that any existing patent difficulty could be avoided by introducing mercury. It was possible that the coated

electrode of the Aeolight producing green barium vapor in the discharge would be equivalent to introducing a metallic vapor.

Aug. 30, 1923: The contract referred to under date of February 23, between the de Forest Phonofilm Company and the Case Research Laboratory, was consummated. This contract granted de Forest a commercial license to use Aeolights and Thalofide Cells in taking and reproducing sound pictures.

Aug. 31, 1923: The following quotation is taken from the Case Laboratory notes: "A trip was made to New York for the purpose of aiding the de Forest Phonofilm Company in setting up the 9-A amplifier and also to test out the Case air-thermo microphone under studio conditions. A comparison of the static microphone using the old set-up previously made at the studio with the same microphone using the 9-A amplifier was made. These two films were also compared with a film made using the air-thermo microphone on the 9-A amplifier system. At New York, it appeared that the voice reproduction on the air-thermo microphone was slightly better and clearer than the records made using the static microphone. The films when run at this laboratory, seemed to indicate that there was little difference in these films; if anything, the static microphone was of slightly better quality.

"De Forest was shown our method of wiring up the 8-A and 9-A amplifiers for reproducing. This system was a great improvement over the two 7-A boxes which he was using. This improvement was in quality rather than loudness.

"A number of experiments of the talking moving pictures were witnessed at the Phonofilm studio. These indicated that the product had been greatly improved over the old films seen on previous trips. In the case of music records the film from this laboratory seemed to be of slightly better quality than those shown there." Both Case and Sponable were present during these conferences.

Oct. 8, 1923: De Forest informed the Case Laboratories that he now had twenty-five films worthy of exhibition in theaters. Did we have a supply of Aeolights?

Nov. 14, 1923: De Forest mentioned a recording he had made of a speech by Dr. F. Crane, saying "one can understand every word first time through."

Dec. 7, 1923: De Forest said that the thermo-microphone supplied him by Case was "wonderful," and that the Aeolight was "working fine."

Jan. 23, 1924: For recording sound, de Forest had originally used an optical system imaging the glow discharge on a slit of the order of three mils wide; it now occurred to him that a narrower slit, say 1.5 mils, might be better. He recognized the problem of getting sufficient light with the narrower slit.

Jan. 1924: Sponable had considered the redesign problems involved in converting a Bell and Howell camera for recording sound on the same film with the picture. Bell and Howell was authorized to

rebuild one of their cameras in accord with this design, which involved photographing the sound at the sprocket through a slit in contact with the film and with the Aeo light placed directly behind the slit.

Feb. 8, 1924: In the same way, a Bell and Howell standard picture printer was redesigned to provide both sound and picture printing apertures and exposure control shutters. This work was done locally.

Feb. 8, 1924: Case wrote: "I think it would be better to do away with the slit entirely in the sound reproducing chamber as a slit is liable to become dust clogged being so small and the best method of procedure will be to construct a light with a very fine short straight filament and place a lens in front of this so as to suitably produce an image of the filament which may be brought to the size desired, say one and one-half thousandths of an inch and allow this image to pass through the sound record, spread, and then cover the Thalofide cell."

Spring, 1924: De Forest had about twenty outfits giving road shows in theaters.

Feb. 28, 1924: A letter received from de Forest explained lack of Case publicity and stated that Phonofilm was a combined invention of de Forest and Case.

Mar. 25, 1924: The Bell and Howell camera modified for sound was received

at Auburn and was tested. The motion was unsatisfactory.

May 9, 1924: Case suggested that the slit be protected by placing a glass wedge in the slit opening. Previous slits were susceptible to dirt and dust and were cleaned by opening and closing, or by an air jet.

July 9, 1924: E. B. Craft, of the Western Electric Company, advised Case and Sponable that Western Electric would probably be willing to grant a license for the Laboratory to use amplifiers commercially.

July 25, 1924: De Forest began using the Case design of camera in which the sound was photographed on the film at the sprocket position. (This same method of recording is still in use in newsreel cameras today.)

July 25, 1924: De Forest asked Case to make recordings of Coolidge and La Follette in Washington. De Forest was to supply a professional cameraman. (These pictures, photographed on August 11, were the first news sound pictures of importance ever made.)

Aug. 1924: A small sound recording studio was constructed in the basement of the Case Laboratory. This consisted of a room about 10 ft. sq. with a 6-ft. ceiling. The walls were made of hair felt. The camera was placed outside of the studio and its lens imaged the interior through a hole in one of the studio walls.

Incandescent lighting was used to the extent of twelve 1000-w lamps. The sub-

ject could not exist in the studio for more than a few minutes at a time without coming out for air.

Dec. 8, 1924: To indicate the general character of work at the de Forest studio the following is taken from notes of Dec. 8, 1924:

"A visit was made to the de Forest studio. Reproduction was heard on the de Forest system using the slit arrangement. It was found that their slit was set at about four mils. When this was brought down to one and one-half mils the reproduction was very good, although the quality was not quite as good as with the focused filament arrangement. A focused filament set-up was made for de Forest using some lamps made in his factory. In these lamps the filament was held straight by spring tension, being the same arrangement as used in his amplifier tubes. The filament diameter of the lamps used was about one-half mil. The reproduction on this focused filament arrangement seemed to be very good. The Vitalux lens was used and improvement will probably be noticed when de Forest obtains the special Bausch & Lomb 1:1 objective which we had developed.

"Aside from a noticeable improvement in his reproducing apparatus the situation at the de Forest studio had not changed appreciably. He had made a number of Phonofilms. One, a Christmas number, included a song by Mme. Rap-

(Continued on Page 292)



When members frequently gather at the A.S.C. clubhouse, groups such as the above get together to discuss and analyze current problems of motion picture photography. Jackson Rose, A.S.C. (standing) describes a camera setup to (left to right) Lester White, A.S.C.; Harold Lipstein, A.S.C.; Joseph Ruttenberg, A.S.C. and Lee Garmes, A.S.C.

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# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 14. Screen Makeup

By CHARLES LORING

**M**OTION pictures, unlike still photographs, cannot be re-touched. Once the features of a player are recorded on a strip of film, they cannot be changed—unless the producer is willing to go to the trouble and expense of retaking the scene. This is one of the most important reasons why make-up plays such an important role in the production of motion pictures.

The prime function of screen make-up is to fit the face of the actor to the part. Where the character is an average type this is not difficult, but where a role is unusual, the task of make-up is something of a challenge. For this reason, it behooves the producer to have as part of his crew someone especially skilled in screen make-up.

Make-up artists who have worked only on stage productions will find that their techniques will have to be especially adapted to fit the requirements of the screen. The motion picture camera, especially in close-ups, greatly magnifies the features so that every pore and eyelash is clearly shown. This means that screen make-up must be vastly more precise than stage make-up. There can be no carelessness in application, no skimming over of details. Then, too, whereas stage make-up is purposely exaggerated so that it will look right to spectators sitting in the last row of the gallery, make-up for the screen must be much more subtle if it is to avoid that artificial quality which is all too easily recorded by the eye of the camera.

### The Functions of Make-up

Besides fitting the fact of the actor to the role, screen make-up performs a variety of other functions which help give a professional and realistic finish to the production.

Firstly, few faces are perfect. Usually there are small blemishes, scars or freckles which will be greatly magnified by the camera lens. These can be eliminated or greatly minimized by the use of proper make-up.

Secondly, make-up can alter features which are not suited to the role. A pug nose can be made to look aquiline, a young face can be made to seem old, the contours of cheek and chin can be altered to fit the character.

Thirdly, the subtle tones and textures of the complexion are often lost in photography. Proper make-up prevents these tones from "washing out," helps preserve

natural modeling and texture, and does much to smooth out a rough complexion.

In addition, once the basic make-up has been established, there need be no fear that during production skin tones will change due to sunburn, tanning, etc. Make-up insures a consistent quality throughout.

Lastly, since the making of a motion picture is plain hard work, the strain of long hours and irregular schedules may show up in the faces of the players and be noticeable in the close-ups. Proper make-up hides these signs of fatigue and enables the players to appear fresh during the entire picture.

### Types of Screen Make-up

With the development of *panchromatic* film emulsions which are sensitive to all colors of light, it was inevitable that new types of make-up would be developed to fully complement the new emulsions. Thus, *panchromatic make-up* was introduced and became a standard feature of modern cinematography.

Basically, panchromatic make-up for black and white photography consists of a wide range of neutral tones of tan and warm brown. To the eye, this make-up, when correctly applied, gives the effect of a monotone complexion—but to the camera lens, these cosmetics present a smoothly realistic effect when used in combination with modern film stocks.

Color cinematography requires cosmetics which are especially balanced to give best results with Kodachrome and Agfacolor. Here, nature's colors are duplicated and carefully applied to give as realistic an effect as possible.

Leading cosmetic manufacturers have separate lines of preparations especially developed for screen make-up. These manufacturers also supply carefully worked out charts which note in detail the correct shades and combinations of cosmetics to be used for each physical type and a wide range of character make-ups. The Max Factor organization in Hollywood has an especially fine research and service department devoted to problems of screen make-up.

### Applying Screen Make-up

The following basic procedures are standard in the application of make-up for the screen, and should be executed in the order noted below:

*Preparing the Face*—Before any make-up base is applied, the skin should be

thoroughly cleansed with soap and water. Men should be cleanly shaven. It is not necessary to use cold cream before applying foundation.

*Applying Foundation*—A small amount of grease paint or cake foundation should be applied to the face with the fingertips. It should be patted on, so that the face will be completely covered with small dabs of foundation. Avoid using too much.

*Blending the Foundation*—Fingertips moistened with water should be used to spread the make-up smoothly over the skin. Moving the fingertips from the center of the face outward, blend the foundation so that a thin even layer covers the skin. The fingers should be dipped in water from time to time to aid in blending the foundation.

*Applying Eye Shadow*—The eyelids should be shaded by means of a thin film of lining color applied with the fingertips. Use a light motion, blending the color upward toward the eyebrows and outward toward the lids.

*Applying Eyebrow Pencil*—With a sharpened eyebrow pencil, carefully line the edges of the lower lid, extending the lines just a bit beyond the eye itself. With the fingertips, smooth out the sharp contour of the line.

*Applying Lip Rouge*—With a fine brush, outline the lips in a shape best suited to the character. Fill in with rouge, being careful to apply a film inside of the lips, as well, so that no lip make-up line will be seen when the actor is speaking.

*Applying Face Powder*—With a light motion, pat the powder evenly over the grease paint, lip rouge and eye make-up, brushing off surplus powder with a special powder brush. Moisten the lips to restore the color of the rouge.

*Make-up for Eyebrows*—With an eyebrow pencil carefully accentuate the shape desired, taking short strokes that simulate hairs. The eyebrows can also be darkened by brushing them with moist cake make-up.

*Body Make-up*—Women wearing low-cut gowns should cover the exposed areas with body make-up of a shade complementary to the face make-up. Liquid make-up should be applied starting at the neck where the face make-up stops. Brush the make-up onto the neck, shoulders, arms and hands with a consistent downward stroking motion. The make-up should dry evenly, and can later be removed with soap and water.

### Principles of Character Make-up

When we speak of a *character* role, we mean one which departs from straight ordinary types, an unusual or curious personality. Roles in which younger actors are asked to portray older people also come under the *character* heading. Such roles require specially designed and carefully applied make-up.

When the make-up artist is asked to design a certain character make-up, he should use the actual personality himself as a model, if possible. He should care-

(Continued on Page 288)



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# AMONG THE MOVIE CLUBS

## Milwaukee Amateur

Annual novice contest run-off of entries was held at the June 11th meeting of Amateur Movie Society of Milwaukee, held at the Red Arrow Club. At the June 25th meeting, which wound up meetings of the club until September, members of Kenosha Movie Club were guests to view a program consisting of "The Alpine Vixen," by Anchor O. Jensen of Seattle; "All-American Soap Box Derby" and "Beautiful Milwaukee," by Carl Hirth.

Fifth annual joint picnic of the Tri-City Clubs was held on July 27th on the Wustrum Museum grounds at Racine, with the Racine Club as hosts this year.

## San Francisco Cinema

Cinema Club of San Francisco is one of the many clubs that continues meetings through the summer months. At the July 15th meeting, held at the Women's City Club, film program arranged by Ben Nichols comprised: "Scenic California," by Ed Sergeant; "Steel—Man's Servant"; 1,600 feet of 16 mm. technicolor in sound loaned by Columbia Steel Corporation; and "Iwa Jima," made available through Public Information Office of the U. S. Navy.

## Victoria Amateur Cine

Special 8 mm. contest open to all amateurs in Australia and New Zealand was held by Victorian Amateur Cine Society of Melbourne, Australia, with entries to be screened on August 7th.

At the June 4th meeting, Tex Glanville staged a program of 8 mm. monochrome and color films; while the June 18th film program of members' films included: "Devils and Daydreams," "Enemy Agent," "Hired and Fired," "Tansmania," and "Scenes Around Victoria," latter two by C. Greenhill.

## Seattle Amateur

"The Family Album," a demonstrative film in color on new interior lighting technique for movie makers just released by General Electric Company, featured the July 8th meeting of Seattle Amateur Movie Club, held at Epiphany Hall. Also on the agenda was tips on travel movies, and films by Erwin Miller, Jack Martin and Jack Moran.

Members are now preparing and shooting films for the Vacation Contest, which closes December 9th.

## Utah Cine Arts

First of two summer picnic outings of Utah Cine Arts Club of Salt Lake City was held at the Amphitheatre, Box Elder Flats, on evening of July 15th, with large turnout of members and friends bringing along picnic baskets for repast prior to showing of a splendid film program. Latter included: "Lights and Shadows of the Grand Canyon," in 8 mm. kodachrome by Lynn C. Layton; "Chills and Spills," and "Holiday on Ice," by Jess Hansen; "Romance of a Sawmill," by Virginia Smith; "Trees and Homes," and "Woody Woodpecker" cartoon.

## Alhambra La Casa

July 21st meeting of La Casa Movie Club of Alhambra, California, provided film program including: "Desert Color and Grand Canyon Scenes," by Mrs. Clyde Coleman; "California Flowers," by Paul C. Knepp; "Vacation Time," by D. M. Gardner; "Views Around the Islands off the Coast of Baja, California," by Mrs. James E. Lewis; and "Review of the Anniversary Dinner," by A. J. Zeman.

August 18th meeting will be a picnic at the Farnsworth County Park at Altadena.

## Los Angeles Cinema

Mid-year contest prize winners of Los Angeles Cinema Club were shown at open dinner meeting held at Los Angeles Breakfast Club pavilion on evening of July 7th, and capacity turnout resulted.

Directors of Photography George Folley, A.S.C., and Al Gilks, A.S.C., teamed up with member Gae Faillace as judges for contest chairman James Mitchell.

Charles M. Peters tabbed first prize for his highly original "How To Become An Amateur Cinematographer," a humor-packed film showing the lack of sales resistance of a camera enthusiast—in addition to many excellent scenic shots.

Robert Du Soe won second prize for his adventurous and amusing "Expedition to Mystery Lake." E. A. Russell received third prize for "California Scenes and Flowers," while Edward Alton rated fourth spot for his "Fifteen Thousand Miles in Thirty Minutes," a high-spot tour of out-of-the-way spots in Central and South America.

Three short films, entirely without cutting or splicing, concluded the evening's program—as winner's in a special contest. They were: L. V. Towt's "General MacArthur Park," (first prize); Mrs. E. B. Kellam's "Parks," (second); and Charles A. Peters' "The River," (third prize.)

## San Francisco Westwood

Films entered in the no-splice contest of Westwood Movie Club of San Francisco were exhibited at the June 27th meeting, held in St. Francis Community Hall. In addition, Bill Stringall provided a demonstration of the Sound Mirror.

Club bulletin announces that the annual picnic will be held at Flood Park, as a joint enterprise with the San Jose Movie Club.

## New York Eight

"The Persistent Corpse," a psychological drama by Karl Koehler and Victor Ancona, opened the film program of the June 16th meeting of the New York Eight MM. Club, held at Hotel Pennsylvania, and scored a huge success. Bill Weed presented his amusing movie of a movie, "Leo Shoots Sylvia"; while a guest, Miss Ryan, screened her reel of kodachrome scenic material of the northwest.

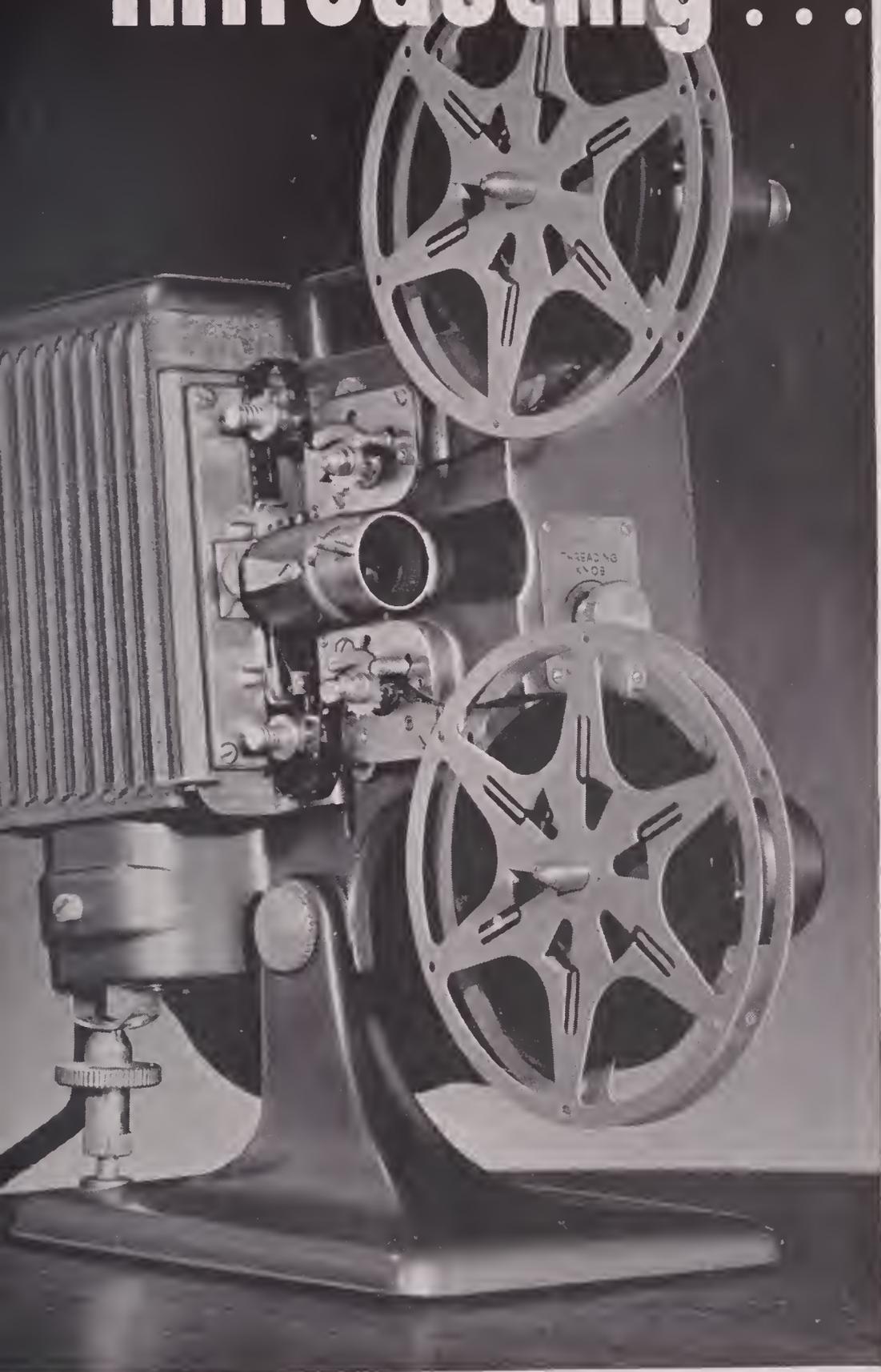
## Syracuse Cinematographers

Two films from the library of American Society of Cinematographers—"Nation Builders" and "Ritual of the Dead," featured the July 24th meeting of Cinematographers Club of Syracuse. "New York State—Vacation Empire," was also on the film program for the evening.



Irwin P. Boeshore of Philadelphia Cinema Club set to shoot a closeup of a flower at Morris Arboretum. Candid photo by past-president A. L. O. Roach.

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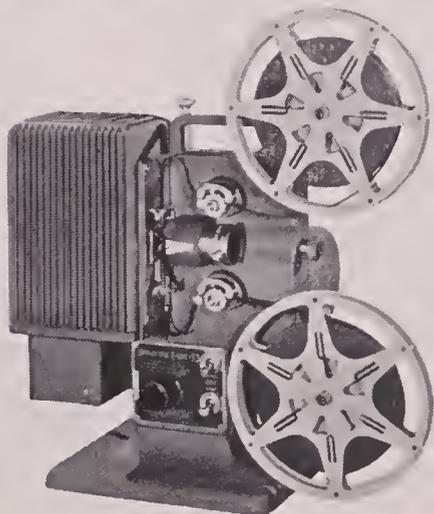
**Kodascope Eight-90** teams a powerful 750-watt lamp and a fast *Lumenized*  $f/1.6$  projection lens. You can obtain larger 8mm. movies without sacrificing screen brightness. But even when large size is not essential, "Eight-90's" expertly designed optical system provides important on-the-screen advantages—fine color reproduction, high contrast, and crisp definition. And for short "throws," in cramped quarters, a choice of three accessory lamps—300, 400, and 500 watts—lets you "tailor" illumination to your projection needs.

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## Cinema Workshop

(Continued from Page 284)

fully observe types who inhabit the slums, the waterfront, the foreign sections of town, etc.—all of the time making mental or actual notes on the facial characteristics that make these types distinct.

Character make-up is based on the correct placing of *highlights* and *shadows*. *Highlights* are used to accentuate features such as the nose, chin, cheeks and

### Sidney Wagner, A.S.C.

The motion picture industry lost one of its most qualified and popular Directors of Photography with the sudden passing of Sidney Wagner, A.S.C., from a heart attack on July 7th. After spending the week-end at his Balboa beach home, he was driving with his wife to the Metro-Goldwyn-Mayer studios to resume photographic direction of "Virtuous" when stricken. He stepped out of the car to allow Mrs. Wagner to take the wheel, and died before she reached his side.

Wagner, a member of the A.S.C. since 1927, started his motion picture career as an assistant cameraman at Fox in 1917 following graduation from Hollywood High School. After a 10 year apprenticeship as an assistant and second cameraman, he was promoted to the post of Director of Photography, and—in handling two-reel comedies and western features—soon became recognized as an exterior specialist in motion picture photography. In 1938 he left Fox to join the camera forces of Metro-Goldwyn-Mayer, handling photographic direction at the latter studio on "Boy's Town" as his first assignment. This was followed by numerous other important pictures, including: "A Christmas Carol," "Young Tom Edison," "Northwest Passage," "Sporting Blood," "Dragon Seed," and "Sailor Takes a Wife." Recently, he was Director of Photography on the Technicolor production of "Fiesta"—mostly filmed in Mexico; "High Barbaree," much of which was made at Coronado; and "The Romance of Rosy Ridge," mainly photographed in northern California.

"Virtuous," on which he was working at the time of his death, was the third successive Van Johnson starring production Wagner photographed. The high esteem in which he was held by the stars and players at the studio is demonstrated by the actions of both Johnson and June Allyson in going home the day of Wagner's death, and their attendance at the funeral services on July 10th at Little Church of the Flowers, Forest Lawn.

Paying tribute to Wagner at the services were numerous executives from Metro-Goldwyn-Mayer, including E. J. Mannix, Ben Goetz, J. J. Cohn, producer Bill Wright, director Norman Taurog, W. J. Craig, Ted Butcher, and W. W. Spencer; a large number of A.S.C. members, and many others from the industry at large. He is survived by his wife, Marie, and son Sidney, Jr.

wrinkles. Wherever a dark line is drawn on the face, it must be highlighted with a line of lighter cosmetic and the two should blend smoothly into the foundation. For normal highlighting used a shade of lining color three or four shades lighter than the base make-up. For exaggerated effects, use white liner.

*Shadows* are used to play down features or to make certain areas of the face seem sunken. They are simulated by means of coloring which is darker than the base make-up. To make the cheeks or temples seem hollow, use shades of gray or brown, highlighted with a much lighter color. Blend the edges of these tones smoothly with the foundation to avoid obvious lines.

*The Eyes*—Eyes are perhaps the most important single feature in expressing emotion, especially on the screen. For this reason they require careful and correct make-up. They may be made to look sunken by applying dark shades of color to the sockets. They may be made to look larger by drawing a line with the lining pencil around the upper and lower lids. Keep this line a short distance back from the lash lines, and extend to the outer corners of the eyes.

*The Nose*—To make the nose seem thinner, apply a highlight (much lighter than the base make-up) to the bridge of the nose, shading the sides with darker brown or gray tones. To broaden the nose for character effect, reverse the pattern. To make the nose seem to tilt upward, apply a triangular area of dark shadow to the space between the nostrils.

*The Mouth*—If one lip is to seem more prominent than the other, use a wider contour and a *lighter* shade of lip rouge. The reverse of this can be used to play down a lip that is too prominent. To produce a happy, good-natured expression, tilt the edges of the mouth slightly upward. To produce a mean, tired, or pained expression, tilt the edges of the mouth downward.

*The Chin*—To minimize a protruding chin, apply a dark shade of coloring to the center, blending the edges smoothly into the foundation. To bring out a receding chin, apply a much lighter shade to the center.

*Wrinkles*—First, find the natural wrinkle lines by asking the subject to distort his face, forcing wrinkles to appear. Mark these wrinkles with lining color, later accentuating them to the degree desired. The wrinkle lines should be highlighted with a much lighter color, and the whole pattern should be smoothly blended into the foundation.

*Old Age Make-up*—Old age is usually characterized by sunken or puffy eyes. The effect may be gained by using a dark eye shadow which extends down to the circles below the eyes. Then, immediately beneath the lower lid, carefully blend very light color to form a highlight, so that a puffy effect is noticed. Mouths of older people have a very subdued lip-line. Use a darker tone of lip rouge blended with gray coloring. Draw

vertical lines toward the mouth to give it a shriveled appearance.

*Nose Putty* is used to change the contour of the nose, cheeks, and chin. The putty is shaped into the form desired and then carefully worked so that the edges blend in with the skin. A coat of grease paint over the whole affair will make the effect seem realistic.

*Scars* are of two general types, *raised* and *indented*. The raised type, or welt, is effectively created by means of nose putty applied directly to the skin and accentuated by highlights. The indented type is made by applying collodion, which draws in the skin causing a depression in the surface. Several applications may be necessary to get the desired effect.

#### A Word on Color Make-up

As we have said before, the success of make-up for color motion pictures depends upon simulating realism. Do not overdo make-up for color. Be sure the colors used are the *right* colors for the physical type of your character, and check to see that rouge, powder, foundation and lip rouge harmonize.

Remember that blondes require a different color scheme than brunettes, and that even the color of the eyes must be taken into consideration. There is also a difference in the complexion tones of old people. They are faded and less vivid than those of younger characters. A person suffering ill health is pale, whereas a rugged outdoor type has a ruddy or tanned glow to the skin.

To avoid unnecessary make-up problems, never leave the planning of the make-up till the last moment. Study the play and find out what types are required. Then, keep this in mind when the play is cast. Make-up can do only so much, so in casting try to select types who, even without make-up, most nearly fit the physical requirements of the character. Then, use make-up skillfully to accentuate the head start nature has provided.

NEXT ISSUE. Part 15—*The Pre-editing Stage*.

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# Have You Tried Filming A Sports Newsreel?

By James R. Oswald



HOME movie enthusiasts who lean toward the impromptu or spur-of-the-moment type of filming, rather than shooting from a prearranged and fully rehearsed script, often find their efforts sorely lacking in anything that even faintly resembles the good continuity so essential to a really worthwhile screen presentation. Such cine fans will find everyday sports a "natural" for this newsreel kind of movie making, with plenty of action and the desired continuity being provided without the necessity of spending long, arduous hours of brain-racking prior to the actual shooting. And it makes little difference whether the particular sport that most captures the fancy happens to be baseball, tennis, or golf . . . swimming, hiking, riding . . . or any other of the thousand-and-one forms of recreation that help provide a means of escape from the boredom and monotony of everyday life. For in this sports-conscious world, one need not fear the completed film lacking in high entertainment value for all concerned, if only a little discretion is used in the making and the cameraman remains on his toes to record all strategic bits of action.

Best of all, with impromptu filming, persons who are normally inclined to "freeze up" every time they are called upon the face a camera lens, lose all sense of self-consciousness and "stage" fright when permitted to do their acting while deeply engrossed in some favorite sport that is very much to their liking.

Take the case of Miss Lee Boot, for example, whose curvaceous figure dominates the photographs illustrating this article. As dainty on a dance floor as she is a challenge to her opponent in a sporting match, the one thought farthest from Miss Boot's mind is that of becoming a movie actress, since posing for pictures always proves a tremendous ordeal for this captivating, camera-conscious cutie. Yet, given a baseball bat, a tennis racket, or a swim suit with which to occupy herself, and our avid young sports lover will rival any actress in Hollywood. For Lee exemplifies, as the French would say, the *joie de vivre* that is typical of the modern American girl.

But just how to go about building up good continuity in an unrehearsed, spur-of-the-moment sport reel? That the cameraman should remain on the alert to



Tennis and other fast sports requires expert shooting, panning, and editing—but beautiful subjects, as above, are always decorative.

cover all important bits of action having a direct bearing on the final outcome of the competition being filmed is, of course, understood. This "suspense" element is essential to holding audience interest in all well-rounded screen plays, as a trip to your local theater will reveal. But even an action-packed reel of sports can become mighty boring if a little variety isn't offered in the form of interesting sidelights, which are as much a part of the chronological order of occurrences at a sporting event as the main action, itself.

An analyzation of the professional newsreel cameraman's technique in avoiding monotony might well prove of value to the amateur. No matter how important the affair covered, it will be noted, the camera is focused not alone on the principal attraction, but equally on "off-the-record" shots of those participating, as well as on capturing the enthusiasm of the excited spectators witnessing the goings on. And this applies not only to *one particular* newsreel, but to *all* of them, without exception.

Why not incorporate these tactics of the professional in your own sport reel? Whether those taking part number one or one hundred, inject at frequent intervals interesting sidelight scenes of the onlookers along with those of the players to give the film that added "punch" often spelling the difference between success and failure. A study of the accompanying pictures may offer suggestions. So if you are like the average cine fan who finds himself short on ideas when it comes to unplanned movie making, try filming a sport newsreel!



White sails and glistening hulls of sailboats provide unlimited opportunity for your sportsreel subjects. Above, a group of Viking class jockeying for start of a race.

## 25 YEARS AGO With A.S.C. and Members

With this issue, American Cinematographer goes back in the files of a quarter-century ago to recall the activities of the American Society of Cinematographers and its members in 1922.

- Gus Peterson, A.S.C., chief cinematographer for Ben B. Hampton Productions, was promoted to a directing post with that company. Other A.S.C. members directing features in 1922 were: president Fred Jackman, Phil Rosen, Edward Kull, Fred Granville, George Hill and John Leezer.

- Annual prosperity ball of the A.S.C. was held at the Ambassador Hotel; with Max Fisher's orchestra providing music for dancing. Entertainment included several ballet numbers staged by Theodore Kosloff; but main attraction was a demonstration of the Cinemaphotoscope—transmission of pictures by wireless, together with accompanying music—by Dr. Elmore R. Walters.

- An early advertisement of Mitchell Camera Company stated that "orders will be accepted direct until agencies are established."

- Herford Tines Cowling, A.S.C., reported on his camera tour of Mexico, where he photographed subjects for the Burton Holmes series of travelogues for Paramount release.

- Walter S. Lundin, A.S.C., was elected president of the Hal E. Roach Laboratories.

- An article from the bulletin of National Board of Review noted marked improvement in the dramatic credulity of serials, and predicted that the chapter-plays would again be on programs of the larger theatres.

- A motion picture laboratory had been established in Jerusalem, and many traveling cameramen in the Near East area were making use of the facilities, according to an article. Accompanying illustrations of the lab showed two tanks, a hand pump, and three workers in a room about twenty feet square.

- Jackson Rose, A.S.C., was featured in an illustration showing him hand-cranking the number one Bell & Howell 35 mm. professional camera at the Esanay studios way back in 1910.

### Brulatour President Honored by A.S.C.

William German, president of J. E. Brulatour, Inc., distributors of Eastman motion picture film, was the honored guest of the A.S.C. at a membership dinner held at the clubhouse on evening of July 16th. With 100 in attendance, President Leon Shamroy was main speaker of the evening, with Past-president Len Smith delivering a brief address of welcome to German who was on his annual trip to Hollywood.

President Shamroy was the surprised recipient of a birthday cake presented for his birthday of a few days previous.

### New WE Sound Recorder Delivered

Initial eastern U. S. delivery of a Western Electric 335-D recording system by the Electrical Research Products division has been made to Eastern Sound Studios, New York. Latter specializes in dubbing of foreign language versions of American features; with major portion of translations being made in Spanish for the Latin-American market; while large amount of work is devoted to versions in Turkish, French, Arabic and Portuguese.

### DuPont Opens Boston Office

Photo Products department of DuPont has established a new district sales office for the New England district in Boston. Frederick B. Astley functions as district manager.

### Cleveland RCA Sales Exec.

R. L. Cleveland has been appointed district representative covering nine western states for RCA 16 mm. motion picture equipment. He will headquarter in Los Angeles. Prior to joining RCA, he was affiliated with Audio-Video Institute of Dallas.

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## Historical Development Of Sound Film

(Continued from Page 282)

pold in a Christmas tree setting followed by a church scene with choir boys singing and ending with a trumpet chorus in supposedly a heavenly setting. All of this number was slightly sour and it is doubtful whether or not it could be used commercially."

Jan. 12, 1925: Case devised a slit with cover-glass protection. This was a very important step in making sound recording practical. This slit consisted of a small piece of quartz about 0.25-in. square and 0.04-in. thick. One side was coated with chemically deposited silver and a slit about 0.001 in. by 0.120 in. was ruled in this silver coating. A thin cover glass was then cemented on top of the silver and the cover glass was ground and polished down to a thickness of less than 0.001 in., including the cement. The slit was then mounted in a steel shoe that could be placed in contact with the film at the camera sprocket. The Aeo light was set close to the quartz slit, thus eliminating the use of a lens to focus the glow discharge on the film and ensuring the maximum amount of light reaching the film.

May 13, 1925: De Forest borrowed the rebuilt Bell and Howell camera from Case in order to make sound pictures of Dr. Elliott in Boston.

Sept. 1925: Business complications terminated the working arrangement between de Forest and Case. Case, having gone this far in the talking picture field, decided to continue the work and finish up some of the technical problems that were still not solved.

During the fall of 1925, the Case Laboratory started building their first sound reproducing attachment. After considerable deliberation it was decided to design this to operate below the projection head rather than above, as had been de Forest's previous practice. This was decided upon for three reasons: First, it was decided to incorporate a large fly-wheel that would give sufficient inertia to iron out all inequalities that might be transmitted from the projection head. Second, in the Bell and Howell camera the sound came after the picture and a better printer design was possible if the sound was not transposed to a position ahead of the picture. And, last, which seemed important at that time, an attachment was wanted that would not run sound films previously made, which in some instances were quite bad. Sponable laid out this design and supervised local mechanics in executing it. It was here that the industry received its 14½-in. hangover—the sound and corresponding picture were displaced by 14½-in. or 20 frames. This early attachment was very similar in principle and design to the present ERPI type 206.

Sept. 14, 1925: It became apparent that great mechanical accuracy was required in making the recording camera; this is emphasized by the following quo-

tations from the Case Laboratory records:

"The camera was received back from Bell & Howell Company on September 12. Tests were begun on this camera September 14. The first test taken was made of voice and piano. When this was reproduced it was found that the camera still had a bad sprocket pulse. The eccentricity of the sprocket was determined with an indicator. It was found that it was running off about .5 of a mil on one end and .7 of a mil on the other. This, together with a noticeable high spot in the gears, was sufficient to account for the pulse observed."

"We tried the shaft alone in its bearing and found that it was running fairly true. The sprocket, when tried alone on an arbor running true, was found to be 2½ mils off and also slightly out of round. We made inquiry as to the best machinists around here and after trying a number of shops found that Doyle & Wall, 322 Pearl Street, Syracuse, seemed to be the best to do further work on the camera. They are used to working with a tolerance of .1 mil and seemed to fully appreciate our problem."

Nov. 23, 1925: "After returning to Auburn, Case went over the patents on sound recording and after calling Mr. Thompson into conference it was decided that the field was much more open than we had previously supposed. De Forest gas discharge patent seemed to be limited to the use of alternating current. Also it seemed questionable whether a court would uphold such patents as the Ries and the Fritts. Mr. Thompson was sent to New York to get the opinion of Mr. Gifford, supposedly one of the best attorneys in the matter of patents. Mr. Gifford's opinion in this matter seemed to confirm Thompson's, that is, that the field was open and that no one seemed to have any fundamental patents on the system of talking moving pictures.

Dec. 8-10, 1925: "About a year ago we approached the Western Electric Company regarding the use of their amplifiers or commercial showing of the talking pictures. At that time Mr. Craft advised us to go ahead and use them for this purpose and stated within a few weeks the Western Electric Company would submit a contract to us covering some form of a license agreement. Nothing further happened regarding this agreement at that time. Now that we are interested in using these amplifiers for possibly road show work and having severed connections with the de Forest outfit E. I. Sponable went to New York for the purpose of seeing Mr. Craft and if possible, obtain his O.K. to go ahead with their amplifiers for any commercial work we should want to do."

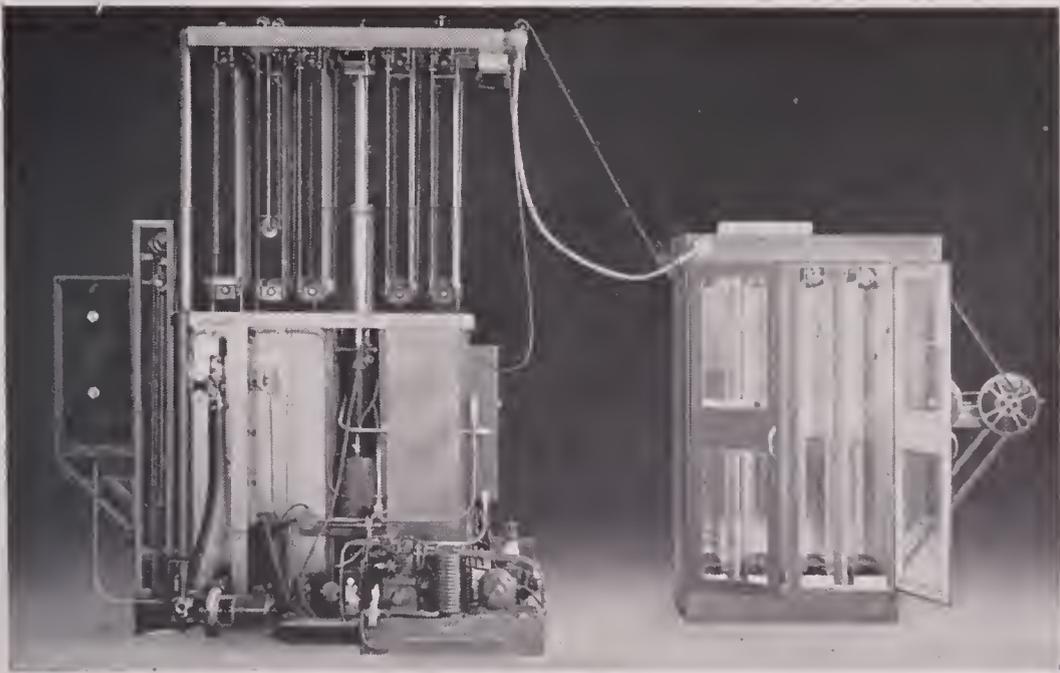
"On seeing Mr. Craft we explained to him the situation and recalled to his mind our conversation of last year. He stated that since that time *considerable water had gone over the dam* and that they were now interested in talking moving pictures themselves. Further, that they were negotiating or had completed nego-

tations with Warner Bros. to furnish the latter company with apparatus and technical aid to enable this moving picture firm to produce and market talking moving pictures. Considerable discussion of the subject resulted in Mr. Craft's saying that he believed we were further along in the art than they were and that he saw no reason why both the Case Research Laboratory and the Western Electric Company should not get together and compare their accomplishments and possibly enter into some agreement with a moving picture company whereby both the Western Electric Company and the Case Research Laboratory would benefit. He further stated that he would like to send two of his technical men up to Auburn to hear our films and look over our developments. After they had returned and reported to him he would then try to arrange a meeting between representatives of this laboratory and the commercial men of the Western Electric Company."

"Before the call on Mr. Craft the Keith-Albee people were visited for the purpose of determining whether or not they would be interested in obtaining our talking moving pictures for an act of vaudeville. Mr. Oakford of the booking department of the Keith people was given information regarding our system. He was very much interested in what we told him and stated that he would take it up with men higher up in the company and advise us regarding their interests. He reported the following day that he had talked with the vice president of the Keith company and that the latter was very much disturbed to think that he would dare to bring up the subject of talking moving pictures to them again. They admitted that they had been stung on the thing twice, once about fifteen years ago where they invested considerable money in stock of a talking picture outfit, and later in certain connections with the de Forest company. The vice president of the Keith company stated positively that they were not interested in talking moving pictures."

Dec. 15, 1925: "In our conference with Mr. Craft last week, he intimated that the use of amplifiers in talking moving pictures would come under their public address work and that at least for two or three years we would be unable to use amplifiers for this purpose without the permission of the Western Electric Company."

"In order to check up this point it was thought best to talk it over with Dr. W. R. Whitney of the General Electric Company. This was done by E. I. Sponable on December 15. Dr. Whitney stated that the situation was really something that Mr. A. G. Davis (vice president of the General Electric Company) was more fitted to give an opinion on than he. After describing the situation to Mr. Davis he stated that he believed that the talking moving picture did not come under the public address work and that at present the amplifier situation was quite muddled, there being almost an endless



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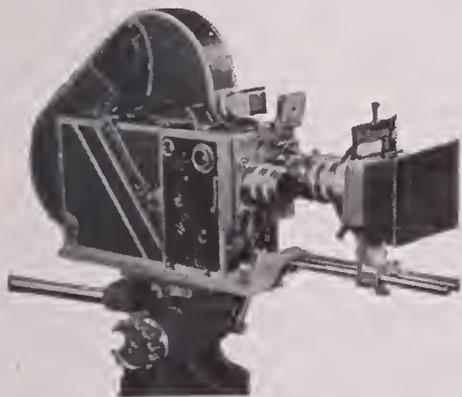
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number of patents in this connection. Sometime within the next year they hope to clear this situation by placing all these patents in the hands of the Radio Corporation. Mr. Davis stated that he believed we should see Mr. Davis Sarnoff, president of the Radio Corporation, and get his opinion regarding our requirements. He very kindly suggested that he would arrange such a meeting for us and is doing so at the present time." "Dr. Whitney as usual was very nice in

this connection and took the attitude that he was particularly anxious to aid anyone who was doing good research like the work carried on at the Case Research Laboratory."

Dec. 17, 1925: "Dr. Crandall and Dr. MacKenzie of the Bell Telephone Laboratories were sent here by Mr. Craft. They were shown our talking films and all parts of the taking and reproducing system were explained to them in detail."

"We gathered from them that our

films were very good. They stated that they believed that in their own recording that their ground noise might be slightly less but discounting the fact that we were not using as good loud speakers or telephone equipment as they have they thought our stuff to be remarkably good. They noted the simplicity of design of the camera and projector and commented on the fact that such a design could be readily commercialized.

"We gave them data concerning our photoelectric cells and recording lights. They stated that they would like to order these various devices so that they could determine their constants using their own apparatus at the Bell Laboratories."

Jan. 4, 1926: An opinion was received from Mr. Adams, head of the patent department of RCA:

"He stated that due to de Forest's original patent having expired that de Forest now had no more right to use amplifiers or to make vacuum tubes than anyone else and that the field now seemed to be completely controlled by the Radio Corporation as the result of patents held by the General Electric Company and relating to the manufacture of vacuum tubes and their use in various circuits."

"With reference to whom has the right to supply amplifiers for use with talking moving pictures he stated that this right rested with the Radio Corporation or at least would rest with them when certain patents now under negotiation are finally turned over to them. Further, that he believed from the agreement with the Bell Telephone Company that the Radio Corporation reserved the right to use amplifiers in the connection with talking moving pictures for themselves."

Jan. 7, 1926: A meeting was arranged with Adams and his associate, Capt. Ranger.

"The only new thing which developed was at this meeting Adams reversed a statement which he had made at a previous conference with E. I. Sponable, that is, that both the Radio Corporation and Western Electric Company would have rights to use amplifiers for talking moving picture work. He stated that he would talk the matter over with Mr. Sarnoff and advise us shortly regarding some arrangement for starting a company to handle the talking picture situation."

"Previous to this meeting of Adams and Ranger, Mr. Case and Mr. Sponable were at the Bell Telephone Laboratories to see Mr. Craft. We told Mr. Craft that we had checked up the amplifier situation with reference to talking moving pictures and had found that the General Electric Company seemed to believe that they controlled the rights for the use of

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amplifiers in this connection. Craft then stated that it was really something that both companies had a joint right in and that in case the General Electric Company should use amplifiers for this purpose they would possibly have to obtain permission to do so from the Western Electric Company. Mr. Craft further stated that he was anxious to get a report from his men regarding our Aeolights and photoelectric cells which they wished to examine."

"We went down to Dr. Crandall's office where we saw the Western Electric system of film recording. Inasmuch as our visit was rather unexpected they seemed to have considerable difficulty in getting their apparatus to work properly. The showing which they made during this exhibition was not impressive to us. They were, however, using fairly high quality amplifiers and a laboratory model of a loudspeaker which gave excellent and true quality of reproduction. They showed a number of records taken of the Capitol Theater music including pipe organ, orchestra and singing. They also showed one talking record made in their own laboratories. The talking record was not good and when reproduced on a cone such as we use, it was extremely bad. Their recording of music reproduced seemingly well although possibly part of this was due to the high quality of the music recorded, that is, the Capitol Theater orchestra. After hearing these records we attended a luncheon with Messrs. Adams and Ranger noted above and then returned again to the Bell Telephone Laboratories. During this time the apparatus had apparently been given an overhauling and the showing or reproduction was much better than that heard during the morning. It is interesting to note here that with the Western Electric reproducing amplifier which they were using they found it necessary to add an equalizer to correct for a discrepancy in their photoelectric cell. Without the equalizer the low frequencies came through in great predominance. Adding the equalizer decreased the volume to about 1/30 and brought the quality to approximately normal. Their photoelectric cell was connected to the first tube using 20 megohm resistances. In our work we use about two megohms across the cell and about 50,000 ohms across the first bulb. It is possible that we compensate for the equalization in this manner."

Jan. 29, 1926: Case and Sponable visited the Warner Theater to see a demonstration of Maxfield's Vitaphone.

"We all agreed that the showing was very good and of commercial quality. However, we believe that our own reproduction was better with regard to illusion and naturalness. In the Western Electric system they were using the large public address system thus accounting for the large range without distortion. Their loudspeaker was apparently of the horn type placed above the screen."

"After lunching with MacKenzie we returned to the Bell Telephone Laboratories where we met Dr. Crandall and

proceeded to Mr. Craft's office. Mr. Craft advised us that his men had only made a preliminary report to him but it seemed that we had nothing in our system which would be of particular use or addition to the Western Electric system."

"Mr. Craft, however, was reluctant to give up our system entirely and said he would like to know more about it. Inasmuch as the reproduction of the film was the real test, we suggested that the Western Electric Company send us some of their film, both voice and music. We could then reproduce it at Auburn and at least satisfy ourselves regarding the merits of the two systems. They did not care to submit some of their film already taken and stated that they would take two numbers and send them to us the following week."

"We then left the Western Electric Company and proceeded to Captain Ranger's office in the Radio Corporation building. We advised Captain Ranger that we were now ready to go ahead with the talking pictures with them or arrange for licensing the use of their amplifier system. We asked him to bring these things to Mr. Adams' attention and arrange for a get-together to talk the situation over. After leaving Captain Ranger we stopped at the office of Mr. Gifford where we talked over the patent situation. He had already prepared an opinion regarding the de Forest and Ries patents, this opinion being that these patents were of questionable value. Our talk with him seemed to further his conviction regarding their questionable value and he stated that he would send us the written opinion in the near future."

Feb. 13, 1926: Case devised a way to avoid film splice clicks by using graded opaque at the join.

Feb. 1 to Mar. 1, 1926. Case and Sponable discussed with Whitney and Stone (a vice president of General Electric Company) the possibility of combining the Case system with the work of their inventor, C. A. Hoxie. General Electric engineers, Robinson and Marvin, came to Auburn and went over the Case system. They were very pleased with it. Stone, however, would not admit the Case system added materially to that of General Electric and no agreement was reached.

Mar. 19, 1926: John Joy, who knew Sponable at Cornell, paid a friendly visit to the Case laboratory. Technically, he represented Courtland Smith who had just joined the Fox Film Corporation. Joy reported concerning the Case talking picture system to Smith and the latter requested Case to bring his equipment to New York to demonstrate to the Fox people.

Apr. 8, 1926: Max Mayer (a dealer in theatrical equipment) came to Auburn to witness the Case talking pictures. He pronounced the demonstration to be perfect, but advised Case that a feature picture would be necessary to sell the system to a producer. Case considered making this.

May, 1926: Case organized the Zeophone Company to take over and handle the Case system of talking pictures.

Responding to Courtland Smith's suggestion, reproducing apparatus was taken to New York and successful demonstrations given before representatives of the Fox company at Parlor B on 10th Avenue, at the Nemo Theater, and at William Fox's home in Woodmere. Mr. Fox was at first suspicious of the process; however, a close-up of a canary bird singing while perched on the top of its cage seemed to convince him that the sound was not a matter of trickery.

June 8-24, 1926: The reproducing equipment was installed in the Fox Film building, 850 Tenth Avenue. Recording equipment was brought from Auburn and about 300,000 feet of test records were made in a temporary hair felt studio room partitioned off on the large stage of the Fox building. The purpose of these tests was to convince Fox of the practicability of making sound pictures under studio conditions. The results were entirely successful.

July 23, 1926: An agreement was reached between Case and Fox resulting in the formation of the Fox-Case Corporation. In general, Case turned over all patents and rights in his system of talking pictures to the new company (exclusive of amplification, in which he had no rights to give). Case agreed to continue his laboratory for the purpose of making recording lights, photoelectric cells, and for general development purposes.

(To Be Continued)



## United World Appoints Ezzes

Erwin H. Ezzes has been appointed manager of the non-theatrical entertainment film division of United World Films, according to announcement of President James M. Franey. Ezzes has been in charge of branch operations since formation of the company.

## "Odd Man Out"

(Continued from Page 277)

of Britain's foremost directors of cinematography.

Although "Odd Man Out" has been called a "critics' picture," it packs an emotional punch which cannot fail to engross a wide range of audiences. Serious students of cinema technique will find it loaded with the refinements that place skillful motion picture photography high among modern art forms.

### McMaster Kodak V.P.

Donald McMaster, associated with Eastman Kodak for the past 30 years, has been elected a vice president and assistant general manager of that company. His appointment permits better distribution of administrative duties in Kodak, relieving Vice President Ivar N. Hultman of the responsibilities of assistant general manager. Hultman retains his post as assistant general manager of Kodak Park, company's largest manufacturing unit.

For the past 12 years, McMaster has been in England; later becoming factory manager of the Kodak Harrow Works, and a deputy chairman of the board of Kodak, Ltd.

### Betley Joins Radiant

Mathew J. Betley has been appointed plant superintendent for Radiant Manufacturing Company, producers of Radiant projection screens. He has had wide experience as a similar executive with manufacturers of precision built products.

## L. A. Cinema Stages Equipment Exhibit

Los Angeles Cinema Club will sponsor its first annual Amateur Cinema Exposition and Tournament at the Breakfast Club on August 11th, from 5 to 11 p.m. Manufacturers and distributors of 8, 16, and slidefilm equipment have been invited to display and demonstrate products at the show, and no charge will be made for space required.

In addition, Los Angeles Cinema has extended invitations to members of about 50 16 mm., 8 mm., and 35 Slide organizations in Southern California to attend the one night exposition, and have the opportunity of inspecting new types of cameras and equipment; in addition to witness demonstrations of various models.

A film contest will also be held during the evening, with each club eligible to submit one picture. A cup will be awarded to the winning club. Arrangements have also been made for the serving of barbequed beef dinner in the patio of the Breakfast Club for nominal price.

The idea of staging an equipment exhibit developed from recent experiences of Los Angeles Cinema during the past year, when manufacturers and distributors of such apparatus were invited to demonstrate their product at club meetings. Member response was so enthusiastic, that officers decided on the exposition so that "cinema enthusiasts can become better acquainted with each other and with the manufacturers and distributors and their products—as well as to have a lot of fun."

It's an idea for other clubs to follow for an annual event.

### Lloyd Knechtel, A.S.C., to Paris

Lloyd Knechtel, A.S.C., left Hollywood the middle of July for Paris, where he will spend the next year under contract to Lou Bunin Productions in charge of optical printing, special effects, matte shots, etc., for production of "Alice In Wonderland." While abroad, Knechtel will also handle assignments from Hollywood producers in securing process or background footage.

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# Television For Theatres Needs Development

Although television for the home is making rapid strides, it needs considerable development before it becomes of practical use for the theater, the Motion Picture Research Council, Inc., reported recently after a long study.

The report is one of the first made by an interested yet unprejudiced organization and offering an analysis of the prospects, progress and present weaknesses of television.

Council chairman Y. Frank Freeman submitted the report of a special investigating committee to the Association of Motion Picture Producers, which administers and finances the Council.

The report is based on findings of John Livadary and other members of the Council's television committee, representing technical experts from major Hollywood studios, who witnessed demonstrations, inspected equipment and investigated possibilities of introducing television to the nation's theater screens.

The Council's conclusions included:

Home television is improving rapidly in quality of reception and programs; film production for television use is largely limited to 16-mm. film and quality is "not very satisfactory;" color television is now "reasonably satisfactory" for theater presentation, but only when images are transmitted by coaxial cable; large-screen, black-and-white projected television pictures are still inferior even to poor newsreel quality; development of practical theater television equipment will take longer than the year or two years predicted by equipment manufacturers.

The report described a successful demonstration of color television on a screen roughly one-fourth the size of a theater screen in which the image pickup from 16-mm. film was transmitted from the television camera to projector by coaxial cable, not through the air.

"Considerable development will be required before this same quality can be obtained when the picture is picked up by a color television camera, transmitted through the air and projected electronically on a normal motion picture screen of average size," the report added.

"Large-screen black-and-white electronically projected pictures are still inferior to the average motion picture and not satisfactory for other than newsreel type material. Furthermore, the line structure of television scanning is very apparent on the screen.

"At present a full-size picture can be obtained from a practical theater operating standpoint by photographing the image on a television tube and rapidly developing the film for immediate projection on regular theater equipment. Equipment for photographing and developing the film within 60 seconds has already been demonstrated for black-and-white pictures."

No such equipment has been demon-

strated for color film, however, the report added. Nor have color television cameras and transmission facilities been developed.

Greatest interest in home television is shown on sports events, the survey showed. Manufacturers are working toward home receiving sets giving a 20 to 24-inch picture with sufficient illumination to be seen easily in a fully-lighted room. Production of receiving sets is limited and prices are high, the report added.

## Wolfe Heads Research Council

Wallace V. Wolfe, veteran motion picture engineer, has been signed as director of research for the newly-incorporated Motion Picture Research Council, Inc. Latter is successor to the Research Council of the Academy of Motion Picture Arts and Sciences, and—sponsored by the Association of Motion Picture Producers—has been granted an initial appropriation of \$150,000 to promote a cooperative and permanent industry-wide research program.

In addition to a staff of engineers working under Wolfe, present members of the Research Council—representing technical departments of all major studios—will assist in the research and development program. Design of new equipment will cover items not now available on the market, and the Council will not become a manufacturing organization.

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## Arce of S.O.S. Tours

Arthur Arce, export manager for S.O.S. Cinema Supply Corporation, is currently on an extensive tour of Latin America visiting with various S.O.S. distributors and agencies in Mexico, Central America, Cuba, Haiti, and Puerto Rico.

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AC-8

## New Color Tester

(Continued from Page 275)

experience, to obtain the excellent screen results we now accept as standard. With all the noted progress, however, it is a sad commentary on our ability, our intelligence, and leadership in motion picture technique that the methods now employed in kodachrome printing are as obsolete as the daguerreotype. To prove the point let us examine the evidence.

The commercial printing of kodachrome originals is carried on by a large number of laboratories. Each laboratory has its own filter pack which is supposed to be a cure-all; to produce the finest flesh tones, the best greens, and the best over-all color balance. The developing of these duplicates is done by the Eastman Kodak Company, who in turn wet-nurses the laboratories from which exposed prints are received. This arrangement works well up to a certain point; the filter packs are generally well balanced and Kodak discharges their responsibility quite competently. However, first answer prints from cut originals suffer as of yore from eye timing, and, if the result of this deficiency does not arouse the producer, an added attraction is the utter and complete lack of scene-to-scene color balancing. Unless the original has been photographed with divine guidance and the photographer was indeed a deeply religious man, this print condition is unavoidable with present equipment. In brief, there are no instruments available which will predetermine print density and optimum color balance, and serve, as the Cinex so ably does, as a guide to timer and cameraman alike.

Some months ago the necessity of obtaining a printer which would be capable of scene-to-scene changes in color correction became so painfully evident that such a machine was designed and built. This is the Reeves Color Printer, and

subsequent experience has amply demonstrated its value, but as in many innovations of such a complicated nature, the final analysis found the cart before the horse. In other words, the printer delivered results but again the operator was faced with eye timing and eye calculation in the selection of correction filters. Truly this placed him in a worse position than he occupied in the twenties for now, in addition to density he had the far more involved and difficult problem of proper color balance.

The answer to this problem is the Acme Film Laboratories Color Tester which will be a companion piece to the Reeves Color Printer and permit pre-selection of color balance and density prior to printing. Application for patent has been made by the Acme Film Laboratories, Inc. and construction will begin at once. A brief description follows:

Front view of the device is shown in Figure 1. It will be noted that it follows in appearance the conventional pattern; i.e. the machine is manually operated, and the feed and take up mechanism for both original and positive raw stock are mounted in the conventional position. Here, however, similarity to the Cinex or other film testing equipment ends.

The problem posed before design commenced was to supply strips of as many filter combinations as was considered necessary—and at the same time economical. It was also found necessary that each filter combination be in graduated series as to density, be confined in as short a film section as possible, be exposed simultaneously, and that each exposure perform to an equal distance from the light source.

It was decided that the entire strip be 55 frames in length and that each separate filter pack exposure should include not more than 11 frames of the entire strip, and that the 11 frames of each

pack be graduated into steps of 2 printer lights each. The completed strip would then consist of 5 filter pack combinations, each of which would consist of 11 graduated steps. Thus an exposed and developed strip would then provide essential information of density and color balance before printing.

Accordingly the exposure window, which is a plastic, was divided into 5 sections with provision for the introduction immediately beneath and in the light path of CC filter packs. To maintain uniformity of exposure value over the complete strip the exposure window and attendant film transport mechanism was made *spherical* in shape with the top segment permitting free light passage from a centrally positioned lamp. Each of the 5 sections of the exposure window are partitioned into 11 areas, conforming in size to a 16 mm. picture frame. The exposure of these individual areas is controlled by a rotating shutter introduced between the light source and the entire exposure window.

There are many uses for such an instrument. For instance, a cameraman on location shooting blind will embrace the opportunity to evaluate his exposure, composition, and the color response of his lighting. Certainly deviations in sensitivity of emulsions could be instantly detected and corrective measures taken; day by day variations of processing conditions would be noted and indicated corrections made. It is calculated that the laboratory which has in use the equipment outlined above will be in a position to assist the producer immensely and permit, perhaps, a lengthening of his shooting day by the adjustment of printing color balance made necessary by the color temperature changes normally encountered in a full day's work.

It is hoped, too, that the contribution of these precision instruments by the Acme Film Laboratories, Inc. will stimulate research and encourage investigation by others and in general raise the standards of 16 mm color printing to a level deserved by those who daily are investing substantial amounts in 16mm production.

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Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image view-finder for following action.

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## George Eastman

(Continued from Page 279)

Eastman contributions to a modern art and science that have contributed immeasurably to the world's progress, education, and enjoyment.

George Eastman was a visionary—of the hard-headed variety. He made his dreams come true. When he was only 26 years old he jotted down the four fundamental business principles on which he proposed to build his organization. These principles were: production in large quantities by means of machinery; low prices to increase the use of photography; world-wide distribution; and extensive advertising as well as selling by demonstration. His hiring, in 1886, of a chemist to aid in the quest for his first transparent film is the earliest known example of employment of a scientist by an American manufacturer to devote all his time to chemical research.

"My desires are limited only by my imagination," Eastman said in those first, fateful years of his enterprise, when the simplification of photography for the amateur was his goal. That his name was to be the first in photographic progress from the wet-plate era to the present he could hardly have foreseen.

Among outstanding Eastman contributions to photography since 1900 have been the following:

Panchromatic film. Sensitive to all colors of the visible spectrum, this film marked a new era in motion-picture photography.

The system of narrow-film motion pictures, based on converting the negative from the camera into a positive for projection . . . involving whole new classes of apparatus . . . and now expanded beyond its original function of "home movies."

The Recordak system of preserving business records photographically, with film and equipment to effectuate it.

The development of color photography. A new and permanent base material for photographic paper.

"Dupli-tized" x-ray film, which reduced the necessary exposure time and simplified radiography; and industrial x-ray film.

Introduction of supersensitive film, which immediately had a revolutionizing effect on Hollywood studio technique and which was the prelude to broad improvements in all types of film.

"Fine grain" negative films and processes, which made miniature photography practicable; and fine-grain motion-picture positive film for improved sound-reproduction and picture quality.

High-speed motion-picture apparatus for detailed analysis of motion.

Advancement of precision standards in camera and lens manufacture.

Back of these noteworthy achievements stand research, manufacturing skills, the spirit of an organization that is still—as companies go—young and vigorous; and, perhaps most important, the abiding inspiration of the man who resolved to make photography easier for everybody.

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# Current Assignments of A. S. C. Members

**M**EMBERS of the American Society of Cinematographers were engaged as Directors of Photography in the Hollywood studios during July as follows:

## Columbia

Joseph Walker, "The Mating of Millie," with Evelyn Keyes, Glenn Ford, Willard Parker.

Burnet Guffey, "The Sign of the Ram," with Susan Peters, Alexander Knox, Don Randall, Peggy Ann Garner, Allene Roberts, Dame May Whitty, Doris Lloyd.

Phil Tannura, "The Crime Doctor's Gamble," with Warner Baxter, Micheline Cheirel, Stephen Geray, Roger Dunn.

Charles Lawton, Jr., "The Black Arrow," with Louis Hayward, Janet Blair, George Macready, Edgar Buchanan.

Vincent Farrar, "It Had To Be You," with Ginger Rogers, Cornel Wilde, Ron Randall, Percy Waram, Spring Byington.

Fred Jackman, Jr., "The Strawberry Roan," (Cinecolor) with Gene Autry, Gloria Henry, Jack Holt.

## Eagle-Lion

John Boyle, "Northwest Stampede," (Cinecolor) with Joan Leslie, James Craig, Jack Oakie.

John Alton, "T-Man," with Dennis O'Keefe.

Jack Greenhalgh, "Adventures of Casanova," with Arturo de Cordova, Noreen Nash, Lucille Bremer, Turhan Bey, John Sutton, George Tobias, Lloyd Corrigan, Fritz Leiber.

## Metro-Goldwyn-Mayer

Robert Surtees, "The Kissing Bandit," (Technicolor) with Frank Sinatra, Kathryn Grayson, J. Carroll Naish, Sono Osato, Mildred Natwick, Edna Skinner, Billy Gilbert, Mikhail Rasumny.

Charles Rosher, "On An Island With You," (Technicolor) with Esther Williams, Peter Lawford, Jimmy Durante, Ricardo Montalban, Cyd Charisse, Xavier Cugat.

Joe Ruttenberg "Killer McCoy," with Mickey Rooney, Ann Blyth, Brian Donlevy, James Dunn.

Paul Vogel, "The High Wall," with Robert Taylor, Audrey Totter, Herbert Marshall, Warner Anderson, Vince Barnett, Moroni Olsen.

Ray June, "Virtuous," with Van Johnson, June Allyson, Hume Cronyn, Una Merkel, Butch Jenkins, Richard Derr, Elisabeth Risdon.

George Folsey, "If Winter Comes," with Walter Pidgeon, Deborah Kerr, Angela Lansbury, Binnie Barnes, Reginald Owen, Janet Leigh, Rhys Williams.

Robert Planck, "Cass Timberlane," with Spencer Tracy, Lana Turner, Zachary Scott, Mary Astor, Cameron Mitchell, Albert Dekker, Margaret Lindsay.

## Paramount

Charles Lang, "My Own True Love," with Phyllis Calvert, Melvyn Douglas, Wanda Hendrix, Phillip Friend, Phyllis Morris.

John Seitz, "Night Has a Thousand

Eyes," with Edward G. Robinson, Gail Russell, John Lund, William Demarest, Virginia Bruce, Richard Webb.

## Independent

Lester White, "On Parade," (Bro-Rog Productions) with Glenn Davis, Felix (Doc) Blanchard, Tom Harmon, Anne Nagel.

## PRC

George Robinson, "Linda Be Good," (Cameo Prod.) with Elyse Knox, John Hubbard, Marie Wilson, Alan Nixon.

## Republic

Tony Gaudio, "The Red Pony," (Feldman-Milestone Group Prod.) with Myrna Loy, Robert Mitchum, Louis Calhern.

## RKO

Nick Musuraca, "I Remember Mama," with Irene Dunne, Barbara Bel Geddes, Oscar Homolka, Philip Dorn, Sir Cedric Hardwicke.

W. Howard Greene, "That's Life," (Technicolor) (Samuel Goldwyn Prod.) with Danny Kaye, Virginia Mayo, Steve Cochran, Felix Bressart, J. Edward Bromberg, Hugh Herbert, O. Z. Whitehead, Ludwig Stossel, Benny Goodman, Tommy Dorsey, Louie Armstrong, Lionel Hampton.

Robert de Grasse, "The Miracle of the Bells" (Jesse L. Lasky Prod.) with Fred MacMurray, Valli, Frank Sinatra.

Gregg Toland, "The Bishop's Wife," (Samuel Goldwyn Prod.) with Cary Grant, Loretta Young, David Niven, Monty Wooley, Elsa Lanchester, James Gleason.

J. Roy Hunt, "Return of the Badmen," with Randolph Scott, Robert Ryan, Anne Jeffreys, Gabby Hayes, Steve Brodie, Robert Armstrong.

## Screen Guild

Walter Streng, "The Dark Road," with John Shelton, Ann Doran, Guinn Williams.

## Selznick

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Cecil Kellaway, David Wayne, Albert Sharp.

## Twentieth Century-Fox

Joseph LaSelle, "The Foxes of Harrow," with Rex Harrison, Maureen O'Hara, Richard Haydn, Gene Lockhart, Vanessa Brown, Victor McLaglen, Hugo Haas, Dennis Hoey, Charles Irwin.

Lee Garmes, "Nightmare Alley," with Tyrone Power, Joan Blondell, Helen Walker, Coleen Gray, Ian Keith, Mike Mazurki, Taylor Holmes.

Arthur Miller, "Gentleman's Agreement," with Gregory Peck, Dorothy McGuire, John Garfield, Anne Revere, Jane Wyatt, Celeste Holm.

Charles Clarke, "Green Grass of Wyoming," (Technicolor) with Peggy Cummins, Charles Coburn, Burl Ives, Lloyd Nolan, Robert Arthur, Geraldine Wall.

Leon Shamroy, "Daisy Kenyon," with Joan Crawford, Dana Andrews, Henry Fonda, Ruth Warrick, Peggy Ann Garner, Martha Stewart.

Leo Tover, "The Snake Pit," with

Olivia de Havilland, Leo Genn, Mark Stevens, Celeste Holm, Minna Gombell.

Benjamin Kline, "Dangerous Years," (Sol Wurtzel Prod.) with William Halop, Ann E. Todd, Jerome Cowan, Scotty Beckett.

## United Artists

James Wong Howe, "The Time of Your Life," (William Cagney Prod.) with James Cagney, William Bendix, Jean Cagney, Wayne Morris, James Barton, Gale Page.

Joe Valentine, "Sleep My Love," (Triangle Prod.) with Claudette Colbert, Robert Cummings, Don Ameche, Rita Johnson, Keye Luke, Maria San Marco.

Mack Stengler, "Untitled Hopalong Cassidy Production," with William Boyd, Andy Clyde, Rand Brooks, Herbert Rawlinson.

Russell Harlan, "They Passed This Way," (Enterprise Prod.) with Joel McCrea, Frances Dee, Charles Bickford, Joseph Calleia.

## Universal-International

Lionel Lindon, "Tap Roots," (Technicolor) (George Marshall Prod. presented by Walter Wanger) with Van Heflin, Susan Hayward, Boris Karloff, Julie London, Ward Bond, Arthur Shields.

Milton Krasner, "Imagination," (Kanin Prod.) with Ronald Colman, Signe Hasso, Edmond O'Brien, Ray Collins, Phillip Loeb.

William Daniels, "The Naked City," (Mark Hellinger Prod.) with Barry Fitzgerald, Howard Duff, Dorothy Hart, Dan Taylor, Ann Sargent.

William Mellor, "The Senator Was Indiscreet," (Inter-John Prod.) with William Powell, Ella Raines, Peter Lind Hayes, Arleen Whelan, Ray Collins, Cynthia Corley, Hans Conreid.

Russell Metty, "Mortal Coils," with Charles Boyer, Ann Blyth, Sir Cedric Hardwicke, Jessica Tandy, Rachel Kempson, Nigel Bruce.

Frank Planer "The Exile," (Fairbanks Company Prod.) with Douglas Fairbanks, Jr., Marie Montez, Paule Croset, Nigel Bruce, Robert Coote, Henry Daniel.

## Warners

Ted McCord, "The Treasure of Sierra Madre," with Humphrey Bogart, Walter Huston, Bruce Bennett, Tim Holt, Barton MacLane.

Sid Hickox, "Silver River," with Errol Flynn, Ann Sheridan, Thomas Mitchell, Tom D'Andrea, Barton MacLane.

Ernest Haller, "Ever the Beginning," (United States Pictures) with Lilli Palmer, Sam Wanamaker, Akim Tamiroff, Gale Robbins, Hugo Haas, Benny Baker, Stella Adler.

Karl Freund, "Mary Hagen," with Ronald Reagan, Shirley Temple, Rory Calhoun, Charles Kemper, Kathryn Card.

Elwood Bredell, "Romance in High C," (Technicolor) (Michael Curtiz Prod.) with Jack Carson, Janis Paige, Don DeFore, Oscar Levant, S. Z. Zakall, Doris Day.

Carl Guthrie, "Need For Each Other," with Joyce Reynolds, Robert Hutton, Cecil Kellaway, Ernest Truex.

## Reference Books On Motion Picture Photography and Production Procedure

SO many inquiries have been received during the past several months for lists of reference books dealing with motion picture photography, production, and related practices, that we will detail in this article a number of books that have been—and still are being—used as reference guides for the fundamentals and advanced technique of motion picture photography.

### A.S.C. Annual

Although the Cinematographic Annual was published back in 1930 by the American Society of Cinematographers, its 600-odd pages contain much valuable information on the basic principles of motion picture photography; together with related interests of motion picture production. It might be pointed out that many subjects contained in that issue have become outmoded or outdated during the intervening years, but there is still sufficient information within the covers for the price of \$1.75 domestic, and \$2.00 foreign (including postage) for the few dozen copies that are still available. Many public libraries in larger cities have copies on file for reference.

### SMPE Publication

At the 1942 Spring Technical Conference of the Society of Motion Picture Engineers at Hollywood, a symposium of papers was presented on the then current technical practices in the motion picture industry as applied to actual motion picture production. Subsequently, the papers were assembled and issued in a 150 page booklet under title of "The Technique of Motion Picture Production."

"Cinematography in the Hollywood Studios" is covered extensively in three articles: "Black and White Cinematography," by John W. Boyle, A.S.C.; "Putting Clouds into Exterior Scenes," by Charles G. Clarke, A.S.C.; and "Technicolor Cinematography," by Winton Hoch, A.S.C. Farcoit Edouart, A.S.C. contributes an article on "The Paramount Transparency Department," while Fred Sersen describes "Special Photographic Effects."

Other papers include: "Technology in the Art of Producing Motion Pictures" by Leon S. Becker; "Illumination in Motion Picture Production," by R. G. Linderman, C. W. Handley, and A. Rodgers; laboratory practices; various phases of sound recording; and cutting and editing of motion pictures.

For those who might be interested in acquiring copies of the SMPE book, we direct inquiries to the Society of Motion Picture Engineers, Hotel Pennsylvania, New York 1, N. Y.

### Other Reference Works

Unlike other art forms, that of cinematography apparently does not yet have—in one complete volume—all of the essential basic fundamentals. Perhaps a reason for this is the rapid progress being made in both equipment, raw films and practices.

Without our recommendations wholly or in part, we are however, printing the reading list of reference works as required in the course of cinematography at the University of Southern California. That list comprises: "This Is Photography," by Miller and Brummitt; "Cinematography and Talkies," by Cameron and Dubray; "How They Make a Motion Picture," by Hoadley and Freulich; "Cinematic Design," by Hacker; "Colour Cinematography," by Klein; "Pictorial Beauty on the Screen;" "The Cinema Today," by Spencer and Waley; "The Kingdom of the Camera," by Baker; "The American Film," by Rideout; "We Make the Movies," by Naumberg; "Documentary Film," by Rotha; "Behind the Screen," by Watts; "A Grammar of the Film," by Spottiswoode; "Talking Pictures," by Kiesling; "Footnotes to the Film," by Davy; "The Film Sense," by Eisenstein; "The Cinema as a Graphic Art," by Nilsen; "Moving Pictures," by F. A. Talbot; "Motion Picture Work," by David S. Hulfish; and "Theory of the Photographic Process," by C. E. Kenneth Mees. Many of these publications will undoubtedly be found in public libraries for reference purposes.

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QUALITY MOVIE FILM Panchromatic, Weston 32, 16mm 50' magazine, \$3.25; 100' \$4.50, 50' \$2.40; Double 8mm, 25' \$2.15. Semi-Ortho, Weston 8, 16mm, 100' \$2.85; 50' \$1.75. Double 8mm, 25' \$1.55. FREE PROCESSING. FOTO-SHOP, INC., Room 39, 18 E. 42nd St., New York City.

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Bell & Howell Eyemo. Air Corps A-4-A Model, 3-speed, 1" wide angle F:4.5 fixed focus, 2" Eymax F:2.8 focusing, 6" Eymax F:4.5 focusing, 10" F:4.5 Eymax focusing, filters, variable, optical view finder, carrying case . . . . . \$595.00

New Bell & Howell 16mm. 70-DA, complete with 1" F:1.9 coated Lumax lens, 2" F:4.5 Telate, 3" F:4.5 Telate . . . . . \$418.29  
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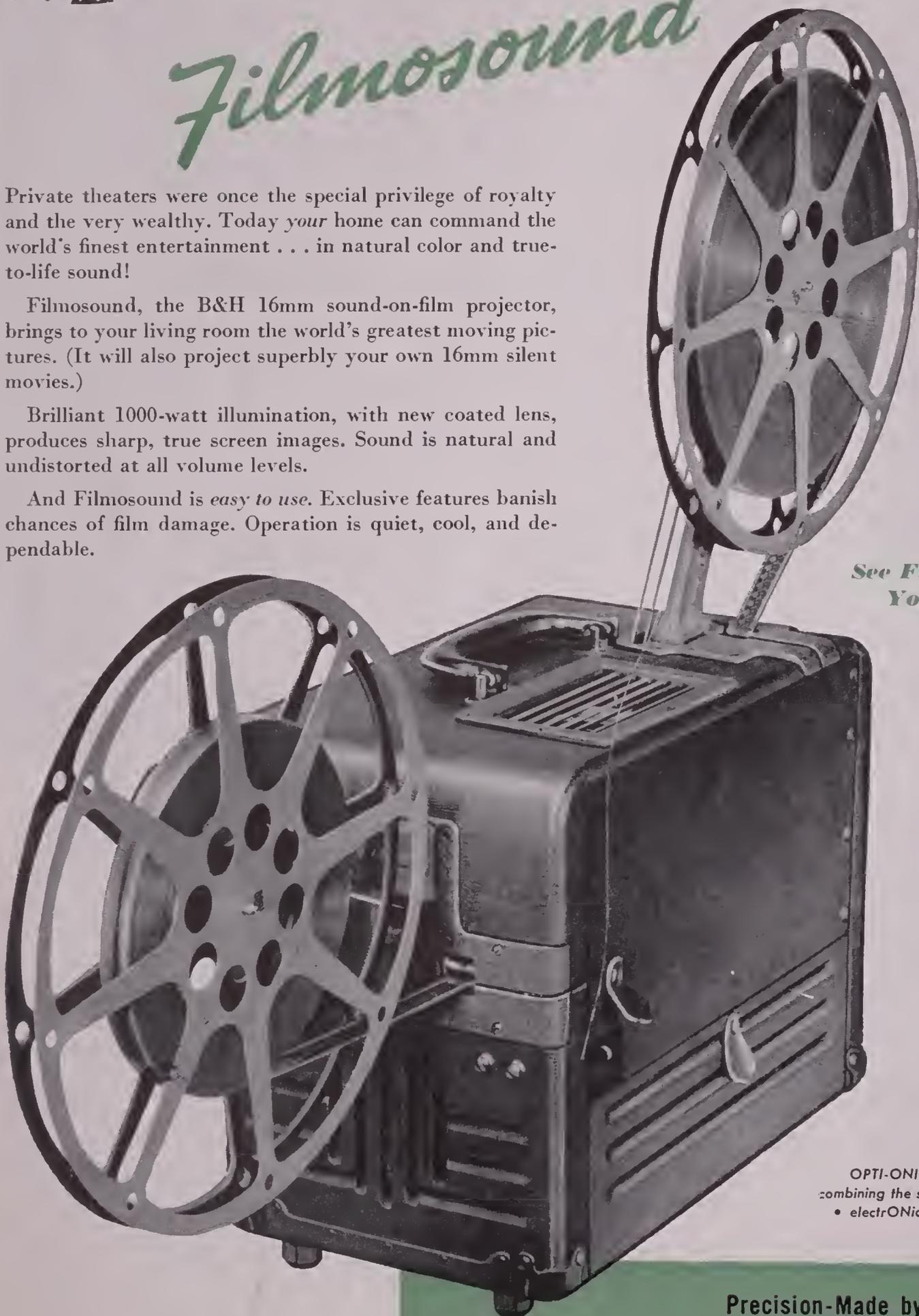
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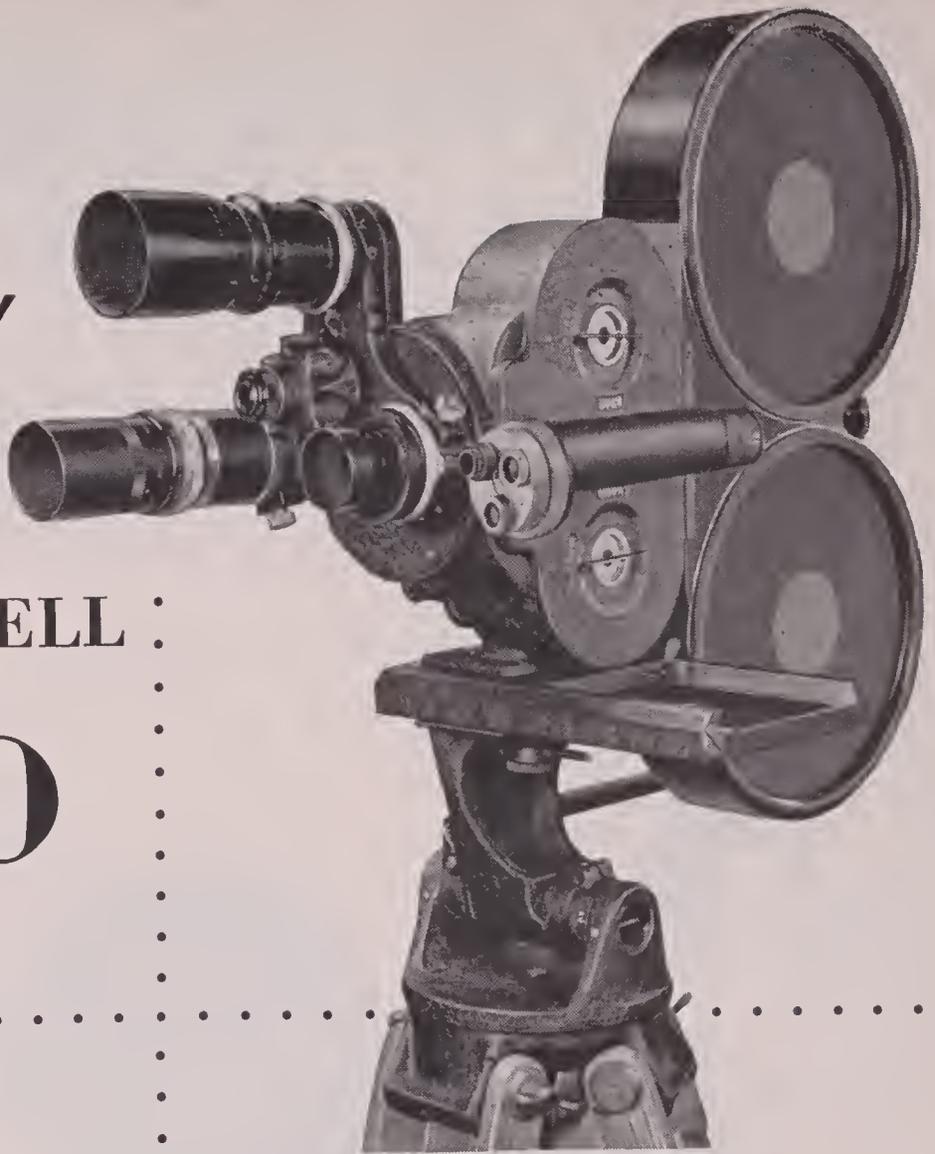
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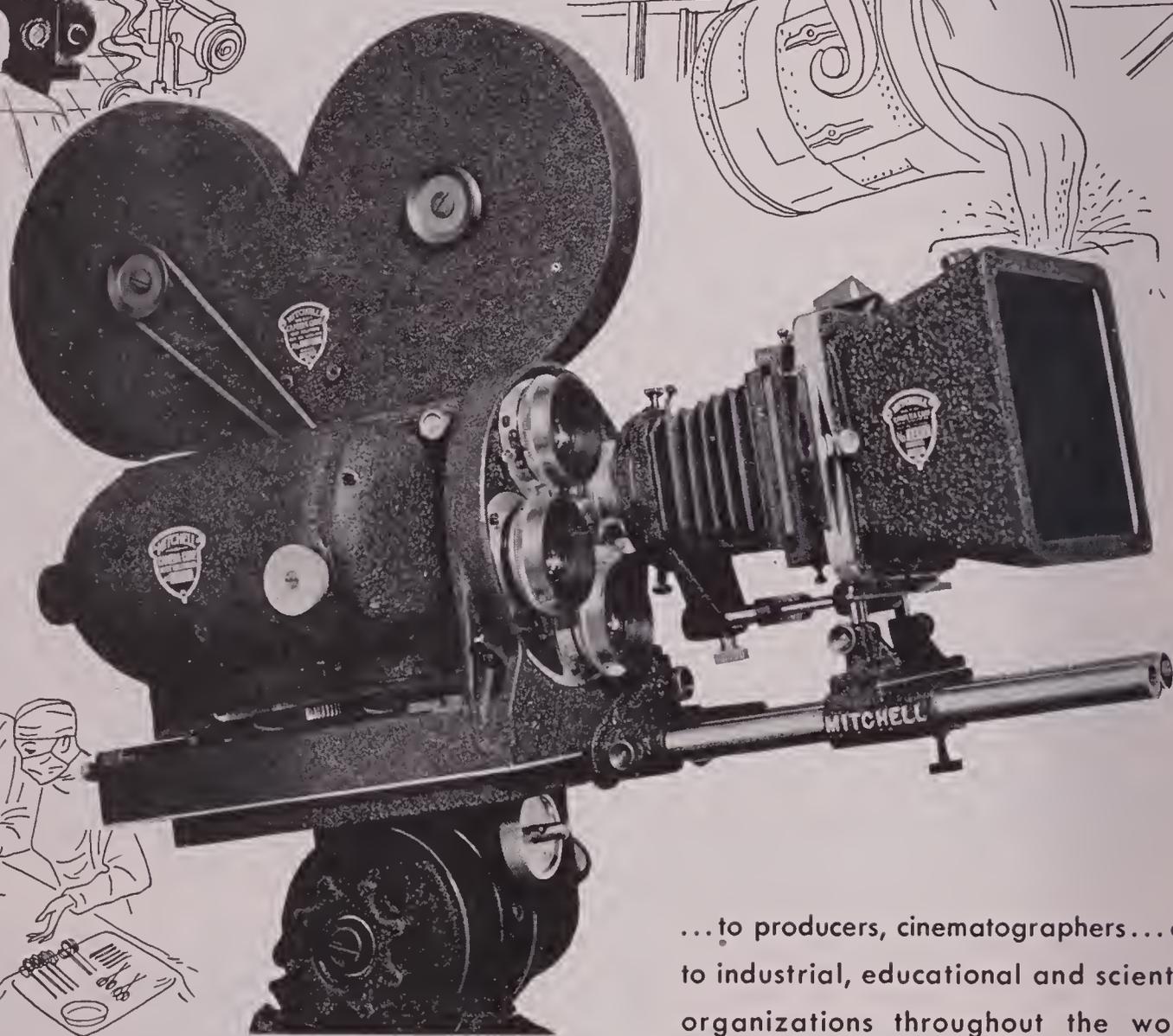
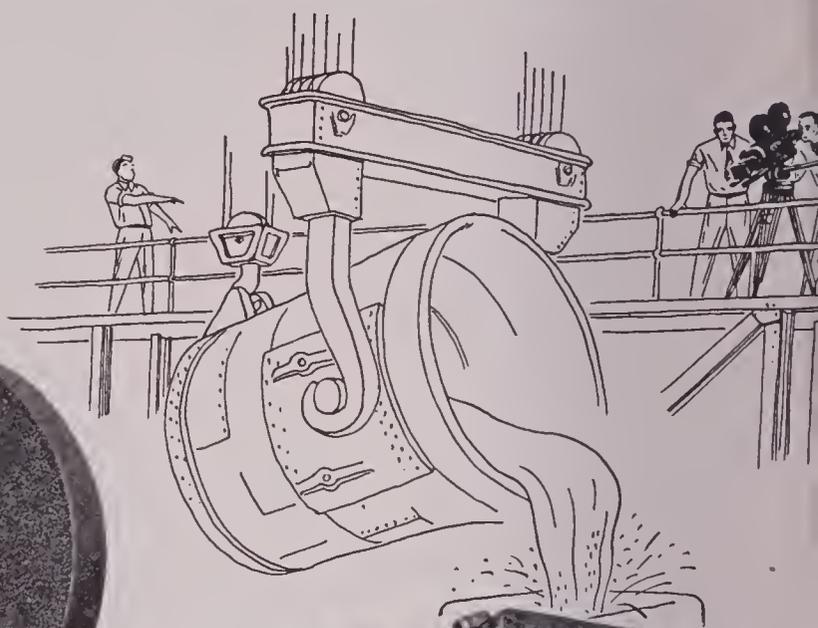
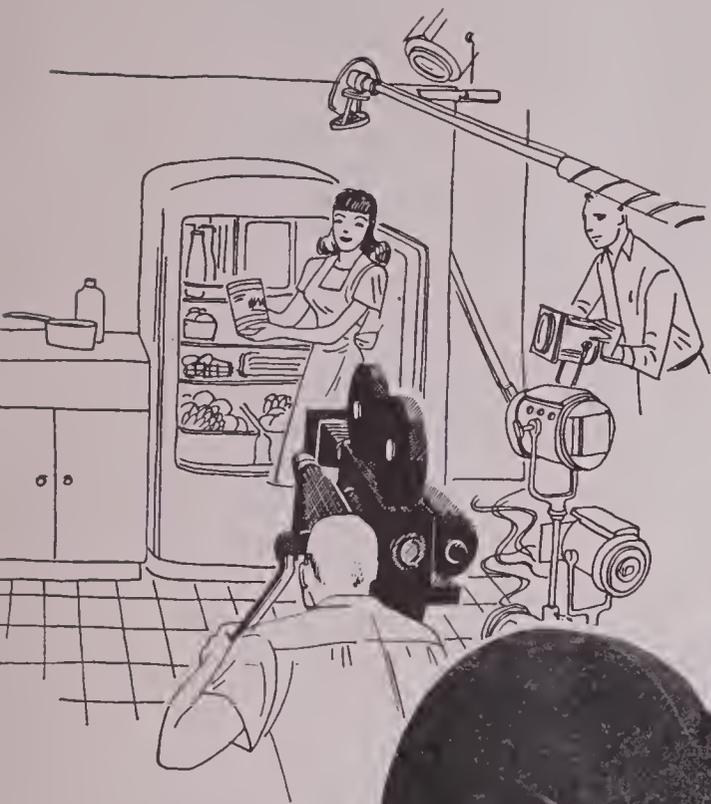
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

SEPTEMBER, 1947

NO. 9

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ON THE FRONT COVER—Director of Photography James Brown, Jr. (with eye-shade) in center foreground, listens while director Frank Wisbar explains a scene before rehearsal for "The Prairie," produced by Zenith Pictures, Inc. for Screen Guild release. Feature was made at the new Motion Picture Center Studios. Still by M. B. Paul.

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McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1947 by A. S. C. Agency Inc.

Entered as second-class matter Nov. 18, 1937,  
at the postoffice at Los Angeles, California, under  
the act of March 3, 1879.

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# "Climbing the Matterhorn"

## FIRST 35 MM. RELEASE IN ANSCO COLOR



RICHARD ANGST, photographer on "Climbing the Matterhorn," rigged up his DeBrie camera on skis for a travelling shot in the snow. Batteries to operate the motor on right side of camera, were carried by Angst on his back.

INITIAL picture to be produced in 35 mm. Ansco color for general theatrical release will be a 21 minute featurette, "Climbing the Matterhorn," produced and directed by Irving Allen and released via Monogram. It was photographed in Zermatt, Switzerland, and on the Matterhorn by Richard Angst and Tony Braun—both European motion picture cameramen.

Before leaving Hollywood for Switzerland a year ago, producer Allen contacted J. Kneeland Nunan, head of the coast offices of Ansco, and asked for 5,000 feet of the 35 mm. Ansco color negative for his proposed picture of the Matterhorn. At the time, major portion of the color negative in Hollywood was for testing purposes, but Allen was given 2,000 feet of the stock for the project. Upon arrival in Geneva, Switzerland, however, he was happily surprised to find the other 3,000 feet of film awaiting him.

As neither a cameraman nor equipment of any kind was taken along by Allen, he encountered many difficulties and delays in Switzerland before acquiring two photographers and necessary basic camera equipment for the project. The producer had previously known Angst (who photographed "White Hell of Pitz Palu" and "S. O. S. Iceberg" in former years) and was able to engage him for the picture. Through Angst's assistance, Tony Braun was secured.

With the photographer problem solved, Allen turned to securing the camera equipment. He arranged to rent two Mitchell cameras in Paris—which, by the way—seems to be the only place in Europe outside of England where Mitchells are available. The cameras were shipped to Geneva, but were held up by Swiss customs officials. After battling red tape for the importation, Allen abandoned the entire plan and decided that—if the picture was to be made at all—it would have to be with what cameras and equipment he could round up in Switzerland.

As there was not one Mitchell available in all of Switzerland, Allen finally settled for a DeBrie owned by Angst, but which only used 400 magazines; and an Arriflex which was rented through Braun. The Arriflex had no tripod, so a 16 mm. tripod was rigged up to serve the purpose. Further complications were encountered as the camera had only one 200 foot magazine.

The unit started in Zermatt, and progress was made in shooting around the town. However, the color negative was in 1,000 foot rolls, and had to be broken down by hand for the 400 and 200 foot magazines. In addition, no rewind was available for this work done by the assistant cameraman each night.

On the mountain locations, the limitation of only one 200 foot magazine for the Arriflex camera created continual delays. After exposure of one roll, there was a half hour wait while the assistant unloaded the exposed film in the 200 magazine with use of a black bag; canned the film properly, and then reloaded with new negative for shooting to resume.

Allen points out that the film was shot under the most difficult conditions. There were no reflectors available; no makeup on the people used as actors; and the unit did not even have access to a light meter. Everything was necessarily guess work, which was hazard-

(Continued on Page 341)

# WE OPERATE THE BIGGEST CAMERA CRANE IN THE WORLD

By PAUL IVANO, A.S.C.



PAUL IVANO, A.S.C., shown behind camera mounted on helicopter for traveling shot tests.

**I**NEVITABLY the search for a flexible, far-reaching camera mount for outdoor cinematography has led to experiments with the helicopter. The very first of these experiments has already shown sensational results; the possibility of zoom shots from two to twelve thousand feet, shots at any focus to follow a racing car at ninety miles an hour to slower dolly shots to follow a walking or climbing man.

With Bob William, and under the auspices of the Academy of Motion Picture Arts and Sciences, I have experimented in the past few months with moving shots from a helicopter piloted by Knute Flint, of the Armstrong-Flint Helicopter Co.

Obviously the possibilities presented by a helicopter are of enormous advantage to the cinematographer. The fact that this vehicle

has a ceiling of twelve thousand feet, a speed of ninety miles per hour, a degree of steadiness not found in any other aircraft, and the ability to move in any direction, up, down, laterally, or at any angle, offers a most inviting prospect. Even the dullest imagination can envision the dozens of uses which this flexibility of movement gives to motion pictures. A helicopter can lead, follow or take side-angle views of a



Camera mounted on helicopter, can shoot from ground level (left), or follow action and photograph it (right) from several hundred feet elevation. Method is a major contribution to motion picture photography on production.



**RALPH DENSMORE**, camera engineer on the Mark Armistead staff, who designed and built the special vibrationless camera mount for the helicopter.

chase, regardless of terrain. It can even follow horses down the side of sand and shale slides. These uses would certainly occur to the makers of western and outdoor action dramas.

The ability of the helicopter to rise steadily and in any given direction opens up dramatic possibilities for the use of such a camera vehicle in disclosing immense panorama shots, or conversely, coming down from great heights to focus on some object of special dramatic interest.

All the paraphernalia of railway tracks, special railway crane and engine used by David Selznick in "Gone With The Wind" to shoot the spectacular pull-back shot, which disclosed the wounded in the station square of Atlanta, could have been dispensed with if he had had a helicopter at his disposal at the time the picture was produced.

However, before any of these attractive advantages could be realized, certain fundamental drawbacks had to be overcome. The first was the matter of vibration. Although, with much less tendency to vibrate than the ordinary airplane, at the same time the helicopter, with its enormous rotor blades, has certain vibrational phases peculiarly its own. In experimenting to overcome these, several camera mounts were tried out. The first, a tubing framework, proved entirely unsatisfactory. The second, which attempted to damp vibration by the use of rubber mounting, merely added its own type of mushy vibration to the more regular vibrations of the helicopter. Finally, a combination of mounting, Akely head, and method of operation overcame this handicap.

Helicopters have a limited load capacity. Including such items as pilot, cameraman, gasoline and camera they can only carry a maximum load of six hundred pounds. This means that the cameraman must operate his own camera without assistance, thereby making fol-

lowing difficult and limiting focusing to split focusing. By coordinating, through practice, flight movements and camera operation, these difficulties can be solved. The use of an operator will have to wait until helicopters themselves develop into greater weight carriers. But already the Bell Company has developed a five-place helicopter which only waits to be licensed.

Wind aloft also creates a problem for the cameraman operating from a helicopter. All flight has to be coordinated with wind direction to insure steadiness of movement. Zoom shots should be made directly into the wind.

Dust presents its own peculiar problem. The great rotor blades stir up dust and therefore all close shots must be planned for lawn, sod or wetted-down surfaces. Also care has to be taken as to the direction and distance from which shots are made in order not to disturb the clothing and hair of actors by the rotor-created wind. However, this does not mean that close shots can not be taken, but merely that the direction of these in relation to the rotation of the blades must be carefully worked out.

In the experiments conducted by Bob William and myself more than two thousand feet of film were shot. All these shots were unrehearsed and made under whatever light conditions existed at the time. Despite the lack of preparation and good light the film exposed showed extremely good results. There are shots following a car at some sixty miles an hour, other shots coming down from a height of about two thousand feet to the brink of a cliff where a man was standing, and then following this same man closely as he ran over broken terrain, jumped into an auto and sped away. Also panoramic shots of buildings were made as well as moving shots around and between these buildings.

(Continued on Page 330)



Enlarged frames from a test shot. At top, both auto and helicopter are stationary. Then the car took off across an airfield—with the camera-crane helicopter following and gradually gaining altitude. At bottom, auto has stopped, and helicopter drops down to come in for a close shot.



# MOTION PICTURE CENTER ★ HOLLYWOOD'S NEWEST STUDIO

**M**OTION Picture Center is the first studio to be planned and constructed from the ground up in the Hollywood area for nearly 18 years. Built during the past 18 months to alleviate the acute shortage of stage and studio space confronting independent producers, the plant recently opened for production, with Sol M. Wurtzel taking the honors of the first producer to use the facilities.

Edward Small, one of the veteran independent producers of Hollywood, has contracted to make minimum of two pictures annually on the lot starting next month, and has already moved his organization into offices. Other companies to use studio include: Walter Colmes' Somerset Productions; Arthur Lyons' Producing Artists, whose initial production on the lot will star Zachary Scott, Sydney Greenstreet and Louis Hayward; Allied Artists, headed by Constance Bennett and Hal Chester; and several units producing for Screen Guild release.

Studio is situated in the center of Hollywood on a full square block comprising four and a half acres at Cahuenga Blvd. and Wiloughby Street. A quarter century ago, site was part of the back lot of the old Metro studios where exteriors for "The Four Horsemen" and "Scaramouche" were made; and holds historical significance for that fact.

#### Latest Construction and Equipment

The total of 12 buildings in the project are all of concrete and steel construction. Stages are sound proof, insulated with rock-wool, and have been certified by engineers of Western Electric and R.C.A. for meeting the highest standards of sound recording. Lighting equipment comprises the latest designs and models



AIR VIEW OF MOTION PICTURE CENTER STUDIO. Buildings numbered are: (1) administration; (2) commissary and offices; (3) transformer vault and generator room; (4) mill; (5) grip building and art department; (6) stages 5 and 6; (7) casting and offices; (8) stages 3 and 4; (9) stages 1 and 2; (10) stage 7; (11) stages 8 and 9; (12) prop room and projection rooms; (13) cutting rooms and vaults.

of Bardwell & McAllister and Mole-Richardson lamps and products for complete service. Faxon Dean, A.S.C., has established his camera rental service in a special building on the lot, and will provide all types of camera equipment for the producers, in addition to his complete machine shop for maintenance and repairs. The generator plant has been set up to deliver 20,000 amps. The mill is equipped with latest facilities for efficient operation; and adequate storage space has been provided for sets and the flats used in set construction. The two-story Crafts building houses the props and paint departments on the ground floor, with projection rooms above; while another two story building is available for grip equipment.

Other facilities include a two story administration building containing 52 offices; commissary seating 90; casting office building; 15 dressing rooms, each equipped with shower and lavatory, for stars and featured players; and two large general dressing rooms for extra

and bit players. Additional offices are also spotted close to the stages for use of production departments during shooting.

#### Nine Stages

Five buildings, with a total area of 80,000 square feet, comprise the stage facilities, to allow for shooting three productions at a time—or total of 600 shooting days on the lot annually. Four of the five buildings have sound-proofed partitions which can easily be closed to make two separate stages in each for production purposes.

Largest stage measures 220 by 118 feet, with height of 40 feet to the catwalk. Two others are 180 by 100 feet, with catwalk height of 35 feet; another has area of 70 by 160 feet; while the smallest stage measures 75 by 78 feet.

#### Telephone Circuit Recording

Special arrangements have been completed with Sound Service Studios—recorders of Western Electric sound system—and the Telephone

Company whereby the latter has wired each stage on the lot so that sound recording production during filming is transmitted via telephone lines for recording on latest Western Electric sound recorders operated in the Sound Services plant several blocks away. This procedure allows for continuous operation of high quality sound recording, and prevents loss of time through breakdown of a sound truck or channel at the studio during production. If an emergency should arise, substitution of another sound recording channel at Sound Services can quickly be made to prevent delay of more than a few minutes.

Cost of construction and equipping of Motion Picture Center represents an outlay in excess of \$2,500,000.

More than 12,000,000 ounces of the world's purest silver are used each year by the Eastman Kodak Company for photographic purposes.



Exterior set on the largest stage of Motion Picture Center studio for "The Prairie." Zenith production with James Brown, Jr., A.S.C., as Director of Photography. Cyclorama covered three walls of the huge stage to provide sky backing; with necessary clouds projected via arcs during shooting.

# OUT-ORSONING ORSON

By HERB A. LIGHTMAN

IT is something of a coincidence that this summer, while Orson Welles struggled on a Republic Studios sound stage to fit Shakespeare's *Macbeth* onto film, a former schoolmate of his (with Orsonish versatility) was busily completing a 70-minute, 16 mm. version of that same tragedy for release to schools and colleges throughout the nation.

The young producer is David Bradley of Winnetka, Ill., who, with a cast and crew of ex-G.I.'s, a scraped-together producing capital of \$5,000, and a determination that can only be described as "grim," managed to turn out an unusually polished job of breathing cinematic life into the Bard's most famous tragedy.

Like Welles, Bradley is a product of Chicago's exclusive Todd School, where cinematically inclined moppets are turned loose with camera and megaphone to try their hands at making celluloid gallop. While still a teen-aged Lubitsch, Bradley turned out film versions of "Oliver Twist," "Treasure Island," "The Christmas Carol," "Emperor Jones," and "Peer Gynt"—which he wrote, directed, photographed, edited and projected. A veritable one-man studio, he later enlisted into the 167th Signal Photo Co. as a newsreel cameraman and spent three years photographing jeeps and generals from Camp Crowder, Mo., to Munich.

While he languished in an army upper bunk, enduring the slings and arrows of those whose filmic appreciation extended only as far as Betty Grable's legs, Bradley was busily planning his super-production of *Macbeth*. Each week he sent voluminous production notes to a cast and crew scattered from the Aleutians to the Burma Road. From a candle-lit, wind-

swept pyramidal tent on Kiska came back sketches for costumes and settings; out of the green hell of Pacific jungles came plans for lighting and camera angles. All of this data Bradley slavishly compiled into bales of production notes—waiting patiently for *Der Tag*.

Finally, on June 15, 1946, actual shooting began on the Bradley version of *Macbeth*. Three months and 7,000 feet later, the cameras recorded the last scene of the production. There followed additional months of editing and painstaking post-synchronization to make the dialogue fit the lip movements of the actors.

The result is a well-thought-out, imaginatively executed length of low-key celluloid that conveys with fresh originality Shakespeare's story of Scottish skullduggery in the 11th Century. In the title role, Bradley gives a restrained and convincing performance, as does Jain Wilimovsky, who plays the role of his bloodthirsty consort. Some of the other actors, though camouflaged with facial foliage, look more like Andy Hardy than hairy-chested warriors; but judged from the viewpoint of overall production quality, the film shows a thoroughly professional approach.

Direction by Thomas A. Blair, a former Marine, is deft and generally well-paced. Lighting and camera work, by Robert McKisson, a fifteen-year-old camera genius, is of a quality that compares favorably with that of expensively-mounted professional productions. Bradley, in his multiple role of producer, actor, scenarist, editor and director of photography, proves to a somewhat brow-beaten public that Orson Welles has no corner on the "boy wonder" market. *Macbeth* is his picture, and he has

every reason to be proud of a job (or jobs) well done. His filmic approach to a subject is forceful and dramatic. He uses the camera not to photograph a stage play, but as an actual participant in a drama skillfully adapted to the screen.

## Photography Scores Heavily

While critics may ponder the interpretation of some of the dialogue, they cannot but approve the excellence of the photography. Wide-angle lenses, low-key lighting, well-executed special effects, dramatic composition, and low camera angles—all add up to a very finished job of 16 mm. cinematography.

Especially effective are shots showing close-ups of the faces of Macbeth and Banquo, framing a weird silhouette of the three witches boiling their brew on a rocky crag 100 feet from the camera. Equally spectacular are close-up shots of the witches themselves, grotesquely lighted, as they mumble and chant about the bubbling cauldron.

The sequence which shows the murder of Lady Macduff and her son is pointed up through the use of dramatic cross-lighting, and subjective camera treatment. As the camera lurches in toward the horror-stricken victim, a *cut* is made to her point of view, and we see a sharply-studded club come crashing into the lens.

Other effective sequences include the dagger scenes, Lady Macbeth's sleep-walking scene, and the banquet scene—all of which are staged with a good deal of mood and imagination. Somewhat less professionally executed is the Birnam Wood-to-Dunsinane battle sequence, which contains one excellent *dolly*



David Bradley's production of "Macbeth" is notable for its unusual low-key photography, executed by 15-year-old cinematographer Robert McKisson. The lighting in Lady Macbeth's sleepwalking scene (left) simulates the glow cast by the candle she carries. In the dagger scene (right), a low light source, high camera angle, and the interesting architecture of a circular staircase combine to form an arresting composition.



The above scenes are from the 16 mm. version of Shakespeare's "Macbeth," as produced by David Bradley of Winnetka, Ill. The production is distinguished by outstanding photography, authentic settings, and well-designed costumes. Produced on a shoestring budget, it has been slanted to appeal to high school and college audiences.

shot, but otherwise looks like a troop of armor-clad Boy Scouts searching for Easter eggs.

Explaining the overall conception of the production, the producer observes: "We realized that the strength of our *Macbeth* must be found in stimulating cinematic treatment, portrayed with such angular camera compositions as to suggest the twisted, supernatural aspects of the drama. With a vast majority of the scenes taking place indoors or at night, we planned our lighting for harsh contrasts and textures, so that, on occasion, the brooding menace of cold, murky stone could almost be felt. . . . For our *Macbeth* was to be, above all, a *movie*, depending upon atmosphere more than acting, 'punch' more than pomp for its success or failure."

#### Costumes Fit the Drama

Production-wise, the costumes are one of the several important elements which give this filmization of *Macbeth* its professional finish—yet these costumes were made from whatever remnants happened to be available: draperies, bedspreads, blankets and towels, rummage sale mill ends, former finery begged or borrowed from friends.

The costumes were designed by an Air Forces man, then stationed in the Aleutian Islands. They were broken down into simple basic patterns that could be changed and embellished to provide a variety of wardrobe. Thirty-five costumes made out of gunnysacking were designed for the English warriors, and thirty-five for the Scottish warriors, including trousers and tunics, plaid tartans and caps, and battle jackets made of felt (to simulate leather).

Boots presented the most difficult wardrobe problem. Since soft leather in sufficient quantities was unattainable, heavy felt had to be used. These photographed realistically, but wore out quickly and frequently had to be re-soled.

Macbeth's battle jacket, weighing fifteen pounds, was made of unusually heavy cowhide, laced at the sides and studded with paper fasteners to simulate bronze nailheads.

Lady Macbeth's costumes were adapted from two basic designs. The garment used in the sleep-walking scene was a simple, form-fitting

and a skirt with train. The costume which she wore in the other scenes was of similar pattern, but with dramatic sleeves that almost touched the floor. Her accessories included a belt of linked brass pieces, a wide gold belt, and a collar set with jewels.

Macbeth's jewelry was skillfully fashioned of tin can lids, chains and pieces of glass. Other pieces, including necklaces, rings, and bracelets—were donated by friends and cleverly re-designed to fit the motif of the drama.

Properties were made in Bradley's basement by a crew of willing assistants. Seventy-nine helmets were constructed from *papier maché* super-imposed on clay molds, and later painted with silver paint. Other headgear included crowns for Macbeth and his wife, as well as for the eight kings who appear to haunt Macbeth.

Beaver board, decorated with cut-out insignia, served as a basis for the shields carried by English and Scottish warriors. Battle axes, daggers, spears and swords were carved from wood and painted with a metallic pigment that gave them an authentic appearance.

Properties for the witches' scenes included toes of frogs, bats' wings, snakes' heads, roots of hemlock, and the eye of a newt—all made of molded *papier maché*. All of these weird ingredients (including a live frog captured at the scene) were tossed into a large copper cauldron which had been used to boil maple syrup in Vermont, and which was rented from an antique shop.

#### Settings Create Atmosphere

Largely responsible for the fine mood which pervades the entire production, are the settings—all of which have an authenticity that is thoroughly convincing. Only one set was especially built for the picture: Duncan's battlefield tent—made of strips of heavy canvas tacked about a porch. The other settings were all actual locations situated within 100 miles of Chicago. Chief amongst these was a huge medieval castle, skillfully reconstructed on the banks of the Rock River near Rockford, Ill. This fortuitous bit of architecture served as

settings for Lady Macbeth's chambers, the banquet hall, the coronation room, Lady Macduff's sitting room, and a striking circular staircase about which much of the action was staged. The rugged rock-hewn walls and arches of the castle were exactly right for the settings depicted.

A parish house, just six blocks from Bradley's address, served as the locale for the murder; the courtyard of Northwestern University's Deering Library was used for the sleepwalking scene and several others. An abandoned stone quarry in Racine, Wis., provided a splendid locale for the witches' heath and rock cavern.

The battle of Birnam Wood was staged in a forest area near Bradley's home. Macbeth's castle, strikingly silhouetted against the sky, was in reality the Holy Hill church in Milwaukee, Wis. All of these locations were skillfully chosen to tie in with the mood and period of the drama. They do much to give the film a credible and authentic touch.

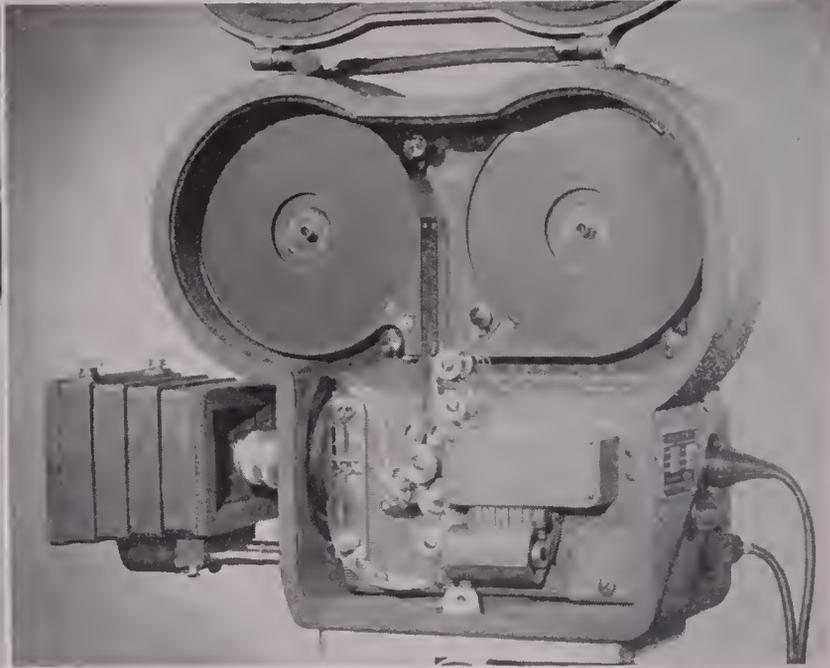
Large set dressings, such as thrones for Macbeth and Lady Macbeth, were made from the designer's specifications out of wood and cardboard trimmed with ornate molding. The gnarled oak, which added so effectively to the stark atmosphere of the witches' scene, was discovered several miles away and lovingly hauled to the locale of the action in the rumble seat of a car.

#### Sound Is the Finishing Touch

Perhaps the most difficult problem encountered in filming the 16 mm. *Macbeth* was that of adding sound after all of the action had been filmed and edited. This was done by means of post-synchronization, a device in which the film is projected and the words are spoken to coincide with the lip movements of the actors.

Perfect in Hollywood as a standard technique in the filming of long shots where a microphone would be evident in the scene, the technique is especially difficult to master in close-ups, where any little deviation is noticeable. It is a tribute to the actors in the film that the synchronization is, for the most

(Continued on Page 332)



The new "Auricon-Pro" 16 mm. sound camera is designed for constant use and professional performance and results. At left, convenient stud above lens mount provides accurate measurement between camera and subject. At right, side cover is removed to show interior.

# NEW "AURICON-PRO" 16 mm. SOUND-ON-FILM CAMERA BY BERNDT-BACH

**D**ESIGNED in Hollywood, with every working part built for professional service, the "Auricon-Pro" 16 mm. Sound Camera provides a rock-steady picture while recording high-fidelity sound on the same film at the same time. The Auricon-Pro Camera also will operate double-system in synchronism with the Auricon Model RT-80 Recorder. This newest Berndt-Bach Camera is the result of pioneering experience in manufacturing 16 mm. sound-on-film equipment since 1931.

Single-perforated film for 16 mm. talking-pictures is available from all film manufacturers.  
(Continued on Page 338)



At left, a geared Veeder-Root footage counter indicates footage exposed, and can be re-set to zero. Right, the complete "Auricon-Pro" camera and equipment.

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## 15. The Pre-Editing Stage

By CHARLES LORING

THE editing process is more than a mere mechanical procedure—it is a cinematic force, for it is in the cutting room that a mass of incoherent footage gradually evolves into a finished motion picture. The cutting phase, far from being a simple job of assembly, is a creative craft. It is the final proof of the filmic pudding—for without it, a skillful script, deft direction, and brilliant camerawork would be just so much wasted effort.

A film editor must have certain personal attributes that fit him for this most exacting of cinematic techniques. He must have patience, a "feel" for pace, an instinct for dramatic emphasis, and the ability to visualize in overall terms the impression separate fragments of celluloid will convey when cut together according to a preconceived cutting plan.

Film editing is work that is at the same time nerve-wracking and fascinating. It is nerve-wracking in that it demands absolute precision in timing and matching of action. It is fascinating in that the editor is actually able to see the film story grow bit-by-bit as the separate scenes pass through the scope of his viewer.

Like any other phase of film-making, editing draws its sureness and creative force from pre-planning. This planning begins with the sequence of dramatic climaxes as set down in the master shooting script. It follows through in the direction and staging of the action. Finally, it begins to bear fruit in the series of calculations that immediately precede the actual joining together of the separate scenes. It is this *pre-editing* stage that we shall analyze.

### Get Yourself a System

It is of prime importance in editing, as well as in every other phase of film production, to have a clear-cut system of operation. To many film-makers editing is a nightmare simply because they don't know where to begin. Once having begun, they don't know how to control their footage. They are always wondering what became of this scene or that. They get their *trims* mixed up with the usable footage, and they confuse the good *takes* with the bad *takes*. The editor should know at all times just where to lay his hands on any required scene. He should have an efficient numbering system for identifying each scene; and he should make suitable provision for filing *trims* of the footage.

There is no *one* best system to use in editing film. Every cutter has a bag of cutting tricks and techniques which he has found to be effective after years of experimentation. Indeed, if you were to hand ten first-rate cutters prints

of identical raw footage and tell each to cut his own story, you would find yourself with ten different stories, each completely cut, but each with a different approach and overall meaning.

For this reason, it is not to be implied that the following system of editing is the *only* practical system. Rather, let us say that it is one method that has worked very well in the past and may prove useful to the serious filmmaker. As he goes along, however, he will discover and develop approaches which closely fit his own talents as an editor, and in time will evolve an editing style distinctly his own.

### The First Steps

Taking the pre-editing principles step-by-step, let us begin by supposing that you have just received your processed raw footage back from the lab.

If, as was strongly recommended in an earlier chapter, you carefully slated each scene according to its shooting script number during shooting, the job of assembling the footage in sequence becomes a simple matter of cutting the scenes apart and re-assembling them in numerical order. If, however, the scenes were not slated, a practical numbering system must be applied to the footage before it can safely be broken down into separate scenes.

First, mount the separate rolls of film onto 400 foot reels, each of which is identified by its own letter—A, B, C, etc. Here let it be said that it is always wise practice to have a *work-print* made and edge-numbered to match your original color master print or black and white negative. Use this work-print for all of your preliminary editing and reserve your original in a safe place, to insure against scratches or other damage. Later, after the cut work-print has been approved, you can (by matching edge-numbers) cut your original exactly to match.

At any rate, your film, as shipped to you from the lab, has been wound onto 400 foot reels, each of which has its own distinguishing letter. Your next step is to project each reel and list each scene in order, recording an order or *roll number*, plus a brief description of the contents of the scene. Simply list out-of-focus or poorly exposed *takes* without giving them a *roll number*. Give a separate sub-number to each *take* of a given scene, indicating on your list which is the best *take*.

Next, record the data for each good scene on a 3 x 5 card, including the image size (Long shot, Close-up, etc.), the camera angle, and a brief description of the action. Record the *roll number* in the *lower right* corner of the card. Scene B-8, for example, would refer

to the eighth scene on the B reel of rough footage.

### Cutting on Paper

Now, project the film for the second time. At this screening try to piece together as much of the film's sense as possible from the over-long, out-of-sequence footage that appears on the screen. Take additional notes on details that escaped you at the first showing. Follow your cards as you go, and record any additional data alongside its appropriate scene.

During the screening, watch the footage carefully to note any discrepancy which may exist between continuous action in medium shots and close-ups. Perhaps you will find, too, that although a certain bit of action seemed essential in the shooting script, it is quite meaningless when seen on the screen. Notice scenes that seem to dovetail naturally in content or angle, revealing a relationship that was not evident in the script. Continue to refer to your cards as you view the footage, so that you will mentally associate each scene with the data you have recorded for it.

Now, fresh from having viewed the film, take your script or continuity list and (using it and the film as your guide) arrange your 3 x 5 cards in the order in which you feel the scenes should appear in the final cut of the film.

It is quite possible that, having carefully reviewed the footage during screening, you will find that the scenes naturally fall into a cutting sequence that is a bit different from your original concept as set down in the script. If that is the case, juggle the scenes about and make script notations of the proposed changes in scene order. As a final check on continuity, it may be necessary to screen the footage once more before breaking it down into separate scenes. You cannot possibly know your footage too well.

When you have your cards arranged in what you think will be the most effective continuity order, number them consecutively, placing this new *continuity number* in the *upper left* corner of the card so as not to confuse it with the *roll number*.

The *roll number* will tell you just where on the raw footage a scene of a given description is now located. The *continuity number* will tell exactly where that particular scene will fit into the cut footage. Now, arrange your cards in rotation according to *roll number*, and you will be ready to break down the footage into separate scenes.

### The Scene Breakdown

In order to break down your footage efficiently, you will need either a peg-board or a pigeon-hole tray. A peg-board is a flat square board with nails or wooden dowels set into it in rows of ten at intervals of four inches. The pegs are numbered in rotation from 1 to 100 by means of painted letters. To file film on such a board, you cut your footage into separate scenes, roll each scene up in a small roll, tape the end, and mount it on the appropriate peg.

The pigeon-hole tray is a tray about 1 inch deep, divided into squares (of about 2½ by 2½ inches) by means of narrow criss-crossing strips of wood. In the center of each "pigeon-hole" is a painted number ranging from 1 to 100. The advantage of the pigeon-hole tray over the peg-board is that you do not have to tape your scenes in order to file them.

Now, using your cards as a guide, start with

roll A and wind off your scenes one-by-one. Perhaps Scene A-1 carries the *continuity number* of 57 in the *upper left corner*. In that case, you would wind off the scene, write the number 57 on the end of it with a grease pencil, roll it up, and place it in pigeon-hole number 57 on your tray.

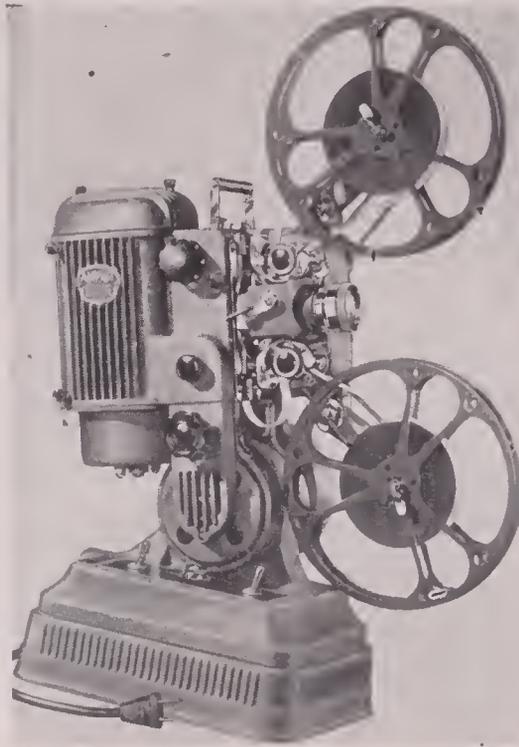
In the same manner, continue on through each scene of each reel of raw footage, discarding out-of-focus or poorly exposed scenes as you go. Save bad takes by numbering them and placing them in empty film cans or typewriter ribbon cans. Store about ten scenes in each can, and place the numbers of these scenes on a label affixed to the outside. These discarded takes have a way of proving useful later.

By the time you have broken down the last scene on the last roll of raw footage, you will find that you have a peg-board or pigeon-hole tray filled with continuous rows of separate scenes, each rolled up, neatly numbered on the end, and now in order according to the cutting sequence which you have established.

The basic steps in cutting have now been attended to. You have separated the wheat from the chaff, so to speak. You have discarded all of the footage you will not need for your final cutting, and you have your material neatly arranged in continuity order. You are now ready to approach the actual job of creative cutting. In the following chapter we will discuss the mechanics of cutting, plus the fine points which make editing a vital cinematic craft.

NEXT ISSUE: *Creative Cutting*

## Ampro's New Silent 16 MM. Projector



Ampro Corporation currently announces introduction of its new "Imperial" silent 16 mm. projector, with advantages of greater simplicity and advanced performance.

New swing-out gate, company states, permits easy inspection and cleaning of aperture plate

and pressure shoe, without disturbing focus of the projection lens. Another convenience stated is the new Cordomatic type power cord attachment—the line cord is attached to the machine and rewinds automatically in the base, and only as much cord as required is unteeled to prevent surplus line on the floor.

Other features include: Still picture button for stopping any frame indefinitely, with automatic shutter preventing film damage; film movement can be reversed by switch without projector stoppage; fast automatic rewind without transferring reels or belts; pilot light for threading and operation in darkened room, and powerful fan for adequate ventilation of high wattage lamps.

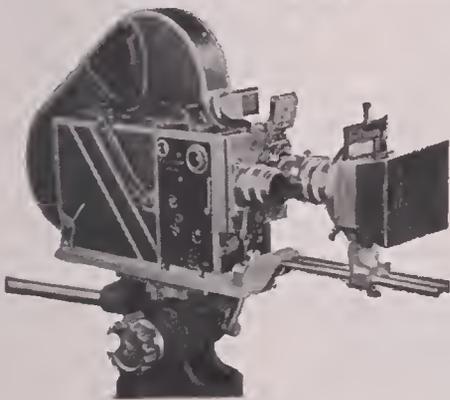
Ampro Imperial operates with any standard prefocused based projector lamp, T12 envelope or less, 750 watts or less. It is equipped with two-inch coated super projection lens, speed F:1.6. It can be used on both D.C. or 25 to 60 cycles A.C., 105 to 125 volts.

Company states this new model is a "light, compact and easily portable 16 mm. silent projector for home use, industry, church, classrooms and auditoriums—providing maximum illumination with smooth silent performance." Projector is finished in bronze and comes in a new luggage type case with 400 foot reel.

## Added Universal Features Released by United World

Total of 37 additional entertainment features originally released by Universal have been added to the catalogue of United World Films 16 mm. releases for exclusive non-theatrical distribution.

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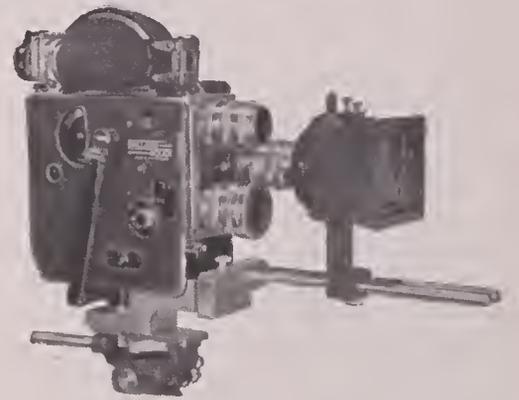


The Sunshade-Filter Holder is supported by a double arm bracket. This attaches to a plate which you can fasten on to the base of your camera where it can remain at all times if you desire. The Sunshade-Filter Holder is demountable into 3 small units which, when not being used, fit into your camera carrying case.

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# HISTORICAL DEVELOPMENT OF SOUND FILMS

By EARL I. SPONABLE

(Twentieth Century-Fox Film Corp., New York)

## PART 3.

*(Editor's Note: This most informative paper was presented by the author at the October, 1946 convention of the Society of Motion Picture Engineers in Hollywood; and published in the May, 1947, issue of the SMPE Journal. It is reprinted through permission of the SMPE, and concluding section will be published in our October issue.)*

### PART 3. COMMERCIALIZATION OF MOVIE-TONE BY FOX

*Aug. 1926:* De Forest brought suit against Fox and Case, charging infringement of the Ries recording and reproducing patents, two of his patents covering the use of a gas discharge for sound recording, and a patent on the use of a light-sensitive cell with an audion amplifier. (De Forest had purchased the Ries recording patent October 15, 1925. He did not, however, actually acquire the Ries reproducing patent until November 16, 1926, although it is believed he held an option on this and several Ries applications before this time.)

De Forest did not press the suit for trial; it was finally allowed to lapse on the court calendar.

*Aug. 1926:* At the time of the formation of the Fox-Case Corporation, Sponable came to New York to take part in commercializing the Case system. With him came Mr. D. B. Eldred to assist in the business management of the company. Eldred, Case's brother-in-law, had joined the Case Laboratories in 1925. Courtland Smith was made general manager of the Fox-Case Corporation. "Movietone" was chosen as the name of the sound picture system. The industry is greatly indebted to Courtland Smith for his foresight and aggressiveness in hastening the commercialization of sound-on-film. He did more than anyone else to convince the "doubting Thomases" of the business that sound motion pictures were a reality and that the days of the silent film were numbered. He was instrumental in starting and developing Movietone News and later the Newsreel Theatre.

During this time plans were worked out for a sound picture producing unit. Sponable designed and built two studios at the Fox Annex at 460 West 54th Street. These were the first studios, except for experimental rooms, wholly designed for sound recording purposes. They were built to exclude all outside noise and with the best acoustic treatment known at the time. Dr. Paul Sabine, acoustic engineer of the Riverbank Laboratories at Geneva, Illinois, acted as a consultant in this work.

*Sept. 1926:* Fox and Smith negotiated with the General Electric Company for rights to use vacuum-tube amplifiers commercially. The deal was nearly completed and General Electric equipment was brought from Schenectady to

New York. At the final closing the parties did not agree, and General Electric withdrew their equipment.

It is interesting to note here that, if this arrangement had gone through, the whole setup of the future sound business would have been changed. The Western Electric Company would probably have concentrated more and more on disk, and the Fox-General Electric group would have led in the development of sound-on-film.

*Oct. 25, 1926:* The first test recording was made on the new Fox-Case Corporation stage. The next day a test recording was made of Harry Lauder. Typical of his Scotch character, he stopped singing during the middle of the recording of the song "Roamin' in the Gloamin'" and said, "This is a test"—to be sure it would not be used commercially.

*Nov. 4, 1926:* Work was begun on making a number of one-reel short subjects with Racquel Meller, using regular motion picture production technique.

*Dec. 1926:* Prior to this time, negotiations were carried on with the Western Electric Company to give Fox rights to use their amplification patents and apparatus commercially. These culminated in an agreement or sublicense from the Vitaphone Corporation (see Part 5) in which Fox, among other things, agreed to pay a royalty of about 8 percent of his gross business in the sound field.

*Jan. 21, 1927:* The first public showing of Fox-Case "Movietone" subjects was given at the Sam Harris Theatre in connection with the premiere of "What Price Glory." The sound features were not advertised. The showing was made using a Case sound attachment with Western Electric main amplifiers. No stampede resulted, but neither was there an unfavorable audience reaction.

*Feb. 1927:* Sponable developed a screen suitable for picture projection and still transparent to sound without causing distortion. This enabled the use of loudspeakers directly behind the screen and was a great help in improving the illusion. This was immediately accepted by the industry.

*Feb.-Mar. 1927:* The first field recording unit was assembled. With it, out-of-door recordings of a West Point review were made and the outfit was then sent to Italy for the purpose of making a record of the Pope and Mussolini.

*Mar. 11 1927:* The Roxy Theatre, designed by S. L. Rothafel as the "last word" in motion picture palaces, opened in New York. Two weeks after its opening, Fox obtained control of the Roxy and laid plans to convert it for showing sound on film.

*Apr. 1927:* Fox-Case made a new agreement with Electrical Research Products, Inc., superseding the Vitaphone sublicense. Electrical Research Products had been formed January 1, 1927 as a subsidiary of the American Telephone and Telegraph Company, for the purpose of handling the sound equipment business, instead of the Western Electric Company.

*May, 1927:* A showing of a West Point review as a sound feature was given at the Roxy Theatre.

*May 6, 1927:* Fox-Case Corporation's Field Outfit No. 1 recorded a speech by Mussolini and a number of Italian army subjects. This work was done by B. Miggins as cameraman and E. Kaw and D. F. Whiting as soundmen.

*May 25, 1927:* A program was opened at the Harris Theatre containing Movietone subjects. This included a silent version of "Seventh Heaven" and several sound shorts.

*June 12, 1927:* Fox-Case recorded the Lindbergh welcome at Washington. Charles Gibson operated the camera, E. H. Hansen the sound equipment. The showing of this, together with his take-off, and the Mussolini pictures referred to above, created the second big sensation in the public showing of sound pictures (the "Jazz Singer" being the first).

*Sept., 1927:* An all-sound program made up of the feature picture "Sunrise" with synchronized score, and the Mussolini pictures, opened at the Times Square Theatre. This showing was made on a Western Electric sound-on-film installation.

*Oct. 28, 1927:* The first "Movietone News" was shown at the Roxy Theatre. The issue contained the following subjects:

- (a) Niagara Falls
- (b) Romance of the Iron Horse
- (c) Army-Yale Football game at Yale bowl.
- (d) Rodeo in New York

*Oct.-Nov., 1927:* Sponable surveyed the Fox West Coast studios with a view to converting them for sound work, and drew up designs for the first unit. The building of these studios was held up by Fox, owing—among other reasons—to the estimated cost of \$250,000 being too high.

*Nov., 1927:* Case suggested "noise reduction" in an affidavit dated November 28, 1927, quoted below:

"It is of great advantage when photographing sound on film to have the ground noise level as low as possible between words or sounds when there is nothing on the film in the form of modulation to cover up the ground noise. A method of doing this has suggested itself to my mind as follows: If the recording light which itself is modulated or by another method is modulated mechanically is only eliminated while modulation is not going on in the circuit this would mean that when no modulation is present the light would be reduced to a minimum automatically or might even be put out entirely. This would mean that between modulation or between words or between sounds the negative sound record would be unexposed or white upon development. This, on the positive, would be reversed or black thereby reducing any ground noise that there might be between words or sounds. The method of accomplishing this could be the same as is at present used in the transoceanic telephony where it is essential that automatically only one sending station is

(Continued on Page 327)

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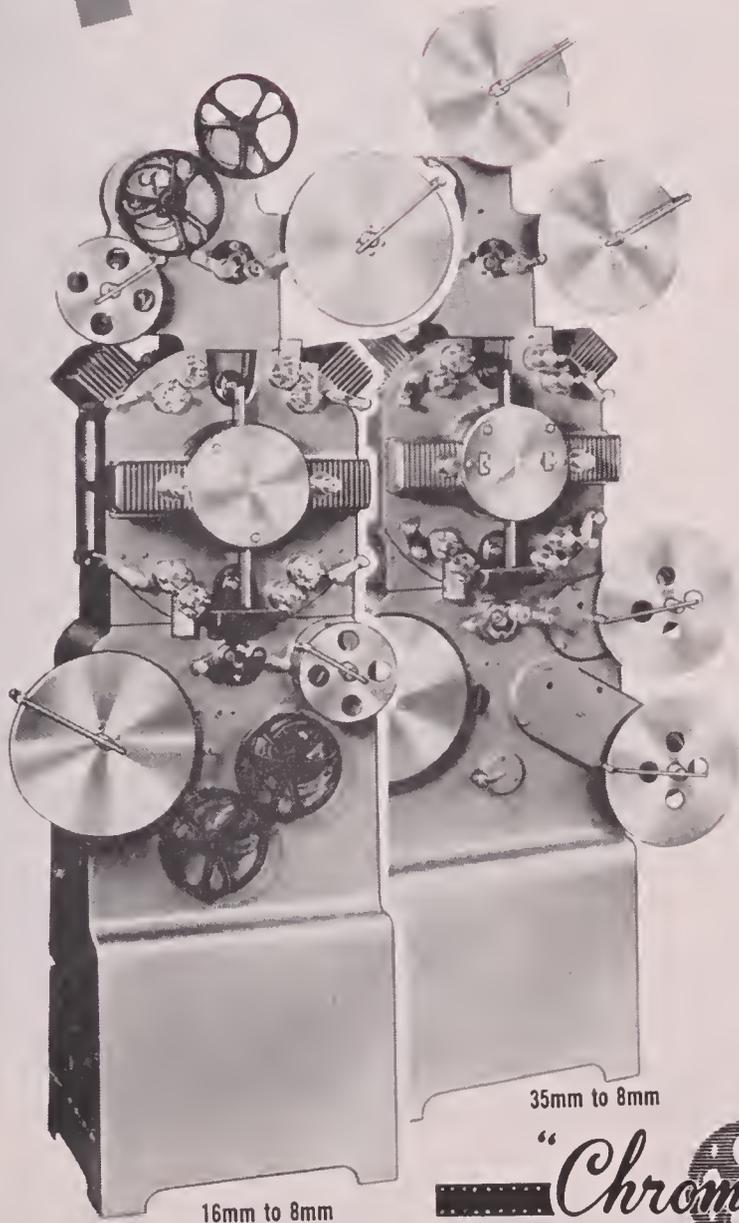
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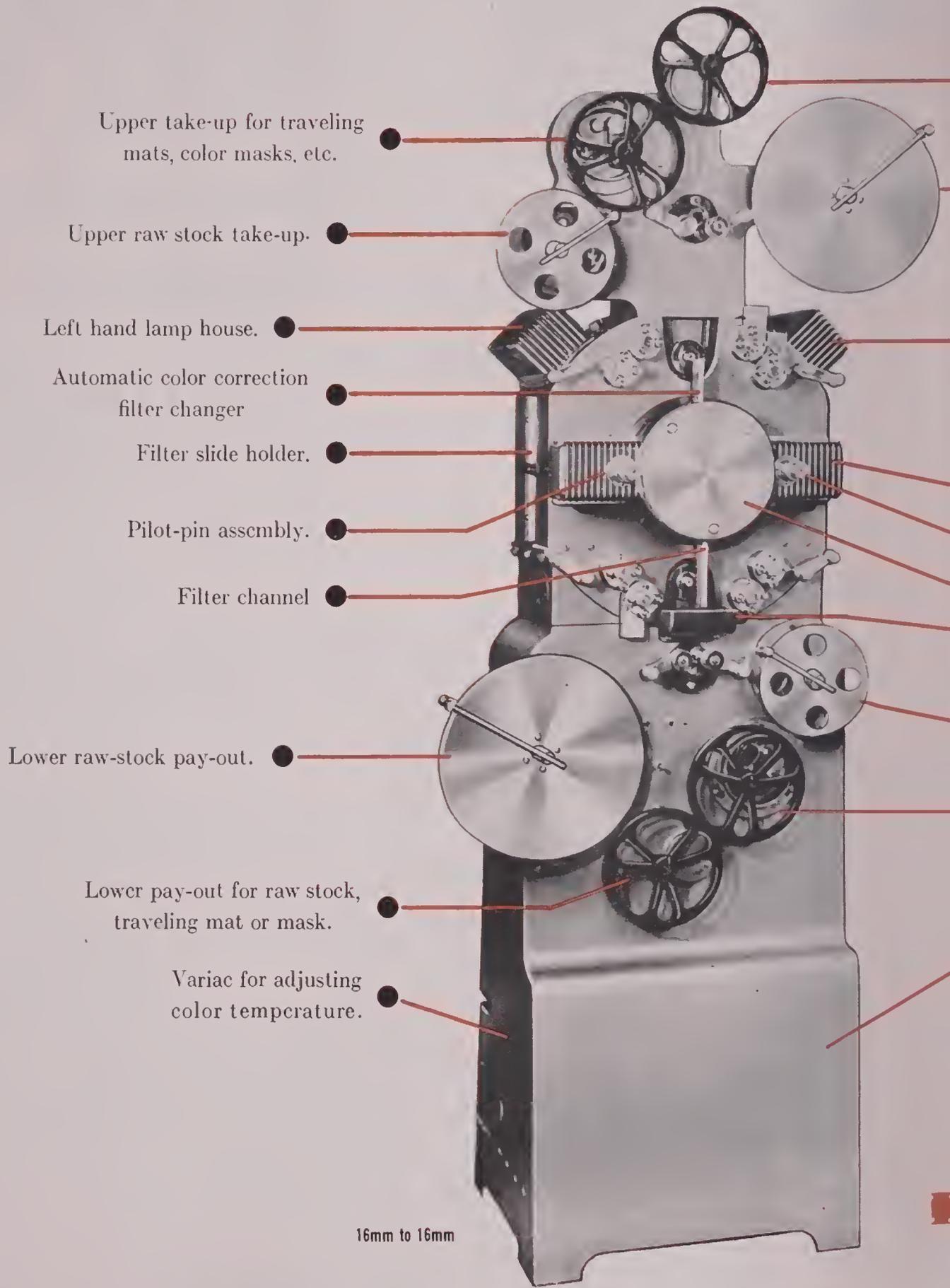
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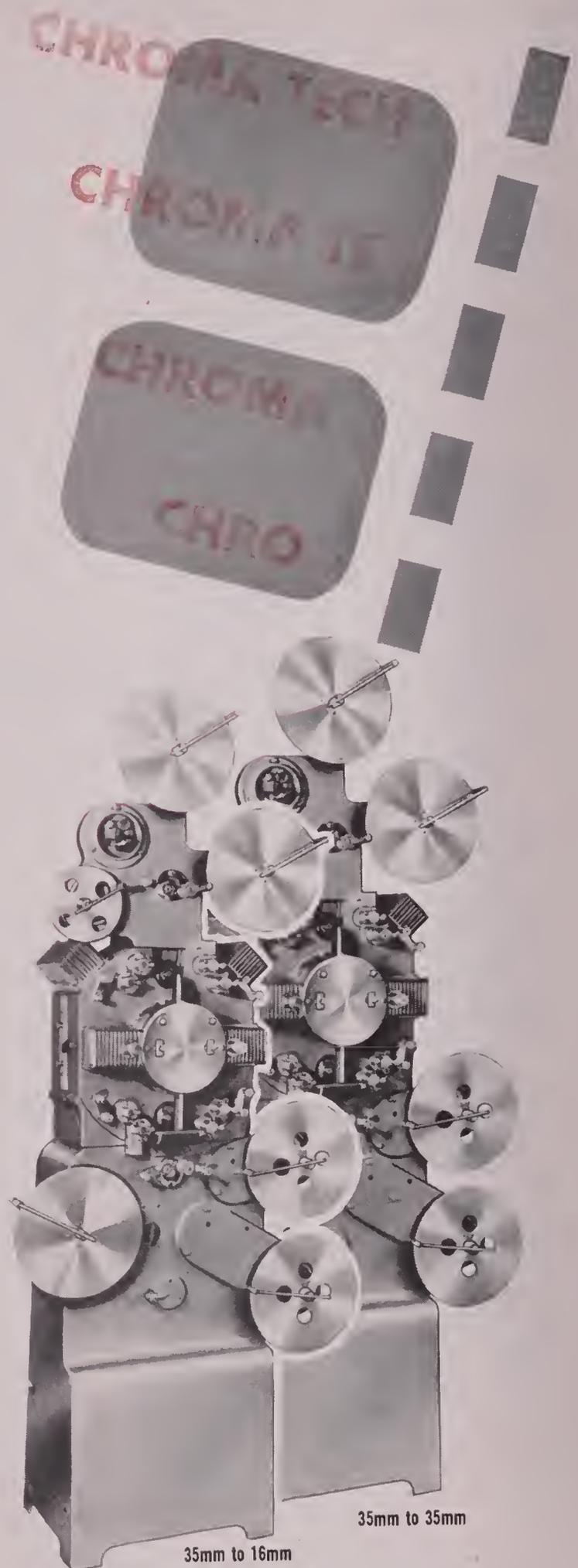
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## Historical Development Of Sound Film

(Continued from Page 322)

in operation. As soon as active modulation ceases in one direction and starts in the other direction the modulation passing in the circuit actuates a relay mechanism to instantly put into action this sending station. In other words in our simple modulation circuit any alternating or pulsating currents would actuate a mechanism to bring the recording light up to the brilliancy desired for the best operation of the system and while no modulation was passing, the light would automatically be reduced to the point where no record would appear on the film.

"This is signed and witnessed at 9:40 A.M., November 28, 1927 and I am now going to call up Dr. McKenzie at the Western Electric Company and inform him of this idea so that it can be put into operation, if they so desire, on their mechanical method of recording sound.  
/s/ Theodore W. Case"

During the last of 1927 and the first months of 1928, there was much activity in organizing and in developing sound equipment by the Fox-Case Corporation. Sound News outfits were put in the field at the rate of one or two a month. Various short subjects and productions were made in the studios, largely to learn the best uses for sound and its limitations. Many silent pictures were synchronized. A test was made combining Technicolor with sound. A cartoon was made with sound effects.

*May 10, 1928:* A non-exclusive agreement was made between ERPI and Fox-Case—effective April 2, 1927. The royalty arrangement was changed from 8 percent of the gross to \$500 per negative reel for domestic release and a schedule for release in foreign countries that added up to a second \$500.

*May, 1928:* Equipment for three studio recording units was ordered by Fox-Case in anticipation of its coming West Coast studio demands.

During the spring of this year, Winfield Sheehan, in charge of production at the Fox West Coast Studios, who did not believe too strongly in sound in the beginning, came East and was anxious to arrange to get started on West Coast studio sound productions. He had taken over two news outfits that were originally assigned to West Coast news work. With these the Fox studio made a two-reel dialogue comedy, "The Family Picnic."

*June 18, 1928:* This opened as part of the program with "The Air Circus" (synchronized sound) at the Globe Theatre in New York.

*June 25, 1928:* A Movietone field projector truck was used on Broadway to ballyhoo "The Red Dance" at its premiere. This out-of-door portable sound projection unit was a development of Fox-Case that has been used to some extent for political and commercial purposes.

It now became Sheehan's desire to get into sound as quickly as possible. This was accelerated by the fact that other producing companies were already starting. He brought various members of his producing staff East to work out a way of starting this work, and placed his Movietone development under the direction of his studio manager, Ben Jackson. They returned to Hollywood on July 12, 1928, taking practically the entire staff of engineers from Fox-Case. Operations were planned on a large scale.

*July, 1928:* Equipment for nine West Coast recording units was ordered.

*July 28, 1928:* Several Movietone stages were started at Fox Hills, on a location which was previously used to corral Tom Mix's horses. These were erected under the direction of Mr. Sheehan, with C. H. Muldorfer as architect and H. K. Weeks as construction engineer. The completion of these sound studios and accessory buildings was accomplished with great speed and with much credit to the men responsible for the work. The whole plant took form in approximately ninety days.

*Aug., 1928:* Equipment for twelve more West Coast recording units was ordered, making a total of twenty-four.

*Sept., 1928:* Equipment for three European recording units was ordered. These orders from Fox, together with those of other companies coming into the field, swamped the facilities of the Western Electric Company and made deliveries of equipment very uncertain.

This period was marked by a rapid growth of the technical staff of the Fox-Case Corporation. Many contributions were made by various individuals, particularly L. B. Hoffman, L. W. Davee, A. J. Sanial, H. E. Bragg, H. F. Jermain, Walter Hicks, R. F. Nicholson, and W. F. Jordan. Nineteen newsreel field outfits were operating. The crews of these units did much to overcome the initial difficulties of field operation.  
(To Be Continued)

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# AMONG THE MOVIE CLUBS

## Minneapolis Octo Cine

Eighth anniversary party of Minneapolis Octo Cine Club proved to be a huge success, attracting a capacity attendance. Chairman Gene Roggeman of the entertainment committee staged a fine show with included Carl Lindahl as master of ceremonies, Mike Coscio at the piano, and Paul Plasch at the drums. Fred Murphy exhibited his films of Glacier National Park, and show concluded with Janice Nasker presenting a number of accordion selections.

Club's annual picnic was held on August 17th at Cloverleaf Guernsey Farm, with members and friends participating in various athletic contests, during the afternoon. The club provided free coffee, pop and ice cream; while milk was available at cost.

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## Syracuse Cinematographers

A large audience attended the July 24th public meeting of Cinematographers Club of Syracuse, which was held in the clubrooms. Feature of the film program was "New York State—Vacation Empire," narrated by Lowell Thomas. Other pictures shown included "Ritual of the Dead," and "Nation Builders." Latter is a three reel 1938 International amateur movie contest grand prize winner, chronicling the history of Australia.

Club members are busy rehearsing the club picture to be titled, "In the Nick of Time," and shooting begins within the next few weeks. Film is the first club-project venture in movie making, which—on completion—will be available for exchange with other amateur movie clubs around the country.

Our query of several months ago on this page, "What Happened in Syracuse," brings forth the information that the former Syracuse Movie Makers Association seemed to disintegrate, and a group of the club—including a number of charter members—successfully launched a new organization under name of Cinematographers Club of Syracuse last January 14th. In the interval, group has held a banquet and film contest, and obtained new club quarters. Currently, two club films are in preparation. According to president A. D. Roger, selective membership rules will be in force to prevent recurrence of difficulties stated to have been encountered in the former movie club.

## Los Angeles Eight

Demonstration of the "Zoomar" lens by I. R. Susskind featured the July 8th meeting of Los Angeles Eight MM. Club, held at the Bell & Howell Auditorium. D. L. Ohlson displayed the new 8 mm. Briskin Magazine camera, and showed demonstration reels shot with the machine. Film program included: "Moon Over Sun Valley," through courtesy of Union Pacific; and group of pictures made by club members.

Sylvia Fairley was adjudged the winner in the recent Ladies' Contest for 50-foot reels, with her "My Day." Second award went to Eugenia Clarke for "April's Garden," and Louise Arbogast tabbed third place for "Monterey."

## San Francisco Westwood

Westwood Movie Club of San Francisco held annual joint picnic with San Jose Movie Club at San Mateo Memorial Park on August 24th, with members carrying along cameras, swimming suits and equipment for various games staged between members of the two organizations. Eric Unmack was chairman of the August 22nd meeting, and provided a surprise program of films.

At the July 25th meeting, program included: "Into the Rainbows," by Celeste and Henry Swanson, with technical review by Walter Johnson; "Every Seven Days," by Edward Kentera, which will be entered in a national contest; and the General Electric film on home movie lighting.

Evelyn and Leo Kerkoff won first place for 8 mm. entries in the June uncut film contest with "Over the Hills;" while president Kerkoff and Angus Shaw tabbed second with "The Sheiks of Araby." Celeste Swanson won in the 16 mm. class with "School Days."

## New York Eight

John Hefe delivered a most informative talk on kodachrome exposure at the July 21st meeting of New York Eight MM. Club, held at the Hotel Pennsylvania. Hefe exhibited an unedited film taken under various conditions of light, season, weather, etc. to demonstrate his points. Film program included: two unedited reels by Bernard Freifeld, and "With Malice Toward One," produced by the San Francisco Amateur Movie Producers Guild.

Announcement is made that the club contest for subjects up to 1,000 feet will close at the November meeting.

## Alhambra La Casa

Annual picnic of La Casa Movie Club of Alhambra, Calif., was held on evening of August 18th at Farnsworth Park, with members and guests taking along individual picnic baskets for outdoor lunching at the tables in the grove. Charles J. Ross presented a most interesting program in the amphitheatre to climax the evening.

## San Francisco Cinema

Film program for the August 19th meeting of Cinema Club of San Francisco, held at the Women's City Club, included: "Alaska and the Yukon," 16 mm. in color and sound of the boat trip from Vancouver to Skagway, then into the Yukon territory, through courtesy of Canadian Pacific; "Hawaiian Harvest," courtesy of C & H Sugar Refining Corp.; "Mammoth Lakes," by Rudy Arfsten; and repeat showing by request of "Les Deux Compagnons," by Dr. Cherigie.

## Utah Cine Arts

August 21st meeting of Utah Cine Arts Club was held at the Newhouse Hotel, Salt Lake City, at which film program comprised running of club's prize-winning pictures of last year. Those exhibited included: "Killers of the Wasatch," by LeRoy Hansen; "Excerpts from a Diary," by Theo Merrill; "Sunny Side Up," by Al Londema; and "Worth Scouting For," by Al Morton.

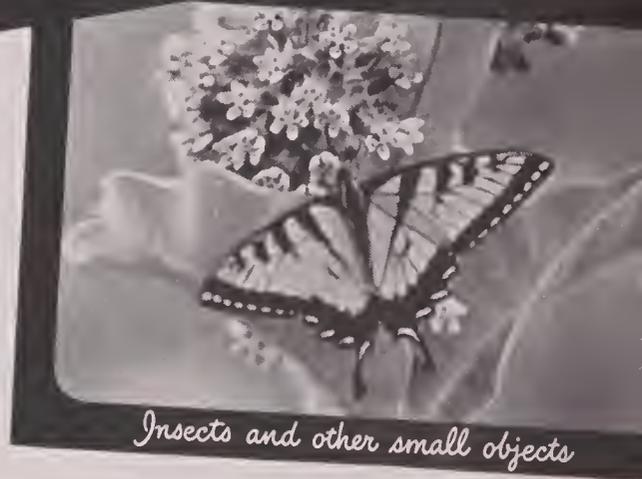
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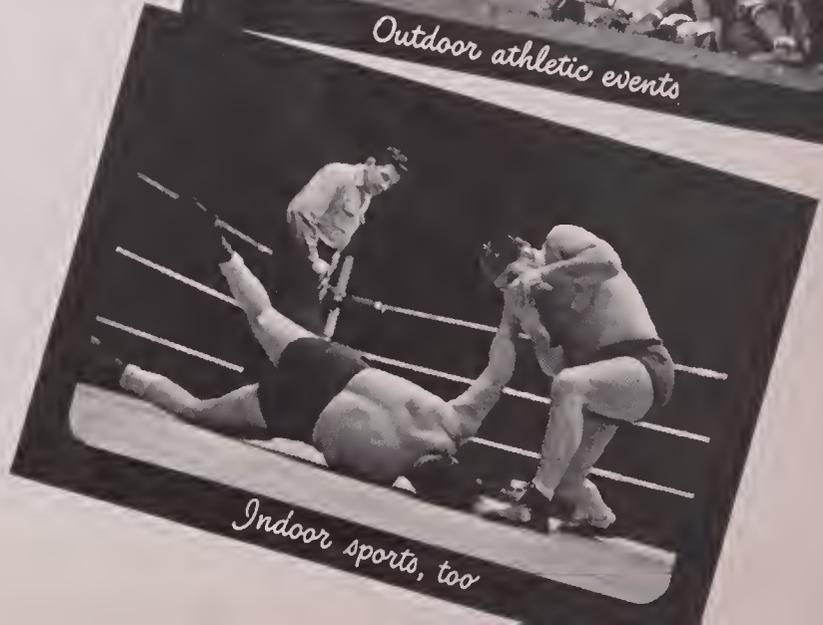


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# L. A. Cinema Club Amateur Exposition Huge Success



One section of the equipment exhibit auditorium.

First annual amateur cinema exposition and equipment exhibit of the Los Angeles Cinema Club proved to be one of the most successful events staged in the 17 year history of the organization. Held in the spacious buildings of the Los Angeles Breakfast Club on evening of August 11th, the event attracted nearly 1,000 amateur movie makers from the various clubs and districts of Southern California; and exhibits by manufacturers and distributors of 8 and 16 mm. equipment and accessories.

More than 350 enjoyed a barbecue beef dinner in the patio of the clubhouse grounds, following which the guests visited the exhibit room to look over the new equipment and products on display at the numerous tables.

While attention was given to the exhibits, the three finalist pictures competing for the cup presented by Los Angeles Cinema Club to the winning club for one year were projected in the adjoining auditorium for both the judges and guests. Because of the large attendance, the pictures had to be run twice to accommodate those interested in seeing the best in amateur films.

"Farmer's Daughter," entered by the Long Beach Cinema Club and stated to be a club theme project produced by Clarence Aldrich, was adjudged the winner; "The Egg and I," from the Southwest 8 MM. Club, took second; and entry of Los Angeles 8 MM. Club—"How to Win Friends and Influence People"—was third. L. A. Cinema member Charles Ross scored the films with musical background for the exhibitions.

L. A. Cinema president Alice Claire Hoffman presented the trophy to the Long Beach Club, which was accepted by latter's past-president Mildred Caldwell for the coming year.

As producer of the prize-winner, Aldrich received a \$25 merchandise order. Non-member judges—all qualified to function through many years' of experience in close connection with motion picture photography—included: Harry Schenck, Don Mananshaw, William Thompson, and Gae Faillace.

Among the 25 exhibits of various types of equipment and accessories for motion picture photography enthusiasts—a splendid representation for the first event of its kind—were: Ponder and Best, Craig Manufacturing Co., Panogear, Wilson Synchro-Meter, Magnestic Recorders, Bardwell & McAllister, Hollywood Cine Products, Skan Lightmeter, Ansco, Craftsmen's Guild, J. B. Perrin Co., Telefilm Studios, General Electric (exposure meter), Davidson Manufacturing Co., Ralke Co., Associated Surplus, Multiflex Titler, H & S Film Magazine Co., Cell-Vision Co., Millsap Film Winder, J. J. Wilson Co., Popular Photography, and American Cinematographer.

As an added attraction, each equipment exhibitor donated at least one door prize, with the gifts ranging from rolls of kodachrome to a Gasap camera and a Bardwell & McAllister Inky-Dinky.

Officers of the club were enthusiastic over the outstanding success of the initial affair of this kind, and are already mapping plans for next year's event.

## New Lightweight DeVry 16 MM. Sound Projector

W. C. DeVry, president of the DeVry Corporation, announces that his firm will soon introduce a new, lightweight model of 16 mm. sound projector.

## Biggest Camera Crane

(Continued from Page 313)

One extremely interesting factor of the helicopter as a camera mount is the fact that it can be held still and steady at any height, and from this stationary position can be brought to a speed of ninety miles an hour. Or the reverse of this can be undertaken, and the helicopter can be brought from extreme speed to a complete halt while close-up action takes place.

These experimental scenes have been shown to the Academy of Motion Picture Arts and Sciences and to all studios. The general feeling of those who have witnessed these first helicopter motion pictures is that here is one of the most interesting and valuable adjuncts to outdoor cinematography, and one which lends itself to a wide variety of fictional and documentary uses.

In describing these experiments it is necessary to acknowledge the help and cooperation, not only of the Research Council of the Academy, but also the DuPont Film Company which furnished the film, George Crane of Pathe Laboratories, who processed the film; the advice and guidance of Farciot Edouart of Paramount Studios Special Effects Department; and Ralph Densmore of the Mark Armistead camera engineering staff.

## DeVry Projector Presented

Aline Neal, adjudged the nation's outstanding school teacher of 1947 in country-wide contest conducted by the Quiz Kid radio program, was presented with a new DeVry 16 mm. sound-film projector by the DeVry Corporation on the June 8th broadcast.



Officers of Los Angeles Cinema Club on left with annual trophy for amateur movie competition: Lorenzo del Riccio, Alice Claire Hoffman, Charles M. Peters, James Mitchell, Jack Shandler, and Karl Struss, A.S.C. At right, past-president Mildred Caldwell of the Long Beach Cinema Club accepts the trophy from L. A. Cinema president Alice Claire Hoffman, flanked by judges Gae Faillace, Don Mananshaw, William Thompson, Harry Schenck, and contest chairman Mitchell.

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## Victor's New "Lite-Weight" 16 Projector



Bruce Findlay of Los Angeles city schools examines the new Victor "Lite-Weight" 16 mm. projector at left; while stage-screen-radio star Ken Murray demonstrates ease of carrying the machine (right).

A quality, lightweight 16 mm. sound motion picture projector has been designed by Victor Animatograph Corporation, and is now on display by distributors and dealers, according to company announcement.

Housed in a streamlined single unit aluminum case, the complete projector weighs only 33 pounds to allow for "walkaway portability." It is 52 percent lighter in weight and 69 percent smaller in size than the larger models; yet retaining most of the features of the standard Victor "Triumph 60" introduced last March. The demountable speaker fits snugly inside the case for carrying purposes, and mounts on the projector front during operation.

Victor "Lite-Weight" was designed especial-

ly for use in the home, school classrooms, and for business training and selling, where small quarters and audience do not require the screen size and sound volume of the larger models.

Mechanically, the Lite-Weight retains numerous features of the Victor projectors, including clutch-controlled re-wind, instant tilt, reverse operation, still picture projection, and projector of either sound or silent film at their respective speeds. It also incorporates the exclusive safety film trip, has the 180-degree swing out lens, exclusive framing screw adjustment, spira-draft lamphouse, and duo-flexo pawls. Top-mounted reel arms will accommodate 2,000 foot reels, and 750-watt illumination is standard for the Lite-Weight.

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## Telefilm Adds Sound Truck

Telefilm 16 mm. studios of Hollywood have added a second mobile sound truck to take care of demand for increased location recordings by commercial producers. Sound system is the latest type Maurer, with self-contained power unit, and makes direct, negative, positive or density recordings. A Mole-Richardson boom is also included in the truck equipment.

## Ladies Night at A. S. C. Clubhouse, Sept. 20th

Ladies Night will be presented by the American Society of Cinematographers on the evening of September 20th at the clubhouse. Program being arranged provides for dinner, dancing and entertainment, and the event will be the outstanding social affair of the organization for the year.

The large garden will be the setting for dinner, with special lighting effects being arranged. Dance floor will be laid in the clubhouse main room. Special committee in charge of arrangements and entertainment includes John Boyle, Arthur Edeson, Sol Halperin, Fred Jackman and Leonard Smith.

## Out-Orsoning Orson

(Continued from Page 317)

part, very accurate and skillfully paced to coincide with the action.

Adding richly to the mood of the film is carefully selected background music, which is heard all too infrequently throughout the film. While one cannot expect a full symphonic score on a shoestring budget, it can be said that music applied to more of the dramatic sequences would have enhanced the mood to an even greater degree.

In emulation of the technique used in Laurence Olivier's monumental production of "Henry V," the soliloquies were staged so that the actor's voice is heard on the sound track over a close-up of his face reacting to the words. He does not move his lips—and the illusion that his thoughts are being heard is quite convincing.

All in all, the Bradley production of *Macbeth* is a craftsmanlike job, well-staged and exceptionally well-photographed. Its force stems directly from the original approach used by its youthful cast and crew, as well as from the world of pre-planning that was done before a camera was allowed to turn. It may well serve as an inspiration to amateur producers seeking to add professional touch to their work.

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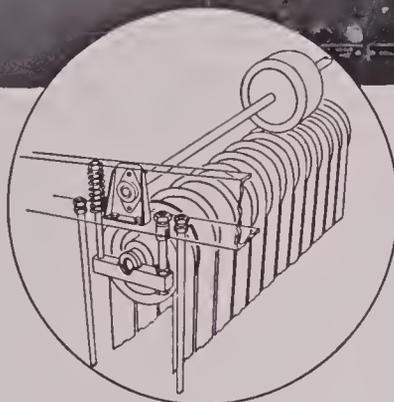
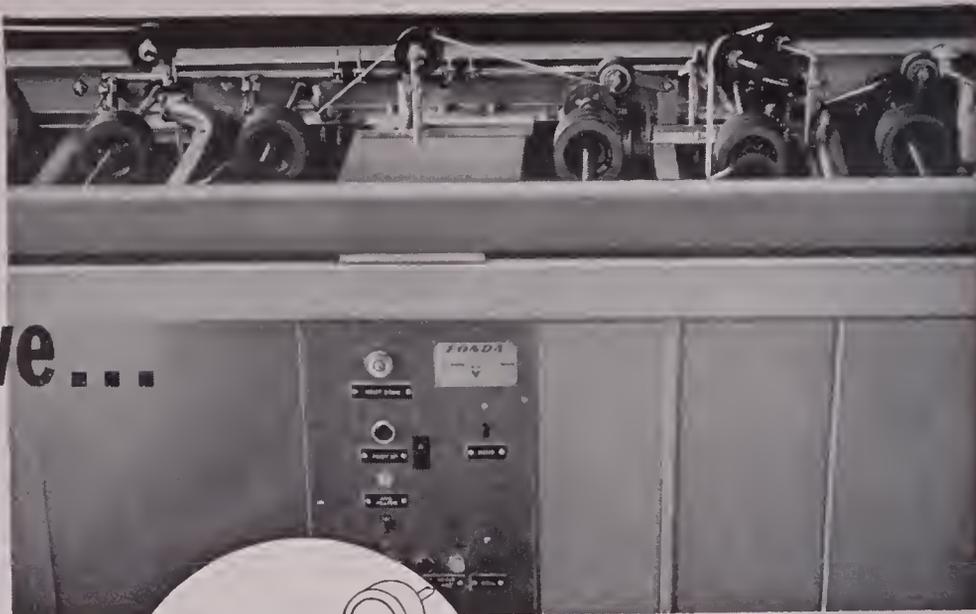
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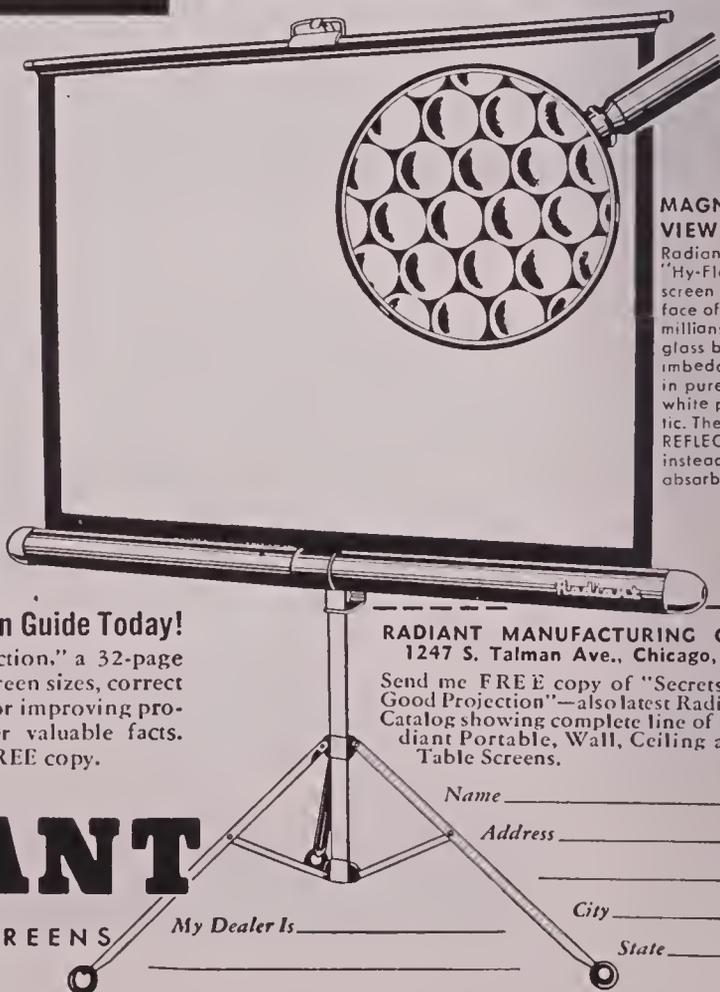
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## New 8 MM Projector Kodascope Eight-90

The Kodascope Eight-90—an unusually brilliant, well-planned, de luxe 8 mm. projector—optionally and mechanically the finest Kodascope Eight, has been announced by the Eastman Kodak Company.

Teaming a 750-watt lamp with a fine Lumenized f/1.6 lens, and a superb optical system which incorporates low-reflective coating of all elements of both the projection and condenser lenses, the projector delivers light to the screen unsurpassed by any other 8mm. projector of similar lamp wattage. As a result, "Eight" fans can increase projector-to-screen distance for larger movies without sacrificing screen brightness.

In addition, for shorter "throws" the Kodascope Eight -90 offers still another advantage: It will take any of three accessory lamps—300-, 400-, or 500-watt—so that the operator can "tailor" screen brightness to projection needs. At all of its projection distances, in all cases, because of its well-balanced optical system, the projector gives excellent color reproduction, high definition, and contrast.

The new projector is still further designed for luxury home projection in that its operation is simplified by conveniently located fingertip controls. Movable loop guides, accessible sprockets, and a latching film gate facilitate threading—and the guides, by forming perfect upper and lower loops, assure even film flow and smooth projection. A three-way switch controls motor and lamp, a knob governs projection speed. Adjustments such as focusing, tilting, and framing are easily made. When the show is over, a built-in, motor-driven rewind helps finish the job by smoothly winding back the film.

The Kodascope Eight-90 also incorporates a still picture control which stops the film and automatically drops a safety screen so that the projection of a single picture can be enjoyed as long as it is desired. Drive shafts for the spindles are enclosed for quiet protected performance. And a shift lever is built into the machine to permit "backing up" and the convenient re-running of portions of particular interest, or for reverse action—a warranted chuckle-producer.

The film reverses smoothly and safely under a minimum of stress, so that long film life is insured. During rewinding, however, when film can and should flow freely, pressure on a button increases the tension to provide the drive necessary for rapid, snug winding of the film.

The Kodascope Eight-90 has an especially efficient cooling system. Its film capacity is 200 feet—approximately a ¼-hour show.

Smartly styled and trim, the Kodascope Eight-90 offers a de luxe appearance to match "luxury" performance. Excellent balance on the handle, cast as part of the projector head, makes for "cool" easy carrying. The sturdy carrying case, included in the purchase price, provides convenient carrying and storage of the entire projection outfit—including the Kodascope, reels, extra lamp, and incidental accessories. It will be available through all Kodak dealers in limited quantities.



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**16 MM Amateur Contest Announced  
By American Humane Association**

THE American Humane Association announces its fourth motion picture contest for amateurs submitting 16 mm. films in either black-and-white or color; with total prizes of \$300 divided to first, second, and third, respectively in amounts of \$200, \$75 and \$25. Contest will close on March 31, 1948, and is open to anyone residing in the United States or its possessions.

The sponsored event provides a chance for amateur movie makers to really step out with their hobby in photographing pets, domestic animals, birds and wild life, and have an opportunity at the cash awards. More significant is the recognition by a national organization of the importance of amateur movie making itself. Officers of the Humane Society could utilize the cost of the contest in many other ways, but chose the medium because of the growing number of amateur movie makers who were turning out excellent subjects and showing them widely before groups and friends. It is pointed out that—although technical perfection is an item—most important to the judges will be the originality and presentation of the subject.

It is suggested that officers of amateur clubs around the country announce the contest to blanks may be secured by writing: Motion Picture Contest, American Humane Association, 135 Washington Avenue, Albany 6, N. Y.

**Rules and Suggestions**

For the benefit of the large number of amateur movie makers, we are printing rules and suggestion to contestants as issued by the Association:

Each contestant must fill out an entry blank and include it with the film or films submitted.

Contest closes on March 31, 1948. All entries must be in the offices of the American Humane Association at Albany on or before that date; and will be kept unopened until the judges meet for review and decision. A 300 or 400 word typewritten description of each film, and where it was made, should accompany each entry.

Films which are now or have been in commercial use are not eligible. By "commercial use" is meant availability of the film for public showings, free or rental, through public or private film depositories. Films already produced but which have not seen commercial use are eligible. Persons directly engaged in

professional motion picture production cannot submit entries.

All films must be on original 16 mm. stock and not less than 200 feet nor more than 800 feet in length. Films may be in black-and-white or kodachrome, silent or sound-on-film, and exposed at 16 or 24 frames per second.

Films submitted must bear the name and address of the entrant on the reel and on the can; must be sent postpaid, but the society will defray return postage. Contestants may submit as many films as desired, and all entries remain the property of the contestant. However, the American Humane Society reserves the right to make prints from all prize-winning films and to use these prints for educational purposes.

Each film should create a friendly, kindly and constructive interest in animals, and should have humane educative value, although it need not be primarily an educational or teaching film.

Subjects may deal with any type or types of animal life. If the film deals with pets, for example, good care and training practices should be emphasized where possible. If domesticated animals, some of their contributions to mankind as well as good care practices might be included. If wild life, its conservation for economic and esthetic reasons might be emphasized. These are, however, only suggestions and are not to be interpreted as specific or limiting requirements.

Animals as subjects for portrayal are to be found everywhere from the pet in a city apartment to the wild animals of the Rocky Mountains.

The American Humane Association is opposed to cruelty or mistreatment of animals in all forms. The following must be omitted altogether: crop-eared dogs, dog field trials, dog racing, horses with set tails, hunting of any kind where the purpose is to kill, trapping, cockfighting, rodeos, bullfighting, and showing animals behind bars in comparatively small cages, such as are found in old-fashioned zoos.

Likewise the portrayal of pets in ridiculous situations is discouraged. Examples are: dog sitting in a chair eating with the family at the dining table, dog with spectacles sitting at typewriter or reading a book, dog with pipe or cigar in mouth, cats dressed up in doll's clothing, and any other situation completely unnatural to the normal life of the animal. The American Humane Association considers such portrayal as contrary to the purposes of the contest.

Judges of the contest will include: Dr. Irene F. Cypher, Supervisor Audio Visual Education, Department of Education, American Museum of Natural History, New York; Miss Louise Branch, vice president, United Special-ists, Inc., New York; William Bridges, Curator of Publications and in charge of Photographic Department, New York Zoological Society; Leo J. Heffernan, president of Metropolitan Motion Picture Club, New York; and J. Seth Jones, general manager of Connecticut Humane Society, Hartford.

The American Humane Association will answer any question in regard to the proper care and treatment of animals where such information is required by contestants.

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## JOE DUBRAY, A. S. C., Pioneer Camera Expert, Retires



Joseph A. Dubray, A.S.C. (left), was tendered a farewell luncheon on his retirement from Bell & Howell Company. Shown with the camera pioneer are: J. H. McNabb (center) and A. S. Howell; president and vice-president, respectively, of B&H.

Joseph A. Dubray, A. S. C., pioneer motion picture cameraman and technician, and associated with the Bell & Howell Company for the past 20 years, has announced his retirement at the age of 65.

While still but a youth in France, Dubray worked in the Paris photographic establishment of his father, and entered the field of cinematography in 1905 to be recognized as one of the earliest pioneers in motion picture camera activities. He joined Pathe Freres in Paris, where he did experimental work with motion pictures; and was with the first Pathe group that came to the United States about 1910 to establish the American production unit.

With American Pathe, he functioned as chief cameraman for the original filming of the Pearl White serial, "Perils of Pauline," and was later personal cameraman for Ethel Clayton and other famous stars of the early silent days.

Always vitally interested in the development of the technical and engineering phases of cameras, projectors, lenses and related cinematographic equipment in contrast to actual production during photography, Dubray joined Bell & Howell in charge of the Hollywood office. Later, he was sent to Europe to organize B&H interests on the continent, and returned to the Chicago home office in charge of the professional equipment division.

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Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image viewfinder for following action.

Manufactured exclusively by the Makers of "Professional Junior" Tripods and Other Fine Camera Accessories.

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## Auricon-Pro Camera

(Continued from Page 318)

turers for the price of silent double-perforated film. This means that black and white, or Kodachrome (natural color) talking-pictures of life-like quality are obtained with the Auricon-Pro for the cost of silent pictures.

Because the Auricon-Pro is a sound-recording instrument as well as a picture-taking camera, it is built to run film without camera noise, and this is accomplished to a startling degree. It has been found necessary to provide a pilot light at the rear of the camera to warn the operator when the Auricon-Pro is "On" and running film. It is possible for the camera operator to speak into a microphone located within six inches of the camera and yet record no camera noise on the sound track.

The completely silent operation of the Auricon-Pro Camera is accomplished by means of specially designed sound-isolating mounts which support the camera mechanism inside the sound-proofed aluminum casing in such a manner that the slight noise produced by the film and specially designed camera mechanism is not transmitted to the camera casing. The interior of the Auricon-Pro casing is completely lined with sound-absorbing cellular rubber. The mounts supporting the camera mechanism within this camera casing are of the oil-proof bonded rubber-to-metal type and support the mechanism in exact position with relation to the outer casing and the Auricon Finder.

As described in a previous issue of "The American Cinematographer," the Auricon Auto-Parallax View-Range Finder, which is available to special order in place of the regular Sport-Frame Finder, provides a large needle-sharp image, upright and correct right-to-left, exactly duplicating in greatly enlarged form the picture being photographed on the film in the camera. This finder-image can be seen with both eyes at any convenient viewing distance. Focusing the image in the Auricon Finder automatically corrects for parallax and also indicates the distance between the camera and the subject being photographed. The Auricon Auto-Parallax Finder is rigidly mounted on the camera door. Parallax compensation is obtained internally by optical means, and as the Auricon Finder is not mounted on fragile hinges or brackets, it cannot be accidentally put out of alignment. It is therefore completely dependable for day-by-day production filming.

The Auricon-Pro Camera is furnished with a standard lens-mount for use with "C" mount lenses, as supplied by all leading lens manu-

facturers. The Auricon-Pro lens-mount has been kept to its smallest possible size and the "blimped" lens-shade which is provided absorbs the slight amount of noise radiated by the lens and lens-mount. An additional large sunshade, not shown in the photographs, is provided for use with the "blimped" lens-shade. It is not desirable to provide a large lens-turret on any sound-recording camera because the lens must be rigidly mounted with relation to the camera mechanism and a lens-turret will act as a loud-speaker diaphragm and radiate camera-mechanism noise in the direction of the recording microphone.

When working with lenses of long focal length, where the standard Auricon-Pro lens-hood is not being used, a lens-mount-ring, equipped with sound-absorbing cellular rubber blanket, is furnished to eliminate the slight camera noise coming from the lens-mount.

The Auricon-Pro Model CM-71 Camera is furnished with film magazines which allow 200-foot daylight-loading spools to be handled in the brightest sunlight without fogging the sound-track edge of the film. These newly developed magazines completely eliminate sound-track fogging, yet retain the economy of the 200-foot daylight-loading spool. Also, for indoor studio use, the Auricon-Pro Camera will operate with regular 200-foot daylight-loading spools without magazines.

A high-fidelity 40-to-7000 cycle Unilateral Variable-Area Sound-Track is recorded on the film by the Auricon-Pro Camera. Variable-Density or "Dual-Lateral" Variable-Area Sound-Tracks are also available to special order.

Both Standard and Noise-Reduction Auricon Amplifiers can be used with the Auricon-Pro Camera. The Standard Model RA-22 Amplifier provides a low-impedance pre-amplified input for dialogue recording with the Auricon dynamic moving-coil microphone. A second high-impedance phono-input is provided for recording music and sound effects from records. Both the dialogue and music inputs are controlled by individual Auricon volume controls.

The Auricon Recording Amplifiers also incorporate a sound-track exposure-lamp control circuit, complete with exposure meter, which indicates at all times the sound-track exposure while the recording is being made. All necessary sound-on-film recording controls are provided on the amplifiers. Auricon equipment is fully licensed under RCA patents, and guaranteed to operate satisfactorily for one year.

The Noise-Reduction Model NR-22 Amplifier provides all of the features found on the Standard Auricon RA-22 Amplifier, and in addition incorporates a bias-current amplifier

section for producing noise-reduction sound-tracks. The bias current, consisting of a varying direct current automatically fed into the sound-recording galvanometer, in conjunction with the alternating audio currents, adjusts the size of the sound-track to accommodate only the volume of sound being recorded at any given instant. This means that when low-volume sound (or no sound at all) is being recorded, the sound-track is closed down to a minimum size, reducing the light transmission through the track and preventing dirt or scratches on the film, together with photocell hiss and exciter lamp microphonics, from reproducing through the loud speaker along with the actual recorded (and wanted) sounds of speech and music.

The Auricon-Pro Camera is driven by a 115-volt, 60-cycle alternating current synchronous motor which operates the camera at the exact sound-recording speed of 24 frames per second. The camera is also furnished to operate from 50-cycle current, to special order.

To use the Auricon-Pro Camera in the field where power-line current is not available, the Auricon Portable Power-Supply Model PS-20 is employed to drive the camera either for single-system work or, if desired, in conjunction with the Auricon Recorder for double-system filming. The Portable Power-Supply consists of a miniature motor-generator, driven by a 12-volt aircraft-type non-spill storage battery and generating 115-volt, 60-cycle current. A frequency-control is provided on the Portable Power-Supply so that exact 60-cycle alternating current is obtained, thus insuring proper camera speed. The Auricon Portable Power-Supply is also available to special order for 50-cycle cameras.

The Auricon-Pro Camera is equipped with a 175-degree shutter opening for 1/50th of a second exposure. The film pull-down mechanism is of a unique noiseless design. The over-size shafts of the counter-balanced intermittent pull-down mechanism are of hardened-and-ground steel running in bronze bearings. The construction of the pull-down mechanism and film claw insures continuous trouble-free operation with a rock-steady picture. The film pull-down claw is of hardened-and-ground steel, lapped to finished dimensions. The claw enters the film perforation in a "straight-line" and moves the film in a linear sine-wave motion. At the beginning of the pull-down stroke, the film is accelerated slowly, reaches its maximum speed of travel at the center portion of the pull-down stroke and is decelerated slowly, to stop in position for the next frame of picture to be photographed. The claw leaves the film in a straight-line movement, after bringing the film into accurate position behind the picture-taking lens. The Auricon movement is of the self-engaged type and permits rapid threading of the camera.

The Auricon-Pro Camera is finished in an attractive gun-metal baked enamel and weighs 24 pounds complete with film magazines. The Auricon magazines, which provide 5½ minutes of continuous recording, are driven by a smooth filtered gear takeup.

The introduction of the Auricon-Pro Camera provides the means for making 16 mm. talking-pictures with economy and with a reasonable investment in equipment by producers of educational, business and television films for making professional 16 mm. sound motion pictures possible at minimum cost.

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## 25 YEARS AGO

### With A.S.C. and Members

• John Seitz, A.S.C., had just completed photographic direction on "The Prisoner of Zenda," Rex Ingram production for Metro.

• President Fred Jackman of the A.S.C. was directing final scenes for a Hal Roach serial with Ruth Roland as star, on location at Truckee.

• Gilbert Warrenton, A.S.C., was on the camera staff at Lasky's as cinematographer for director Al Green.

• To combat the adverse publicity about Hollywood in 1922, Victor Milner, A.S.C., and Reginald Lyons, A.S.C., stepped out and made a one-reel picture under title of "Hollywood as It Is," which was to be released nationally. Film showed the church and home life of the community, together with the scenic beauties and wholesome recreational activities.

• Mary Pickford's starrer, "Daddy Long Legs," was in current release—photographed by Charles Rosher, A.S.C., and Henry Cronjager, A.S.C.

• Herford Tynes Cowling, A.S.C., in an article, "Wayang-Wayang," disclosed that motion pictures were probably the oldest form of theatrical entertainment; as Hindus had their ancient form of picture drama for a thousand years or more—in fact—animated shadow picture plays were used in ancient times as a means of moral education of the masses. The author pointed out that all Javanese were Wayang fans.

• O. B. Depue of Chicago announced invention of an automatic light control for motion picture printing machines; adaptable to either a continuous or step-printing machine.

• The Chicago school system had installed a visual instruction department, with a large film library available for the 65 schools then equipped with projectors.

• Guy Wilky, A.S.C., was in Mexico City photographing a bull fight for a feature of that day.

• George Gibson, now associated with the the J. E. Brulatour Hollywood office, but superintendent of Rothacker Chicago laboratory 25 years ago, was heading west on his honeymoon.

• H. Lyman Broening, A.S.C., described his experiences in photographing "Kindred of the Dust" in the redwood forests of northern California.

• Arthur Edeson, A.S.C., was in charge of photography for the Douglas Fairbanks starrer, "Robin Hood."

• Ernest Palmer, A.S.C., was on a vacation trip to London, England.

• Ira Morgan, A.S.C., was in New York photographing "When Knighthood Was In Flower," Marion Davies starring production.

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# Current Assignments of A. S. C. Members

**M**EMBERS of the American Society of Cinematographers were engaged as Directors of Photography on feature productions in the Hollywood studios during August as follows:

## Columbia

Joseph Walker, "The Mating of Millie," with Evelyn Keyes, Glenn Ford, Willard Parker, Ron Randell, Virginia Hunter.

Burnett Guffey, "The Sign of the Ram," with Susan Peters, Alexander Knox, Peggy Ann Garner, Phyllis Thaxter, Dame May Witty.

Charles Lawton, Jr., "The Black Arrow," with Louis Hayward, Janet Blair, George Macready, Edgar Buchanan.

Vincent Farrar, "Blondie's Anniversary," with Penny Singleton, Arthur Lake, Adele Jergens, Fred Sears.

Ira Morgan, "Glamour Girl," with Gene Krupa and orchestra, Jack Leonard, Michael Duane, Susan Reed.

## Eagle-Lion

John Boyle, "Northwest Stampede," (Cinemascope) with Joan Leslie, James Craig, Jack Oakie, Chill Wills.

John Alton, "T-Man," with Dennis O'Keefe, Mary Meade, June Lockhart.

## Independent

Archie Stout, "War Party," (Argosy Pictures) with Henry Fonda, Shirley Temple, John Wayne, George O'Brien, Ward Bond, Irene Rich, Victor McLaglen, Dick Foran, Guy Kibbee, Grant Withers.

Henry Freulich, "The Tender Years," (Al-

son Prods.) with Joe E. Brown, Richard Lyon, Josephine Hutchinson, Noreen Nash.

## Metro-Goldwyn-Mayer

Robert Surtees, "The Kissing Bandit," (Technicolor) with Frank Sinatra, Kathryn Grayson, J. Carrol Naish, Sono Osato, Mildred Natwick, Edna Skinner, Billy Gilbert, Mikhail Rasumny.

Charles Rosher, "On An Island With You," (Technicolor) with Esther Williams, Peter Lawford, Jimmy Durante, Ricardo Montalban, Cyd Charisse, Xavier Cugat.

Paul Vogel, "The High Wall," with Robert Taylor, Audrey Totter, Herbert Marshall, Warner Anderson, Vince Barnett, Moroni Olsen.

Ray June, "Virtuous," with Van Johnson, June Allyson, Hume Cronyn, Una Merkel, Butch Jenkins, Richard Derr, Elisabeth Risdon.

Robert Planck, "Luxury Liner," (Technicolor) with George Brent, Frances Gifford, Jane Powell, Lauritz Melchior.

## Monogram

Henry Sharp, "The Quest of Willie Hunter," (Wrather Prod.) with Don Castle, Audrey Long.

William Sickner, "Rocky," (Parsons Prod.) with Roddy McDowall, Gale Sherwood, Edgar Barrier, Jonathan Hale.

## Paramount

Charles Lang, "My Own True Love," with Phyllis Calvert, Melvyn Douglas, Wanda Hendrix, Phillip Friend, Phyllis Morris.

John Seitz, "Night Has a Thousand Eyes," with Edward G. Robinson, Gail Russell, John Lund, Virginia Bruce, William Demarest, Richard Webb.

Ray Rennahan, "The Paleface," (Technicolor) with Bob Hope, Jane Russell, Samuel Z. Hinds, John Litel, Jack Searl.

## PRC

George Robinson, "Open Secret," (Marathon Prod.) with John Ireland, George Tyne, Ellen Lowe.

## Republic

Tony Gaudio, "The Red Pony," (Feldman-Milestone Group Prod.) with Myrna Loy, Robert Mitchum, Louis Calhern.

## RKO

Nick Musuraca, "I Remember Mama," with Irene Dunne, Barbara Bel Geddes, Oscar Homolka, Philip Dorn, Sir Cedric Hardwicke, Rudy Vallee, Edgar Bergen.

Gregg Toland, "A Song Is Born," (Technicolor) (Samuel Goldwyn Prod.) with Danny Kaye, Virginia Mayo, Steve Cochran, Felix Bressart, J. Edward Bromberg, Hugh Herbert, O. S. Whitehead, Ludwig Stossel, Benny Goodman, Tommy Dorsey, Louie Armstrong, Lionel Hampton.

Robert de Grasse, "The Miracle of the Bells," (Jesse Lasky Prod.) with Fred MacMurray, Valli, Frank Sinatra.

Frank Redman, "Wild Horse Mesa," with Tim Holt, Nan Leslie, Richard Martin.

Harry Wild, "Station West," with Dick Powell, Jane Greer, Agnes Moorehead.

George Barnes, "Good Sam," (Rainbow Prod.) with Gary Cooper, Ann Sheridan, Edmund Lowe.

Maury Gertsman, "Rachel," with Loretta

Young, William Holden, Robert Mitchum.

Frank Redman, "Under Arizona Skies," with Tim Holt, Nan Leslie.

J. Roy Hunt, "Race Street," with George Raft, William Bendix, Marilyn Maxwell.

## Screen Guild

James Brown, Jr., "The Prairie," (Zenith Prod.) with Alan Baxter, Lenore Aubert, Charles Evans, Russ Vincent.

## Selznick

Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Ethel Barrymore, Cecil Kellaway, David Wayne, Albert Sharp.

## Twentieth Century-Fox

Arthur Miller, "Gentleman's Agreement," with Gregory Peck, Dorothy McGuire, John Garfield, Anne Revere, Jane Wyatt, Celeste Holm.

Charles Clarke, "Green Grass of Wyoming," (Technicolor) with Peggy Cummins, Charles Coburn, Burl Ives, Lloyd Nolan, Robert Arthur, Geraldine Wall.

Leon Shamroy, "Daisy Kenyon," with Joan Crawford, Dana Andrews, Henry Fonda, Ruth Warrick, Peggy Ann Garner, Martha Stewart.

Leo Tover, "The Snake Pit," with Olivia de Havilland, Leo Genn, Mark Stevens, Celeste Holm, Minna Gombell.

## United Artists

James Wong Howe, "The Time of Your Life," (William Cagney Prod.) with James Cagney, William Bendix, Jean Cagney, Wayne Morris, James Barton, Gale Page.

Joe Valentine, "Sleep My Love," (Triangle Prod.) with Claudette Colbert, Robert Cummings, Don Ameche, Rita Johnson, Keye Luke, Maria San Marco.

## Universal-International

Lionel Lindon, "Tap Roots," (Technicolor) (George Marshall Prod. presented by Walter Wanger) with Van Heflin, Susan Hayward, Boris Karloff, Julie London, Ward Bond, Arthur Shields, Russell Simpson.

Milton Krasner, "A Double Life," (Kanin Prod.) with Ronald Coleman, Signe Hasso, Edmond O'Brien, Ray Collins, Phillip Loeb.

William Daniels, "The Naked City," (Mark Hellinger Prod.) with Barry Fitzgerald, Howard Duff, Dorothy Hart, Don Taylor, Ann Sargent.

William Mellor, "The Senator Was Indiscreet," (Inter-John Prod.) with William Powell, Ella Raines, Peter Lind Hayes, Arleen Whelan, Ray Collins, Cynthia Corley, Hans Conreid.

Russell Metty, "Mortal Coils," with Charles Boyer, Ann Blyth, Sir Cedric Hardwicke, Nigel Bruce.

## Warners

Sid Hickox, "Silver River," with Errol Flynn, Ann Sheridan, Thomas Mitchell, Barton MacLane, Tom D'Andrea.

Ernest Haller, "Ever the Beginning," (United States Pictures) with Lilli Palmer, Akim Tamiroff, Gale Robbins, Hugo Haas, Benny Baker, Stella Adler, Fritz Feld.

Karl Freund, "Mary Hagen," with Ronald Reagan, Shirley Temple, Rory Calhoun, Charles Kemper, Kathryn Card.

Elwood Bredell, "Romance in High C," (Technicolor) (Curtiz Prod.) with Jack Carson, Janis Paige, Don DeFore, Oscar Levant, S. Z. Zakall, Doris Day, Fortunio Bonanova.



## Three New Books On Photography

For the amateur movie enthusiast who is planning a trip through the western states, Fred Bond's "Westward How! Through the Scenic West" is one of the most complete and informative tomes so far available.

In 324 pages, it details with type, illustrations and maps, a total of 21 planned tours from South Dakota to the coast; with suggested routes for each tour, principal points of photographic interest both on and off the beaten tracks; recommendations for most advantageous season in each district, and best stop-over points.

Traveler-Photographer Bond also provides charts showing best time of day for taking pictures at each point of interest, also recommending correct exposures for the various types of still and motion picture photography.

"Westward How! Through the Scenic West" will be most valuable to the amateur movie-maker anticipating a future vacation trip through the 12 western states and Canada. It is published by Camera Craft Publishing Co. of San Francisco, and priced at \$6.95.

• Arthur L. Gaskill and David A. Englander are authors of "Pictorial Continuity," a simple and explicit manual describing how the amateur motion picture photographer can improve the quality of his films through proper utilization of camera continuity. It goes into detail and photographic description of the manner in which to photograph sequences through proper use of establishing, medium, close-up, cut-in, and re-establishing shots to enhance the value of audience interest in the finished picture.

Gaskill was former head of the Army Photographic School of the Signal Corps; while Englander was a combat photographer with the U. S. First Army, participating in the French and Belgian campaigns.

"Pictorial Continuity," specifically aimed for attention of the amateur movie maker, is published by Duell, Sloan & Pearce, Inc., New York, and priced at \$3.00.

• Although the second edition of William Mortensen's "Pictorial Lighting" is directed primarily to the still photography enthusiast, it contains much basic and valuable information for the amateur cinematographer who desires to correctly use inexpensive lighting setups for interior shooting. The book goes into detail on fundamentals of lighting, and is profusely illustrated.

"Pictorial Lighting" is published by Camera Craft Publishing Co. of San Francisco, and priced at \$4.50.

## Anso Color 35 mm.

(Continued from Page 311)

ous in shooting in the high mountains in snow and ice. Further, no tests could be made for guidance in shooting. The producer commented that—although trying to make a picture in the middle of Europe where it should be taken for granted that supplies and equipment for such an undertaking would be readily at hand—the project developed more delays and headaches than if it were made on a desert island.

After shooting about a week, the Arriflex developed shutter trouble. In taking the camera part, one of the fibre gears was found to be worn out. As a replacement could not have been found in Switzerland, or even in Germany without extended delays, it was decided to fashion a brass gear. But on arriving back in Zermatt, the only mechanic in the village was the priest who had a little shop back of his church. He stayed up all night, hand-filing a new gear to fit, and the unit returned up the mountain at six the following morning. The priest refused compensation for his invaluable work, but accepted three rolls of color film for his Leica camera which he was very happy to obtain.

Even with exposure of the 5,000 feet of film finally completed, producer Allen still encountered difficulties. He shipped the film to Hollywood by air express; the first 2,000 feet arrived okay, but the second shipment of 3,000 feet strangely wound up in a warehouse in Canada where it was lost for three months. This delay in processing fortunately did not harm the negative, which was finally edited into the short with running time of 21 minutes and 1900 feet in length. More remarkable is the fact that this was edited from total exposure of only 5,000 feet of negative on the project. All processing of the negative was handled by Houston color film laboratories, which are also currently making 125 Anso-color prints for release.

Producer Allen recently received 14,000 feet of Anso-color 35 mm. negative shot by cameramen Angst and Braun in the Austrian Alps. This footage, mainly devoted to spectacular skiing shots, will be incorporated into a feature, "White Devil," which Allen plans to make in November. He is currently at Tarpon Springs, Fla., directing footage for what he plans as his initial feature Anso-color release, "Sixteen Fathoms Deep."

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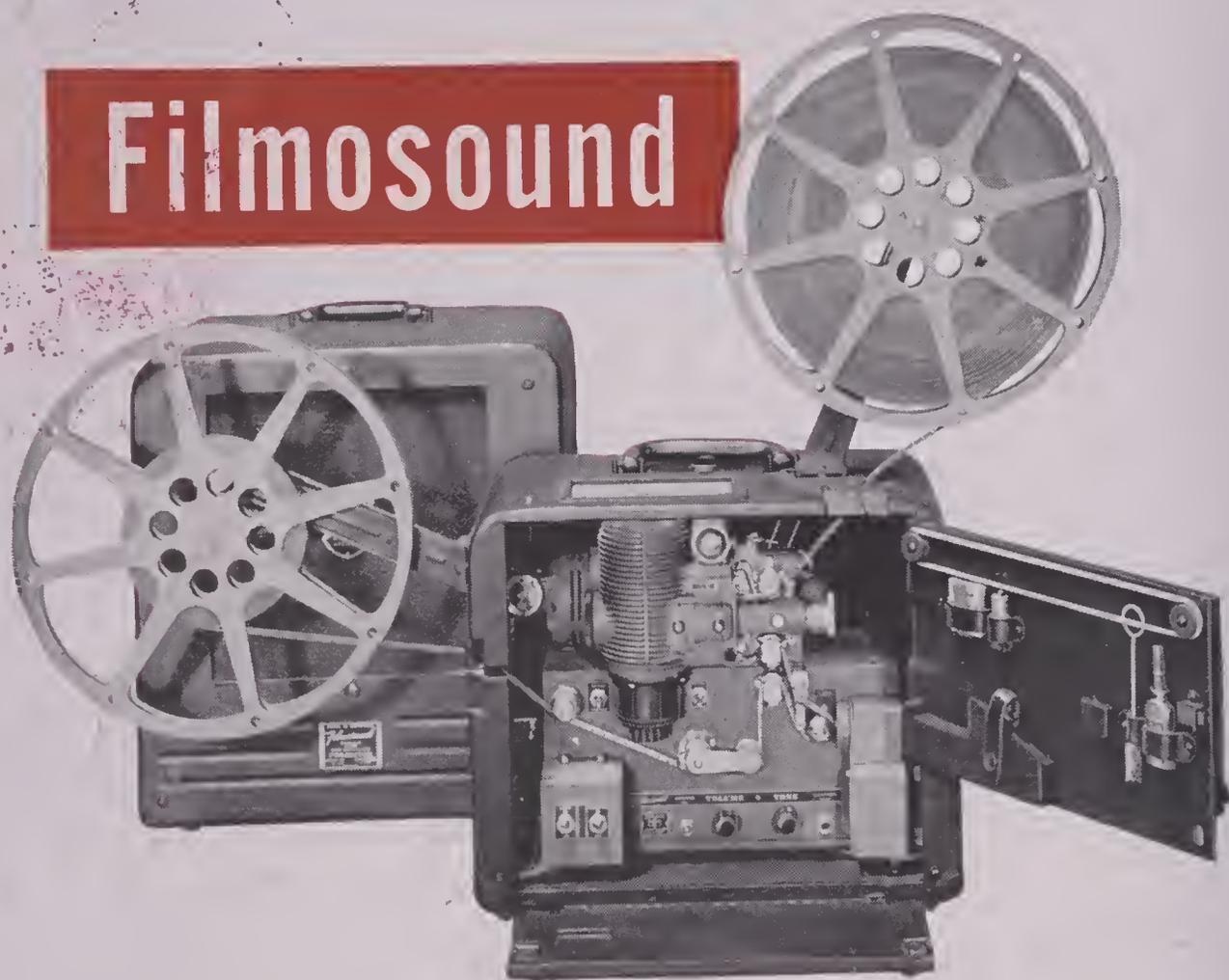




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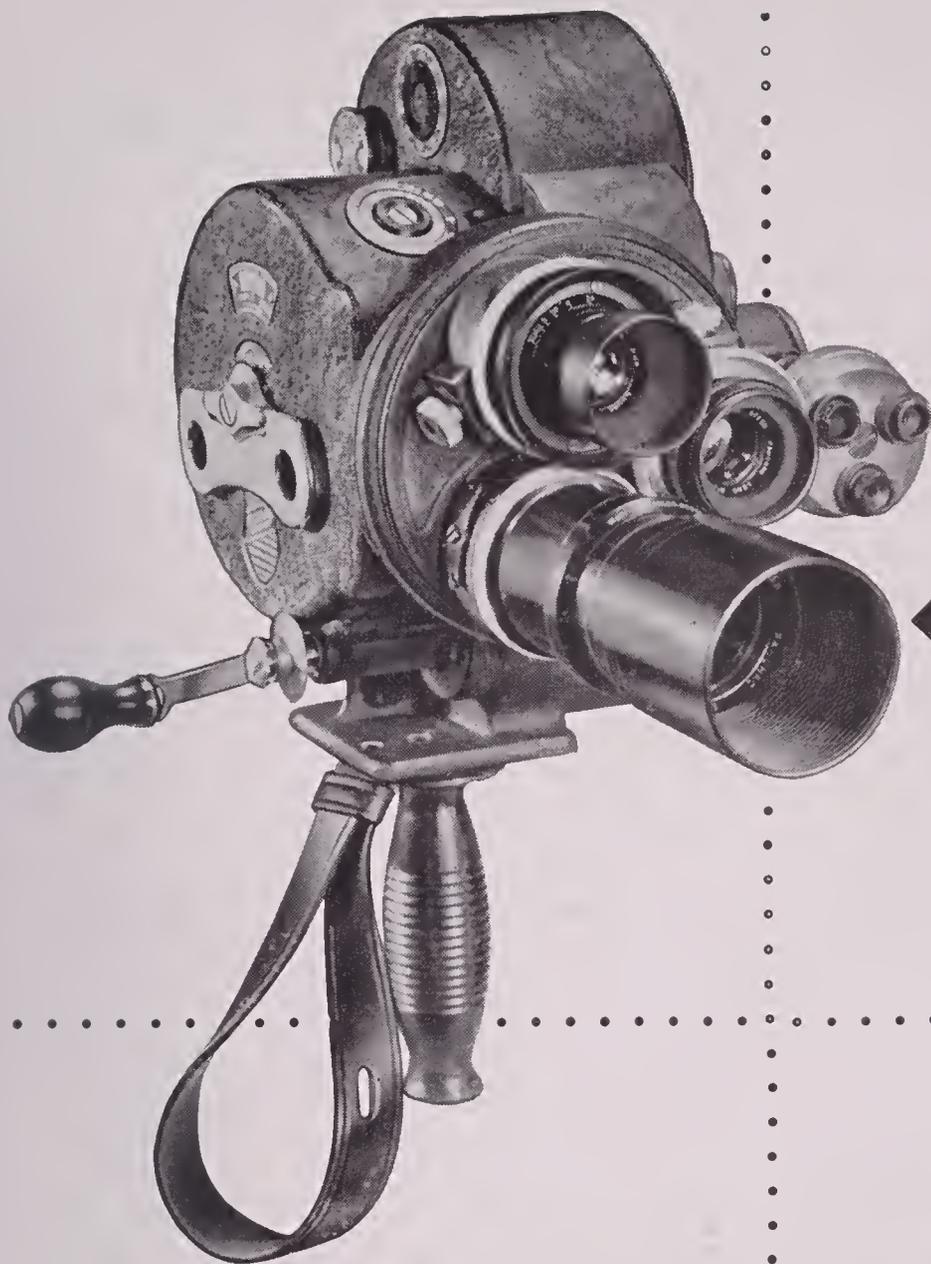
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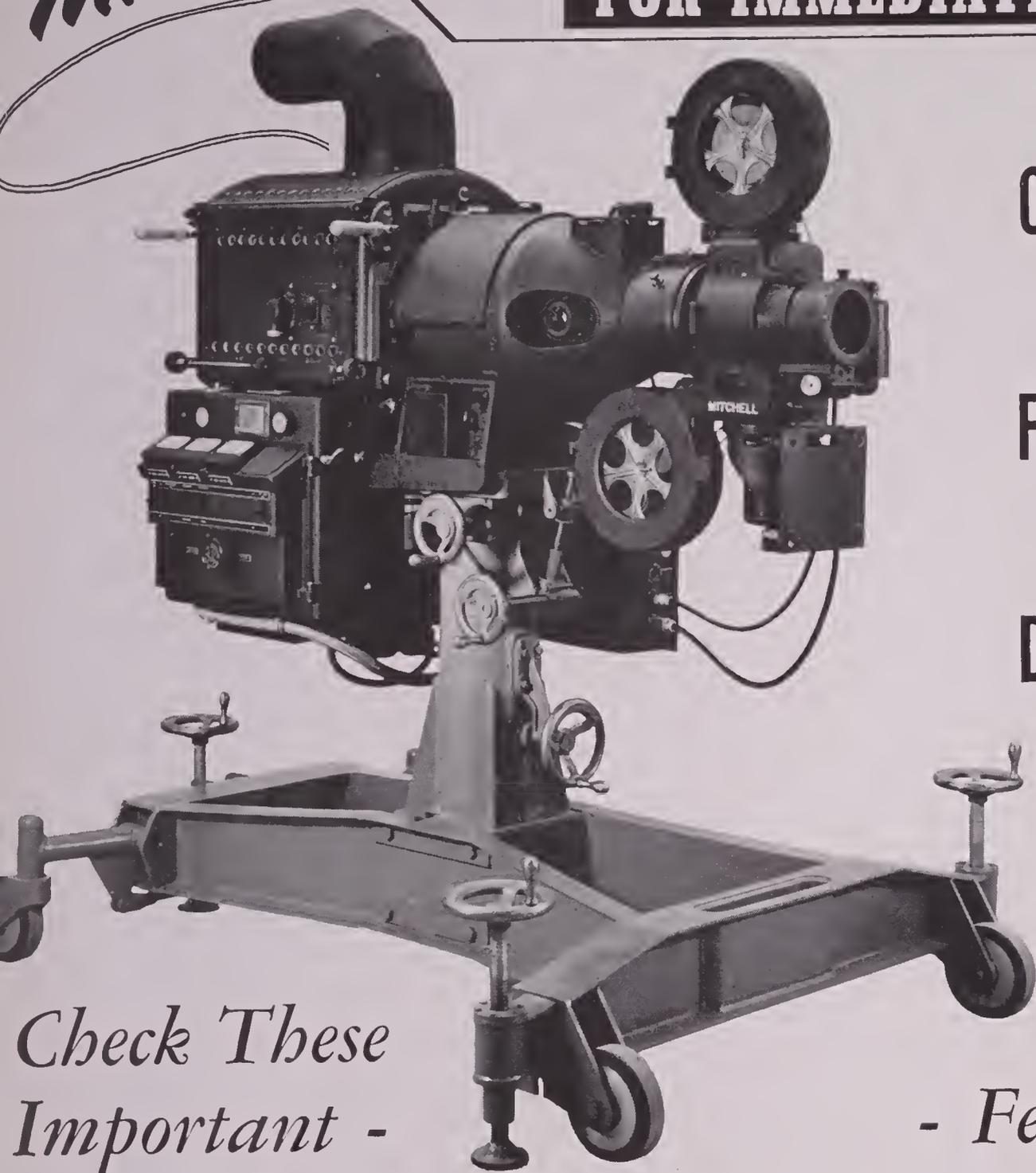
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

OCTOBER, 1947

NO. 10

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ON THE FRONT COVER—Initial production use of a helicopter plane, with special-designed vibrationless mount for the Mitchell camera, was for the RKO feature, "Your Red Wagon." Paul Ivano, A.S.C., handles the camera for long follow shot of stars Cathy O'Donnell and Farley Granger. Helicopter camera plane and method was described in September issue of AMERICAN CINEMATOGRAPHER.

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Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on applica-  
tion. Subscriptions: United States and Pan-Ameri-  
can Union, \$2.50 per year; Canada, \$2.75 per year;  
Foreign, \$3.50. Single copies, 25c; back numbers,  
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# ACES of the CAMERA

## CLYDE DEVINNA, A. S. C.

By ROE FLEET

**W**HEN a Hollywood major studio decides to send a production unit on a long location trip outside of the United States, the first Director of Photography considered for the assignment is generally Clyde DeVinna, A.S.C.

Since 1922, DeVinna has been a globe-trotting cinematographer on filming expeditions to all parts of the world, and in virtually every type of climate that exists—from within the Arctic Circle to Equatorial Africa, South America, Tahiti, and Indo-China.

On such photographing expeditions, he was responsible for the camera work for some noteworthy productions, including "White Shadows in the South Seas" (for which he received the Academy Award for the Best Cinematography of 1928-29), "Pagan Love Song," "Trader Horn," "Last of the Pagans," and "Es-kimo."

Originally, photography was only a hobby with DeVinna. When he started a four-year stretch in the United States Navy in 1909 as a radio man, Clyde carried along a popular-

priced still camera to snap pictures for his own amusement. But when an old box-type 35 mm. motion picture camera came through, DeVinna—with his complete knowledge of photography—was immediately drafted to hand-crank the machine. Aboard the USS California in 1911-1912, he was the first officially-designated Navy photographer—many years before the advent of rated photographers in the service, and shot the first films used for the Navy recruiting service. During the Nicaraguan rebellion of 1912, Clyde was continually dodging bullets, as the rebellious natives figured the camera was some new type of machine gun.

Following discharge from the Navy, DeVinna had a brief interlude as a news photographer for the San Francisco Examiner and the Los Angeles Tribune before going to Inceville; one of the principal film production centers around Los Angeles in 1914; on a radical experiment—planned publicity during production, complete with photographs. The trial period of six weeks blossomed into a full-time job; but, when a motion picture cameraman failed to show up one morning, Clyde was drafted to handle the photography for director Charles Swickard. The latter was making two pictures simultaneously at the time—with Tsuru Aoki and Sessue Hayakawa as the individual stars. Although Swickard had previously been known to change cameramen on each picture, Clyde stayed with him in the Ince organization for several years.

Inceville, it might be pointed out, was a collection of open air stages and sets on the shores of the Pacific Ocean about 16 miles from Hollywood. The mesa and rolling hills back of the studio provided excellent backgrounds for the westerns that formed a large portion of the Ince program for Mutual release. With these conditions applying, 90% of footage was of exterior nature, which provided early basic and thorough training for DeVinna to become an exterior specialist in motion picture photography.

Clyde's initial extended trip on a filming expedition was about 1922, when he accompanied director Raoul Walsh to Tahiti to make a House Peters starrer for the old Goldwyn Company. This trip, by the way, was the first on which a portable film developing lab was taken along for negative processing on location. Within two years, Irving Thalberg, then the producing head of Metro-Goldwyn-Mayer, engaged DeVinna to handle a photographic expedition to the Grand Canyon for several months, and this resulted in a permanent connection with MGM covering the next 18 years. In 1926, he was again shipped off to Tahiti with a rather complete production unit to photograph the Ramon Novarro starrer, "Pagan Love Song," which resulted in a six month's expedition. Having experienced the advantages of a portable film processing laboratory several years before to the same location, a similar setup was operated under supervision of Wilson Leahy, A.S.C.

The satisfactory results secured by MGM on the above picture in the Tahiti area, in sending along virtually a complete studio production unit to so distant a location, put the studio executives in a receptive frame of mind to shortly thereafter produce "White Shadows in the South Seas" in the same locale. So, less than a year later, Clyde was again off to the South Pacific to handle the camera work on

(Continued on Page 368)

# GEORGE FOLSEY, A.S.C.

*Introduces*

## REFLECTED LIGHT

*for*

# "IF WINTER COMES"

By WALTER R. GREENE

**A**N advanced photographic lighting technique, by which soft and evenly-reflected light gives extraordinary authenticity to interior sets, was recently developed and most successfully used by George Folsey, A.S.C., as Director of Photography on the Metro-Goldwyn-Mayer production of "If Winter Comes," a forthcoming release.

The photographer had previously used the reflected-light principle on "Green Dolphin Street" for several scenes, but carried the idea to a greater extent for the photography on "If Winter Comes."

On the latter production, Folsey came to the decision that ordinary direct lighting would be entirely too contrasty for the interior sets, especially one with much important action and footage which had three dark sides, white ceiling, dark panels and a very black bookcase in the background, a ceiling piece, low camera set-up, and actors wearing dark clothes.

Confronted with such a lighting problem, Folsey—having demonstrated the feasibility of reflected light on "Green Dolphin Street"—decided to establish the method for the major photographing of "If Winter Comes."

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Walter Pidgeon in scene for "If Winter Comes," with Director of Photography George Folsey, A.S.C., standing at left (with hat) beside camera. A large silk reflector is shown in center background, while another was at right in same position from which still was made.



Above and right—Production stills from the Metro-Goldwyn-Mayer production, "If Winter Comes." In upper left is a setup in the extremely dark set described by Director of Photography Folsey. At upper right, advantage of reflected light for a large set with many people in the background, is shown. On right, a good example of natural and rounded light in a small set.

Due to use of flash bulbs to make these stills, fullest advantage of the reflected light method cannot be displayed.



Folsey in three different poses adjusting the silks for scenes in the production. At right, arc light projected onto the silk reflector and into the set, clearly demonstrates the technique.

# THE MEN BEHIND THE MOUSE

## PART 1. A DAY AT DISNEY'S

By HERB A. LIGHTMAN

**W**ALKING through the gates of the Walt Disney Studios in Burbank, Calif., is like stepping into a wonderland the likes of which *Alice* never imagined. It is another world.

All around you are modernistic buildings painted in glowing tones of rust, tan and green. The neatly tended lawns and shrubs add up to a landscape that Grant Wood might have painted. The broad thoroughfares that lead from one streamlined building to another have storybook names like *Dopey Drive* and *Mickey Avenue*. Here and there, cute girls in shorts and pigtailed giggle and shout as they paddle ping pong balls over the net. In a field nearby, a thundering herd of grown men, yelling and laughing like kids on a sandlot, gleefully chase a football about. But it isn't just what you *see* that's different, it's what you *feel*.

There's an atmosphere inside those gates that belongs more to the world of fantasy than to that of reality. It grows on you. After a few minutes you almost expect to see the *Seven Dwarfs* come swinging around a corner to the tune of "Heigh Ho, Heigh Ho! It's Off to Work We Go!" There's a kind of heartbeat to it, an undercurrent of excitement that seems to throb from within those brightly colored stucco walls.

This is the home of Mickey Mouse and Pluto and Donald Duck. This is the fun factory that spawned such visual delights as "Pinocchio," "Bambi," "Dumbo," the magnificent "Fantasia," "Make Mine Music," "Song of the

South," "Fun and Fancy Free." This is the huge laboratory in which art and science are fused together onto brilliantly tinted strips of celluloid.

### Good Will Ambassadors

Characters like Mickey and Donald are the end product of all the brisk activity that goes on behind these gates. They are the ambassadors of good-will who dance across the screens of the world, singing and joking in a dozen different languages. They are actually celluloid puppets—for it is the men behind the Mouse who pull the strings—writers, directors, artists and animators—the skilled technicians who breathe life and laughter into paint and celluloid so that a world of moviegoers may be entertained.

These men are artists and scientists whose efforts, had they been directed into other channels, might have resulted in museum masterpieces or machines to harness the mighty atom. Yet, by devoting their talents to making cartoon characters move on the screen, they actually perform a greater service to humanity in that they bring laughter to a world still sorely in need of escape from shabby reality.

Mickey Mouse and even the belligerent Donald Duck are two of America's most able diplomats. They succeed in promoting understanding between nations where top-hatted ambassadors fail miserably. They speak in a truly international language—the language of laughter—and what they say promotes friendship for the U.S.A. Should anyone doubt this he need only inspect the hundreds of awards

bestowed upon the Disney organization by a multitude of foreign countries.

### The Master Mind

The man behind the men behind the Mouse is Walt Disney, pioneer of animated cartoons, whose career reads like a chapter from a Horatio Alger novel.

Born in Chicago, Ill., some forty-odd years ago, young Walt later moved with his family to a farm near Marceline, Mo.—where he attended a little country school, ran a paper route, and won prizes in local amateur contests for his impersonations of Charlie Chaplin.

Drunk with his first taste of theatrical success, he teamed up with another boy to form a vaudeville act, but when the act "got the hook," Walt gave up the stage and decided to become an artist. His parents were somewhat less than enthusiastic over this decision, but a favorite aunt came to his rescue by providing him with pencils and drawing tablets.

Later, at McKinley High School in Chicago, he became actively interested in drawing and photography, penning illustrations for the school paper and shooting his first motion picture with a secondhand camera which he bought. At the same time, he studied cartooning in night classes at the Academy of Fine Arts.

He graduated from high school just as America entered World War I. A cool sixteen years old, he tried to enlist in every branch of the service, but was rejected by all of them because of his youth. He finally talked his way into the American Red Cross as an ambulance driver and was sent to France where he startled both friend and foe with his unconventional ambulance. Ever the artist, he covered his vehicle of mercy from stem to stern with original Disney cartoons.

When the war was over, he returned to Kansas City and got his first art job (at the



(Left) A typical Walt Disney story conference. In the background is the "story board," looking like a large comic strip and containing sketches in sequence of each scene or high point of action. The story board, for all practical purposes, is the illustrated script of production. (Center) The huge Multiplane camera, an exclusive Disney development, fills a two-story room and requires an operating crew of six men. It adds three-dimensional depth to cartoon productions. (Right) A corner of the vast Disney Paint Laboratory in which more than 2,000 hues of paint are produced. A young lab assistant carefully mixes pigments from numbered bins.



(Left) The atmosphere of Walt Disney's studio is more like that of a college campus than a conventional movie lot. Here, in front of the Animation Building located at the intersection of Mickey Avenue and Dopey Drive, an informal group enjoys the sun during lunch hour. (Right) A section of the modernistic studio commissary where everyone from Walt Disney on down eats and chats in pleasant surroundings.

staggering salary of \$50.00 a month) with an advertising company, drawing sketches of such inspiring items as hog troughs, henhouses and horse-drawn ploughs. He later teamed up with another aspiring young artist bearing the unbelievable name of Ubbe Iwerks, and they went to work for a company that made animated advertising films. At the same time he rigged up a studio in his garage where he conducted experiments in his spare time. These experiments led to his selling a short animated reel of Kansas City incidents to the owner of three large local theatres.

Inspired by this initial success, he gave up his job, enlarged his garage studio, and invited several eager young cartoonists to spend their evenings working on a new entertainment idea—the animation of fairy tales. Their first short subject was "Little Red Riding Hood"—but an even more important character, Mickey Mouse, was due to appear on the scene.

Walt had always liked mice. Their bright eyes and quick movements fascinated him. He used to catch them around the studio and keep them in a cage on his desk where he could study their antics. One of the creatures, a brazen sort of mouse with a whimsical personality, used to scamper all over his drawing board and watch him work with a critical eye. At first, Walt called his little visitor Mortimer Mouse, but finally (after closer acquaintanceship with the jolly little rodent) he decided that Mickey Mouse was a more fitting name.

It was about this time that Disney decided to take his idea to Hollywood. He arrived in the movie capital (then a thriving orange grove) with a two-year-old suit of clothes, his drawing tools, \$40.00 in cash, a print of his latest picture, and a world of enthusiasm.

#### Hollywood's Cold Shoulder

Hollywood, however, was somewhat less than enchanted by the idea of animated cartoons. Walt and his brother Roy (now financial wizard of the Disney interests) tramped the star-dusty streets for months—cooking, eating and sleeping in one room; and getting the best doors in Hollywood slammed in their faces. When things got so black that even *hara kiri* looked good, an order came through from an independent distributor in New York for a

series of animated cartoons.

The brothers Disney converted a dark little room in the back of a real estate office into a studio, sent for Ubbe Iwerks in Kansas City, hired two girl assistants (one of whom Walt later married) and began a feverish schedule of drawing and filming.

Their first production was "Alice in Cartoonland," which was followed by a series starring "Oswald the Rabbit." Walt felt the need to develop a new character and he wracked his brain without causing any cerebral storms. Then, while crossing the continent on a train, he happened to think of the jolly little rodent who used to play hop-scotch on his drawing board. Mickey Mouse! That was the answer!

The first three Mickey Mouse shorts failed to cause much stir in the movie world because the industry was, at that moment, up in the air over a revolutionary new development—the talking picture. Walt tried to interest several companies in synchronizing sound to his Mickey Mouse cartoons—but nobody ever heard of cartoons with sound, so there were no takers. Finally, in desperation, Walt and his brother scraped together a bit of money and decided to record and release the film themselves.

The rest, as biographers always say, "belongs to history." Mickey Mouse made a sensational hit with the public. Disney's studios grew by leaps and bounds. He hired the best artists he could find and then set up his own school to train animators especially for cartoon production. The payroll expanded to include hundreds of new employees; a research department and music library became part of the set-up.

Through it all, Disney kept his feet on the ground, even though his imagination continued to soar in the clouds. He worked for progress in cinematic science, took chances on new and untried techniques, molded the animated cartoon into a potent medium of art and entertainment.

He has always placed progress ahead of money, sinking his entire capital into a project which he believed in, even though others scoffed at his foolhardiness. The industry said

he was crazy when in 1937 he produced "Snow White and the Seven Dwarfs," the first feature-length cartoon. But "Snow White" made millions and signalled the birth of a fascinating new form of screen entertainment.

The screen and science have both profited from the new devices and techniques perfected by Disney and his associates. The miraculous Multiplane camera, which gives three-dimensional depth to cartoon compositions, is one of the more important achievements. The blending of live action with cartoon characters in the same scene—first introduced in "The Three Caballeros" (1945) and reaching its highest degree of perfection in "Song of the South" (1947)—is another major step forward in cinematic progress.

#### The Magic City

By 1938, the mushrooming Disney organization had outgrown its Hyperion Studios. Much of its equipment had become obsolete and there was an urgent need for space and more space.

It was then that a large tract of land in Burbank, not far from the Warner Bros. Studios, was purchased and plans were drawn up for what was to be the most modern and functional cartoon studio in the world. Walt and his brain trust worked closely with the architects to make sure that the new studios would be, not only beautiful to the eye, but conducive to the highest quality of production in the constantly expanding field of cartoon animation.

The result is a kind of dream studio, a magic city all in itself—the very last word in pleasant and productive working surroundings. Here everything is attractive, designed to inspire the creative instincts of artists—and it is so well planned that there is very little waste of time or motion in getting the job done.

The first consideration in planning was to provide a smooth and efficient sort of motion picture "assembly line." The Animation Building is the beginning of the line. In it are located offices of the Story Department, Directors, Layout Men, Animators and Inbetweeners. Across the street from the Animation Building, and connected with it by an underground all-

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# ELECTRONIC FIRE AND GAS LIGHT EFFECT

By HAROLD. NYE

(Warner Brothers Studios, Burbank, Calif.)

(This paper was presented by the author at the October, 1946 convention of the Society of Motion Picture Engineers in Hollywood, and published in the April, 1947 issue of SMPE Journal. It is reprinted by special permission.)

When photographing motion picture sets using gas light brackets, it has been common practice to conceal a 50- or 100-w projection lamp back of each shade to reinforce the light from the gas flame, as the flame itself does not produce enough light for satisfactory photographic results. These lamps are usually controlled by means of a flasher and dimmer combination to stimulate the flicker of the gas flame on the wall, as shown in Fig. 1. The results obtained are more or less mechanical and require the constant attention of an operator.

Some time ago we received a request from the Decorative Lighting Department to develop an automatic control for these lights that would make them synchronize exactly with the flicker of the gas flame. If the gas light is turned up, or turned down or out, the reinforcing light must follow the action faithfully as well as producing the flicker, and it must do this without any manual operations.

This was accomplished with a simple electronic control in the following manner. The light from the gas flame in the bracket was picked up with a photocell attached to the back of the bracket shade and concealed from the camera (Fig. 2). The photocell was connected in a phase-shift circuit which controlled the grid of a thyratron tube. The lamps that produce the reinforcing light were connected in the anode circuit of the tube and the light produced could be made directly proportional to the amount of light picked up by the photocell. The cell was enclosed in a metal shield with a tubular window so arranged that it could pick up the light from the tip of the gas flame and not be affected by the normal set lighting.

The thyratron unit controls the current through the lamp. The light reproduced on the wall was a very faithful reproduction of the gas flame flicker and the lag in response could not be detected. The circuit, with the omission of protective devices, is shown in Fig. 3.

The thyratron employed was an FG-105,

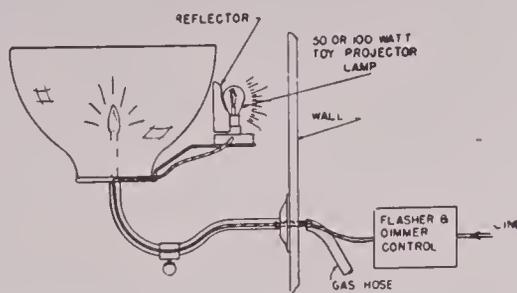


Fig. 1. Method ordinarily used for concealing a small projection lamp back of a gas bracket to reinforce the light produced by gas flame.

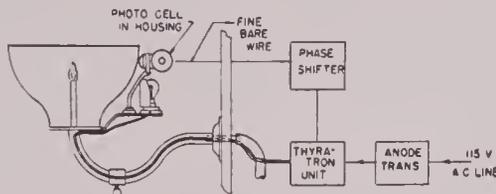


Fig. 2. An electronic circuit is added to modulate the projection lamp to simulate gas flame flicker.

which is a shield grid type and is rated at 6.4 average amp, and it will take care of the requirements of the average set to be photographed in black and white. T2 is the anode transformer which must be capable of carrying the entire lamp load. T1 is the grid transformer which handles very little power. P1 is a potentiometer connected across the secondary of the grid transformer and serves as the sensitivity control.

The section AB of this potentiometer, the secondary of the anode transformer, the capacitor C, and the photocell, form a resistance-capacitance phase shift bridge in which the photocell serves as the resistive element. This bridge controls the phase angle of the grid voltage relative to the anode voltage. The phase angle of the grid voltage determines the amount of current that flows through the thyratron and the load.

The sensitivity control is adjusted so that when no light strikes the cell the grid voltage

is about 180 deg. out of phase with the anode voltage and the tube does not conduct. Small increments of light on the photocell decrease the angle by which the grid voltage is displaced from the anode voltage, and the tube starts to conduct. When there is sufficient light on the cell, the grid and anode voltage are practically in phase and the thyratron conducts maximum.

The photocell used was a 922, which is a vacuum cartridge type. This particular cell was selected because it could be mounted in a small housing.

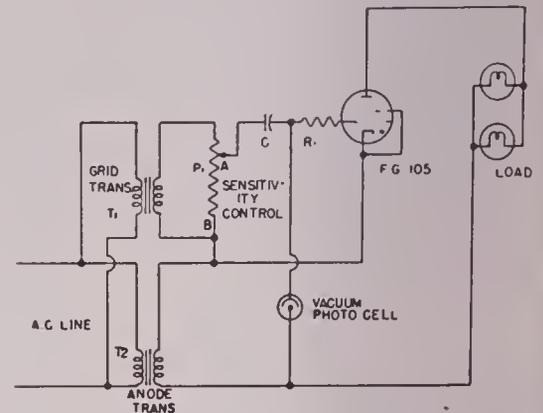


Fig. 3. Half-wave electronic circuit for modulation incandescent lights.

The capacitor C is in the neighborhood of 0.0003 $\mu$ f. The grid circuit is a high impedance circuit and should be properly shielded. R1 is the grid resistor used for the protection of the thyratron grid.

The sensitivity control is the only adjustment in the circuit. With this control the lights can be phased full on, off, or the photocell can be given any desired amount of control, *i. e.*, the flicker can be made violent or barely perceptible. The rate of flicker, of course, depends on the flicker of the gas flame. All the operator has to do is to adjust the sensitivity control until the flicker looks natural to the eye. Any operator can run the equipment with a few minutes instruction.

The characteristics of mercury thyratrons vary slightly until they reach their operating temperature and some adjustment of the sensitivity control may be necessary for the first half hour, but after the tube has heated sufficiently, no further attention is required from the operator.

A five-minute delay relay is required to delay the application of the anode voltage until the cathode has reached its operating temperature. This relay, switches, fuses, and pilot lights are omitted from Fig. 3.

A photograph of the original equipment as used is shown in Fig. 4.

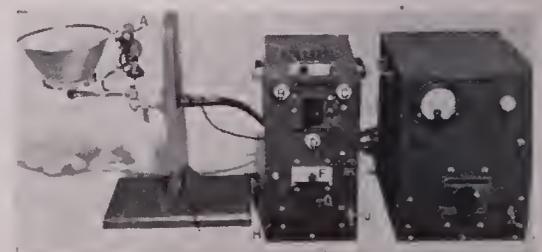


Fig. 4. Equipment used for electronic flicker effect.

*A* is the photocell in a metal housing set so it will pick up the flickering light from the gas flame. No optical system is used. Since one photocell terminal is common with one of the power lines to the lamp, it is necessary only to run one lead from the photocell to the thyatron grid circuit. Trouble was encountered when we tried to cable this lead along with the power leads, even though it was shielded, but bare wire can be used if it is kept away from the power leads. A piece of No. 38 bare copper wire run from the sensitive side of the photocell to a pin driven through the wall serves as this lead and it is so fine that it will not photograph. A lead fastened to the other end of the pin on the back of the set connects to the grid post on top of the thyatron unit which is in the center of the picture.

The pilot light *B* indicates that the filament is turned on. The pilot *C* lights when the time delay relay has applied the anode voltage. The pilot *D* is connected across the load and permits the operator to observe the flicker being produced even though he is not in a position to see the lights on the set. *E* is the sensitivity control, *F* is the anode fuse compartment, *G* is the filament fuse, *H* is an external cathode connection which is not used in this setup, and *J* is a ground connection. It is not necessary that the equipment be grounded as no interference is created with the sound recording equipment.

The unit on the right of Fig. 4 contains the anode transformer. The unit shown has a variator and voltmeter built into it, and while not absolutely essential, it is convenient to be able to raise the anode voltage somewhat above normal when the maximum light picked up by the photocell is insufficient to produce a 180-deg. phase shift of grid voltage.

In some long shots we connect as many as ten bracket lights to one of these electronic units. The fact that all of the lights are controlled from one flame is not obvious in a long shot.

Small lighting units such as Dinky Inkies or Baby Juniors are also controlled by these units when it is desired to have the light flicker over some local area.

Light sources of 250 w or less respond to the flicker modulation better than the larger units because the thermal inertia of large lamp filaments filter out much of the higher frequency component of the flicker. Photoflood lamps of the same wattage produce better results than the regular projection lamps.

Gas flames are usually used in fireplaces on motion picture sets, and here again it is necessary that the light produced be augmented with a flickering incandescent light source in order to produce sufficient light to photograph satisfactorily. The unit just described is ideal for controlling these lights when not more than 750 w are required. This wattage is ample for the ordinary fireplace to be photographed in black and white. When used for a fireplace effect, the photoelectric pickup is made from a gas pilot flame located off stage.

When more than 750 w are required, two setups like the one just described may be used or a full-wave unit consisting of two thyratrons may be used. A full-wave circuit is shown in Fig. 5.

This circuit operates on the same principle as the one shown in Fig. 3. A vacuum tube

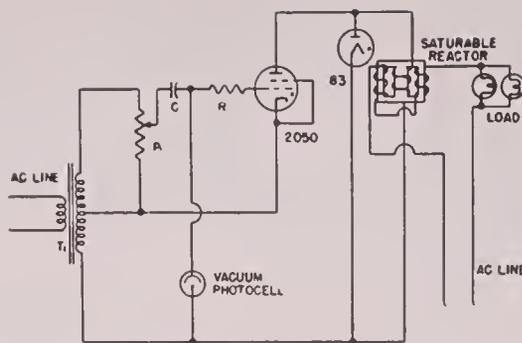


Fig. 5. Full-wave flicker and fire effect.

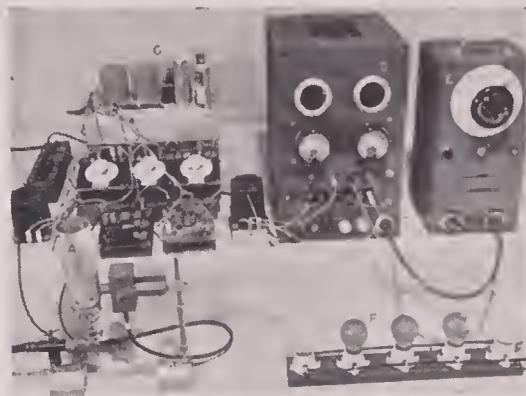


Fig. 6. Laboratory setup of full-wave flicker and fire effect.

and an interstage transformer have been added to the circuit so that the voltage applied to the grids of the two thyratrons are 180 deg. out of phase with each other. The anode transformer must have a center tapped secondary, and although batteries are shown in Fig. 5, a power supply was actually used. Fig. 6 shows a laboratory setup of this circuit. The gas burner *A* and the photocell housing *B* are similar to the pickup system used for a fireplace effect. The equipment shown at *C* is a bread-board setup of the control circuit. *D* is a full wave thyatron unit, *E* is the anode transformer and variac, and *F* is a lamp bank of photofloods which serve as a load. This setup has been tested for some time in the laboratory and appears to operate very satisfactorily but it has not been built up for use on production.

The gas burner should be in a chimney so that it can create its own draft and be independent of drafts that exist on the stage. The air holes for the burner should be properly located and be made adjustable so that any amount of flicker can be produced.

If, for any reason, is it not possible to place the photocell close to the gas flame, the cell may be located several feet away and the image of the flame can be focused on the cell with a simple optical system.

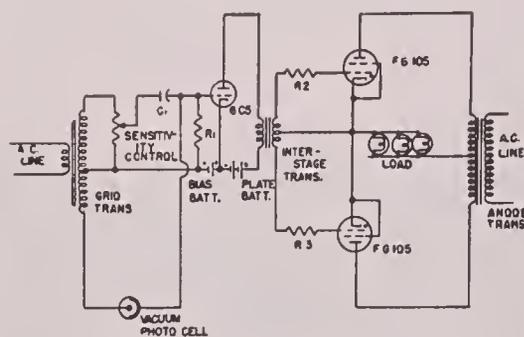


Fig. 7. Electronic fire effect utilizing a saturable reactor.

Electronically controlled saturable reactors can be used for fireplace effects, but they are not so satisfactory as the circuits already described. The circuit for such a unit is shown in Fig. 7. The grid circuit of the 2050 thyratrons is the same as that shown in Fig. 3. The saturable reactor has a capacity of 500 va and the direct-current winding can saturate the core with about 100 mils flowing through it. The tube load is highly reactive and the 83 tube forms a path for the current because of the collapse of the direct-current field. With this "free-wheeling" circuit it is necessary that only one tube be grid controlled.

The only advantage of this circuit is that small tubes are used and it is cheaper to build. The disadvantage is its slow response caused by the lag in the reactor. With a well-designed saturable reactor, no larger than 500 va capacity, it is possible to produce a fair fireplace effect.

Some experiments have been conducted using ignitrons to control heavy loads such as might be used for large fires, but these experiments have not progressed far enough to reach any definite conclusions.

We have been using some of these electronic fire and flicker effects for about a year and the results have been very satisfactory.

## New Day; Light Printer For 16 MM. Market

Made specifically for the 16 mm. and 8 mm. film field, the Day Light Printer, a modern-designed piece of film processing equipment is now being manufactured by Leo J. Streeter and his associates at their own plant in Burbank, Calif.

"The name 'Day Light Printer' most aptly describes this new piece of equipment," Streeter states, "in that it is operated completely in day light—the dark room is used only for loading the magazines.

"We found that, by eliminating many unnecessary parts, we could condense the machine but still retaining the same high quality of work at a speed that would permit the finest prints obtainable. Our machine still gets better than 2,000 feet per hour," Streeter continued, "and with the pre-set lighting arrangement, a new departure is introduced in the construction of a film printer. The plant is now in operation, and while we will not reach capacity this year, enough machines will be on the production line to meet normal demand for early deliveries."

More than two years' time went into the final experimentation and testing of the printer before it was placed on the market, according to company announcement. Street has been associated with the film industry for a quarter century, most of which time he specialized in the 16 mm. field as a sound engineer and production executive; and is credited with producing the initial 16 mm. sound recorder many years ago.

A major asset of the Day Light Printer, Streeter observes, is the simplicity of design and flexibility of design allows for instant change-over from 16 mm. to 8 mm. printing. This feature will undoubtedly find favor with many large business organizations planning to establish their own motion picture departments.

# FUTURE OF CINEMATOGRAPHY

by LEON SHAMROY, A. S. C.

*(This article was prepared by the author for the Pictures of Tomorrow edition of the Film Daily, September 10, 1947; and reprinted because of its pertinent and far-reaching analysis of motion picture photography and future developments.)*

The motion picture industry has more than its share of skeptics and critics. It has always been that way. Twenty years ago, when pictures were on the verge of talking, they protested, "We've gone as far as we can go."

Despite the loud wailings, impossible dreams have become technological practicalities. Pictures talk and live in vivid colors. New dimensions of realism have been added.

The critics have had their innings. With the advent of sound, they proclaimed the art of the motion picture dead. Sound could never be accepted as a substitute for the talents of the pantomimist. But the so-called death of an art proved to be a rebirth.

The stature of the motion picture as an art has grown and with it the art of the cinematographer. For many years, the men behind the camera have sought to erase the popular conception that they are something more than mechanics who point cameras and get the picture every time.

A director of cinematography makes something more than a technical contribution to a motion picture. What the writer has created in written word must be translated to the screen through the eyes and minds of director and cinematographer.

A close working relationship must exist between director and cinematographer if the fullest dramatic possibilities are to be realized graphically. With the proper lighting, a mood can be established, an emotion emphasized, and realism heightened.

The trend toward realism, however, has put many a cameraman in the position of a tightrope walker. While called upon to inject realism, he knows that to millions of theatregoers, the motion picture is a welcome escape from the everyday trials and tribulations. The basis of this escape is bound up in the illusion of the medium. To destroy this illusion with ultra-realism can mean jeopardizing large investments. The cinematographer frequently finds himself in the awkward and unhappy position of serving two masters. The critics then scream, "Art is being compromised." But is it? While it's the direct responsibility of the cameraman to

guarantee the investment of the film industry, indirectly he feels a responsibility to those millions who look to the screen for that intangible something. Call it entertainment, escape from tortuous reality, relief from domestic worry. But whatever name is put upon the appeal, the underlying illusion must be preserved. And so the people must be pleased. The cameraman must make their heroines as they prefer them, young and beautiful, complete with smooth silken complexions; make the heroes youthful, handsome and virile.

Even though fettered by economic restrictions imposed upon him by the public taste, the creative cinematographer continues to experiment. He looks for new ways of intensifying mood and projecting the emotions of the actor beyond the screen to the audience. The limitless pallet of color points the way to new avenues of photographic expression.

In the face of contemporary skeptics, the imagination of cinematographers are stimulated by new engineering developments that loom on the horizon. Not too far off is the "electronic camera." A compact, light weight box no larger than a brownie kodak, will contain a highly sensitive pickup tube, 100 times faster than present day film. A single lens system adjusting to any focal length smoothly by merely turning a knob, will replace the cumbersome interchangeable lenses of today. Cranes and dollies weighing tons will be replaced by lightweight perambulators. The camera will be linked to the film recorder by coaxial cable or radio. The actual recording of the scene on film will take place at a remote station, under ideal conditions. Instead of waiting for a day or days, as is the case with color, electronic monitor screens connected into the system will make it possible to view the scene as it is being recorded. Control of contrast and color will be possible before development.

It is not too difficult to predict the effect of such advancements on the production of motion pictures. Economically, it will mean savings in time and material. Since the photographic results will be known immediately, it will be unnecessary to tie up actors and stage space for long periods of time. The size and sensitivity of the new camera will make photography possible under ordinary conditions of light. Shooting pictures on location will be simplified. Generators, lighting units, and other heavy equipment will be eliminated, thus doing away with costly transportation.

In terms of cinematographic art, it will be placing a more refined instrument in the hands of the cameraman... an instrument of great sensitivity and mobility.

Do you hear the skeptics shouting "IMPOSSIBLE"?

## JOE AUGUST, A. S. C.

The motion picture industry lost one of its foremost Directors of Photography, and the American Society of Cinematographers lost one of its original charter members, with the sudden passing of Joe August, A. S. C., on September 25th, from a heart attack.

At the time of his death, he was photographing "Portrait of Jennie," starring Jennifer Jones and Joseph Cotten, for David O. Selznick. Feeling ill on the set, he went to the production office at the studio, where he collapsed. Funeral services were held on September 29th at the Moeller, Murphy, Moeller mortuary in Santa Monica, with interment following at Inglewood Cemetery. A large delegation of officers and members of the A. S. C., besides producers, studio executives, directors and stars, attended the services. He is survived by his widow and one son, Joseph August, Jr., who was an assistant cameraman on the production.

August was an early pioneer in motion picture photography. Born April 26, 1890, in Idaho Springs, Colo.; he was educated in Colorado School of Mines, and started in the motion picture industry as an assistant cameraman with the Thomas Ince organization in 1911. Within a year, he was promoted to post of first cameraman, and initial picture was "The Lure of the Violin." After four years with directors J. Hunt and Richard Stanton, he joined William S. Hart as chief cameraman, and remained with the latter for six years.

After a brief interlude at Metro, August joined the Fox camera staff, and was Director of Photography on numerous top productions for a number of years. Moving over to RKO, for another long term, he photographed the outstanding features of that studio, most noted being "The Informer." In 1941, before hostilities started, he entered the armed services as a Commander in the U. S. Navy. He served overseas in Iceland and the Pacific, and acquitted himself notably in the documenting of "Battle of Midway." Out of service two years ago, he was Director of Photography on MGM's "They Were Expendable," and then signed a term contract with David O. Selznick.

The Always Visible  
but seldom  
acknowledged

PHOTOGRAPHIC CREDIT

in every  
eye-pleasing  
motion picture . . .

The quality ingredient  
which is always dependable . . .

**EASTMAN  
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# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 16. Creative Cutting

By CHARLES LORING

IN the preceding chapter, we discussed the preliminary steps in the editing process. We are now ready to take up the actual mechanics of editing as well as the subtleties of creative cutting which make the difference between a well-cut and a poorly-cut picture.

Let us say that you have made a complete breakdown of your footage as it arrives from the laboratory. You now have your scenes (each designated by its *continuity number*) set up in consecutive order on a peg-board or pigeon-hole tray. You have decided, through reference to the script and your three by five scene record cards, that this is the order in which you will want your scenes to appear in the final cut.

### The Rough Cut

Your next step is to *rough cut* your footage, one sequence at a time. Starting with the first or "A" sequence, you now cut the slate off of Scene 1 and hang it on peg No. 1 on your editing-bin rack. These pegs are actually small nails with the heads cut off, mounted along a horizontal rack suspended over a rectangular bin lined with soft white muslin. The pegs are designated by painted numbers running consecutively from 1 to 50, or 100, depending upon the size of the bin.

You now proceed to mount each scene of the sequence on its respectively numbered peg. When you reach the end of Sequence "A," splice all of the scenes together in order. Now you can either rough-cut the rest of the sequences, or screen Sequence "A" preliminary to final cutting of that sequence. Many editors prefer to join all of the rough-cut sequences together before doing any final cutting, so that they can get an idea of the flow of the entire production.

The rough-cut sequence contains all of the *over-lap* action you have included to bridge continuity from one scene to another, and which will be eliminated in the final cutting. Also, the action in these scenes will seem to run over-long because it is unrelieved by the variety of scenes which will later be *inter-cut* to speed up the pace.

In screening the rough-cut sequence, there are a few basic editing axioms to be considered. Firstly, your main objective in cutting is to create a smoothly flowing story that will hold the audience's attention by virtue of having its dramatic emphasis in the right places. Secondly, two scenes taken separately will have two separate meanings—but when they are joined together consecutively an entirely new meaning rises out of the relationship. For example, you may have a shot of an airplane flying and another shot of a man looking up at the sky. If you join these two scenes to-

gether, your audience will assume that the man is looking up at the airplane.

Thirdly, in final cutting you will be concerned with three important elements: *continuity*, *tempo*, and *dramatic punch*. It is these factors which you will want to keep firmly in mind when screening the rough-cut of your sequences. Watch, first of all, to see how you must cut your footage so that each scene will flow smoothly into the next. If there is a jump in continuity, decide which type of optical transition will best bridge the gap.

Next, notice the pace of the action in individual scenes and decide where you will want the general tempo speeded up or slowed down in the final cutting.

Then notice which scenes contain your climactic action, the situations which must be built up to give your screen story *dramatic punch*.

### Cutting for Continuity

In simplest terms, continuity in cutting means a smooth flow of story action from scene to scene and sequence to sequence. Actually, as we have pointed out before, continuity originates in the script and is enhanced by proper direction of the action. With this firm basis, it is a simple matter for the cutter to put together a smoothly flowing screen story from the footage at hand. But, it is a mistake to believe that good continuity can be *manufactured* in the cutting room from poorly matched, disjointed scenes.

Good continuity implies that cutting should be so smooth that the audience will not be conscious of changes of angle or image size as the camera changes its point-of-view. Thus, in cutting continuous action, the *overlap* (or repetition of action at the beginning of a new scene) must be cut at a point where the action will continue to flow uninterrupted. Sometimes it is a simple matter to locate this point; at other times you will have to experiment.

A natural pause in the action is usually a good place to cut, picking up the movement at the same spot in the following scene. It is especially important to match the action closely when a long shot and closeup of continuous movement are both shot from the same angle. In a case such as this, if there is more than a slight discrepancy in the action patterns of the two scenes, a *jump-cut* will result.

If, on the other hand, the shift from long shot to closeup involves a considerable change of angle, we can jump the action ahead several feet without the gap being noticed. Where an awkward gap is unavoidable, we can lessen the jolt by a *cut-in*, a *cut-away shot*, an *optical transition*, or (if worse comes to worse) a *sub-title*.

A *cut-in* or *insert*, is a closeup of a segment of the main action. It is one of the best and most natural devices to use in bridging a gap between two scenes because it focuses audience attention closely upon the action of the story.

The *cut-away* is a shot which literally cuts away from the main action to another segment of the same situation. For example, in a film showing a football game, *cut-aways* would include shots of the crowd, the score board, the band, cheer leaders, etc. Lapses in time can also be covered by effective *cut-aways*.

*Optical transitions* include *dissolves*, *wipes*, *fades*, etc., which are actually made in the laboratory. These devices, in addition to providing a smooth way to change scenes, are useful in smoothing out gaps in time, place or subject—although they should not be used as substitutes for good continuity.

*Inter-cutting* is the technique of repeatedly cutting back and forth from one scene to another, either in the same or different locales. This is sometimes very effective as a means of creating suspense. It is also a good way to cheat the time element since it gives the audience a chance to forget the exact stages of development of the action shown in previous cuts of the scene.

### Cutting for Tempo

*Tempo* is one of the most important elements to be considered in creative cutting. Applied to the editing process, the word *tempo* means variation in pace throughout the film. Pace depends upon two factors: the speed of the action and the length of individual scenes. A pattern of tempo repeated several times lends *rhythm* to your cutting.

Obviously, a slow pace requires slow action and longer individual scenes; whereas rapid pace requires the exact opposite. A relatively slow pace is appropriate for historical scenes, melodramas, mysteries, etc., although one must avoid letting any story drag. Rapid pace is almost a requirement for light comedies, suspense stories and lively action dramas.

We have said that *pace* depends partially upon the length of individual scenes. But, scene length, in turn, depends upon the duration of action in the particular scene. For example, if it takes 20 frames for a man in close-up to turn his head, you can cut that 20 frames into the continuity as a separate scene and it will have a complete and coherent meaning. If, on the other hand, it takes four feet of film for that man to turn his head and you use only 20 frames of the scene, you will have a disembodied fragment of action with no meaning to it at all. If you expect to cut scenes short for rapid pace, be sure that the action within those scenes is rapidly paced.

*Tempo*, as we have pointed out, implies a *variation* in pace. This variation gives light and shade to your screen story. If you proceed at the same rate of pace throughout the film, the story will lack emphasis. Therefore, vary the pace of cutting according to the demands of the sequence.

### Cutting for Dramatic Punch

*Dramatic punch* is a rather colloquial but direct term meaning *cinematic impact*. It is a somewhat elusive expression to define, but the proof of its effectiveness lies in whether or not the audiences reacts correctly to the force of the screen situation. By "correctly," we mean: does the audience sit up and take notice at the right times?

*Dramatic* punch is achieved by placing the emphasis of the situation at the proper point in the sequence. This is primarily a problem of direction but even more definitely a matter of deft cutting. All of the tricks of the editor's trade must sometimes be brought into play to insure a definite result.

Generally speaking, the closer we get to a subject, the more emphatic the impression of that subject becomes. For this reason, *image size* has a good deal to do with *dramatic punch*. The closeup is the most emphatic of all angles because it brings the audience face to face with the subject. Use your closeups where *punch* is needed in the film narrative. Don't waste them on unimportant details or you will have nothing forceful left to use when you want to make an important statement.

Build up to your climactic scenes by making sure that the scenes which go before lead directly to that climax. It is sometimes effective to begin a sequence with slowly paced cutting, gradually quickening the tempo and cutting in closer and closer shots until the action develops in the climactic scene. Hit your audience with the important idea; hold the shot just long enough for it to register; then go on to the next sequence.

Avoid forcing *dramatic punch* into your film by means of chopped up *montages* or the kind of radical cutting which highbrows like to call "impressionism." Such vague symbolism may be perfectly all right in experimental films made for the chosen few, but it has proved to be merely confusing to the mass audience.

Boiling the whole problem down to its basic essentials, let us say that the real secret of cutting for dramatic punch is to include in a particular scene only as much of the action as can best be portrayed by that particular angle. Plan your shots carefully before shooting so that you will be sure to include enough different angles to cover your subject in the most emphatic manner.

#### The Professional Touch

While good editing cannot in itself *make* a picture, poor editing can very definitely *un-make* it. The surest sign of the amateur (next to poor photography and direction) is sloppy, undramatic cutting. On the other hand—deft, forceful cutting can sometimes breathe into prosaic footage a vitality which was not apparent in the rough cut.

Take your time making the final cut. Make sure that you know your footage and the effect you want to place on the screen. Although you are cutting for three separate elements—continuity, tempo and punch—you cannot arbitrarily separate them, because each is very closely related to the other.

Remember that you are not working with separate, unrelated strips of film; you are working with scenes that should fit together like the stones of a mosaic to produce a dramatic overall pattern. In this process, *association of ideas* plays a vital part. Be on the alert to tie your scenes together by means of the elements they have in common.

In making your final cut, screen your foot-

age again and again, each time concentrating on one of the three important cutting factors. Remember that the smoothest jobs of cutting are the result of gradually whittling down the footage, not haphazard slashing.

NEXT ISSUE: Part 17—"Sound Recording and Cutting."

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# HISTORICAL DEVELOPMENT OF SOUND FILMS

By EARL I. SPONABLE

(Twentieth Century-Fox Film Corp., New York)

## PART 4

(Editor's Note: This most informative paper was presented by the author at the October, 1946 convention of the Society of Motion Picture Engineers in Hollywood; and published in the May, 1947, issue of the SMPE Journal. It is reprinted through permission of the SMPE, and concluding section will be published in our November issue.)

(Continued from Last Issue)

*Sept., 1928:* Fox Movietone City was dedicated. (This is the present Twentieth Century-Fox Studios at Beverly Hills, Calif.)

*Oct. 6, 1928:* The Fox Movietone News release was increased from one to two issues per week.

*Dec., 1928:* "In Old Arizona," the first out-of-door recorded feature picture, was shown at the Criterion Theatre in Los Angeles. Quoting Franklin: "This film was photographed and recorded out-doors against a sweeping background of natural beauty, and in its sound recording achieved its highest artistic success up to that time. Filmed and recorded right in the vast open spaces, the scenes and human voice and all the accompanying sounds were reproduced with a clearness and naturalness that attracted wide attention. The Movietone process caught and reproduced with fidelity not only the voices of the actors, but actually the natural sounds of the outdoors: the whispering of the wind, the song of the birds. The picture was thus notable in combining the perfected technique of the silent film with the faithful recording of music, dialogue and sound."

Subsequent Fox pictures that were well received and helped to advance the art of sound recording included the all-talking pictures "Through Different Eyes" and "Hearts in Dixie."

*Dec. 3, 1928:* Fox Movietone News release was increased to three issues per week.

During the year 1928, appreciable general progress was made in perfecting Movietone technique; one point of note was the perfecting of the Aeolights by Case, increasing their useful life and uniformity.

Sponable organized a research department to which was assigned the problem of improving sound recording apparatus, particularly with a view to reducing its weight and improving its portability and ease of operation—as well as the over-all problem of improving recording and reproducing equipment and techniques. Fifty-six field units were scheduled for assignment all over the world; three special Aviation Units were activated; to meet the need for such an increase in personnel, Bragg was sent to interview recent graduates at various tech-

nical institutions. Well over 100 engineers were now engaged in the sound recording field.

*Feb. 28, 1929:* Fox acquired control of Loew's and MGM.

*Mar., 1929:* Fox announced that all silent product would be discontinued and only Movietone pictures would be made.

*July 15, 1929:* The Fox Movietone News release schedule was increased to four issues per week.

*July 18, 1929:* William Fox was injured in an automobile accident; this may have seriously affected the following up of his involved negotiations.

*July, 1929:* British Movietone News, the first foreign sound newsreel producing company, was started.

*Aug., 1929:* A merger of Fox Film, Fox Theatres, and Loew's was planned.

*Sept. 20, 1929:* Fox negotiated a deal acquiring Fox-Case stock from Case and exchanging Fox Theatre stock to be redeemed September 1, 1930. Fox then formed the Fox-Hearst Corporation, Hearst acquiring about 24 percent of original Fox-Case stock with option to buy about 25 percent more.

Fox made a separate agreement with Case to have the latter run his laboratory until July 23, 1930.

*Sept., 1929:* Fox and Hearst united their sound newsreels and agreed that each would release two per week.

*Sept. 17, 1929:* An all-Grandeur show opened at the Gaiety Theatre with Grandeur News and "Fox Movietone Follies."

*Sept. 28, 1929:* Hearst Metrotone News released its first issue.

*Nov. 2, 1929:* The Embassy Theatre was opened with the first all-sound news program and called "The Newsreel Theatre."

1930: The crash of 1929 found the Fox structure in such a condition of over-expansion that it became necessary for Fox to sell out.

Controlling interests in Fox Film and Fox Theatres were acquired by a group headed by Harley Clarke, who became president of the Fox companies.

Sound-on-film by this time was well established as a commercial success and was displacing sound-on-disk as a release medium. The Western Electric light-valve method of sound-on-film recording was commercially perfected. As Fox Film was a licensee of ERPI, and as such paid the regular royalty rates, it decided to give up its own method of Aeolight recording and use in entirety the Western Electric system.

### PART 4. FOREIGN PROGRESS IN SOUND FILMS AND RELATIONS WITH FOX

*Sept., 1922:* The first showing of acoustic

films was made at the Alhambra Theatre, Berlin. These were made using the Tri-Ergon method with the sound recorded on a film about 42-mm wide and the sound placed outside the sprocket holes. (This system was worked out by three inventors—Engl, Massole, and Vogt, who had formed a sound-film company called the Tri-Ergon A.G., of Zurich.)

*July, 1926:* F. A. Schroeder, who was the American representative of the German group, brought their system to the attention of Courtland Smith.

*Aug., 1926:* John Joy went to Europe to investigate Tri-Ergon for Fox.

*Dec., 1926:* At Joy's request Dr. Engl brought a complete unit of the German apparatus to New York for examination and tests. Records were made and shown under the direction of Dr. Engl; the results were judged to be fair, but not so good as Movietone. This was to some extent the result of the use of condenser loudspeakers in the German system. The equipment as a whole was typically German in design and offered few features that could be advantageously combined with the Movietone system.

*July, 1927:* Fox took over rights to the German system for North America and rejected a chance to acquire the world rights. This soon proved to be a mistake, since the patents became troublesome in foreign countries, and royalties were collected on them.

Shortly thereafter, Joy and Schroeder went to Europe to get an extension of scope to the Fox agreement to permit use throughout the world. Also during this time, UFA of Germany acquired a license under the German system.

*Feb., 1928:* During the interval since July, 1927, Tri-Ergon had tried to bring together all German companies interested in sound pictures including Siemens and Halske, AEG and others. This was not entirely successful as Siemens and Halske and AEG wanted too much and Tri-Ergon would not agree to their stand.

*Aug., 1928:* Tri-Ergon formed a German operating company backed by the Commerce and Private Bank and called Tonbild Syndicate A.G. (or Tobis) with rights in Germany, Switzerland, and Austria.

*Sept., 1928:* Negotiations were carried on by Joy and Rogers for Fox with Tri-Ergon and Tobis to make a working arrangement to record and reproduce sound throughout the world under Tri-Ergon patents. No agreement was reached.

*Nov.-Dec., 1928:* Schlesinger, of London and South Africa, who had purchased the de Forest Phonofilm Company, attempted negotiations with Tobis and Tri-Ergon for joining de Forest and Tri-Ergon on a world basis. This did not go through.

*Jan., 1929:* Siemens and Halske and AEG combined interests in the sound picture field by organizing a company called Klangfilm.

Klangfilm attempted to release a picture made by RCA in America in one of the UFA Theatres in Berlin. Tobis stopped this with an injunction on the grounds that the picture was recorded by double system, *i. e.*, sound and picture separate, and recombined in a single positive. It was claimed this infringed Tri-Ergon patents. The result of the court's decision, sustained by the higher court, made Klangfilm make a working agreement with Tobis.

During this time Fox interests kept up communication with representatives of Tobis and

Tri-Ergon for the purpose of making a working arrangement through American Tri-Ergon to permit Fox to record and reproduce throughout the world under the German patents. No such arrangement was agreed upon.

*April, 1929:* Attempts were being made at this time by various groups to join together the various Tri-Ergon interests and Klangfilm in opposition to Western Electric progress in foreign countries. Nothing resulted from this.

*June, 1929:* Kuckenmeister, a German phonograph manufacturer, through connections with Oyens and Sons, a Holland banking firm, became interested in organizing a holding company to unite various Tri-Ergon interests, not controlled by Fox, into one group. This was concluded in June, 1929, and called "Acoustic Products Company of Holland."

About this time Tri-Ergon started suits against Electrical Research Products, Inc., and during the summer obtained injunctions restraining the reproduction of all American pictures on ERPI apparatus in Germany. Some of the original decisions have since been sustained so that, except by special agreement with Tobis, American sound films were prevented from being released in Germany. Warner Brothers obtained a special license from Tobis and have released their films.

*May-Aug., 1929:* Joy attempted to obtain a working agreement with Tobis to protect Newsreel recording and allow release of Fox products in Germany. No arrangement was concluded.

Various conferences were held among representatives of ERPI, Tobis, Siemens, and AEG

both in Europe and in America. No agreement was reached.

*Sept., 1929:* Schlesinger concluded an arrangement with Kuckenmeister in which his British company was allied with Tobis and Klangfilm. Advantages Fox could have had were now being acquired by others.

*Oct., 1929:* Tobis brought suit against Movietone in Germany and Austria. All Fox Newsreel trucks were removed from these countries.

During the last six months of 1929, both Tobis and Klangfilm moved forward, both in theatre installations and in the production of sound pictures. They made an alliance with a French producing company, and arranged to begin sound work in France.

*June, 1930:* Will Hays headed a committee in Paris which met to deal with foreign sound problems and to attempt a settlement of German relations. This tangled situation was finally ironed out and a compact was arrived at on July 22 permitting the showing of American films abroad.

(To be Continued)

## Kodak's New Flash Bantam

Eastman Kodak announces its new Kodak Flash Bantam  $f/4.5$  camera, featuring built-in synchronization to guarantee positive flash synchronization with shutter speeds up to and including  $1/100$  of a second in class F lamps. Deliveries will be limited for several months until production of the model is stepped up to capacity at the factory.



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# "HOW TO BECOME AN *Amateur* CINEMATOGRAPHER"

Synopsis of Prize-Winning Film

By CHARLES M. PETERS

*(Editor's Note: Charles M. Peters won the mid-year film contest of the Los Angeles Cinema Club recently with a highly original and entertaining 16 mm. koda-chrome subject: "How to Become an Amateur Cinematographer." We asked Mr. Peters to write a general synopsis of his picture, which is given on this page.*

*His first effort in making a contest film is interesting. Peters and his wife take many trips around the western portion of the United States, and his movie camera was purchased to make scenic views of various points of interest for later projection at home to recall such trips. Friends in the Los Angeles Cinema Club kidded him about making such scenics, derided the waste of film, and suggested that picture post cards could be secured for much less money! This led to the suggestion that Peters could employ his camera and equipment to much greater advantage—by making a film for the next contest. His originality in the finished picture demonstrates that the amateur movie maker does not have to travel to far locations to make a prize-winning film.)*

FOR nearly twenty-five years, Betty and Pete have wandered down life's highway, sometime happy and sometimes sad, but always together. Then a great event occurred on June 20, 1946.

Pete being a typical husband who reads the morning newspaper at the breakfast table while the toast burns, and also being the typical salesman, he hurries to work from his home at 9:00 a.m. at the instigation of the wife, over the burnt toast, who wants to get some housework done that morning.

It was a beautiful morning, a touch of spring in the clear, crisp air, that would put any haze filter manufacturer out of business. Down the street came 230 lbs. of Pete, at peace with the world, and his briefcase swinging, when a display of camera equipment caught his eye. He slackened his pace, looked again, then stopped altogether. A small, nondescript circular showing a traveller carrying a movie camera caught his eye. The circular has long since been forgotten, but never will the thoughts that went through his mind. Thoughts of trip that he and Betty were always taking and those trips they were planning to take. If you have a movie camera you must take trips to take pictures, and since trips must be taken, a movie camera becomes a must.

So into the store and, with due deliberation, a movie camera was bought—but no gadgets;

he was going to take pictures and not play around with a lot of needless equipment. Remember also—Pete is a salesman, and he is not susceptible to sales talks.

The day wore on and the new cameraman finally started for home, a bit earlier than usual, and with a slight uneasiness over his several hundred dollar purchase.

Betty met him in the driveway, and when he presented the camera and admitted the cost, his slight uneasiness became inflationary. However, salesmanship came to the fore and long before dinnertime, they were both planning more and better trips. That evening and in fact well into the next day—3:00 a.m., to be exact—they read with eagerness "How to Make Movies," which was acquired with the camera purchase.

Somewhat dazed and bewildered, they find a need for possibly more information and film, which to the camera store Pete goes to obtain.

Returning home, Pete and Betty start out to shoot their first "Epic," only to find over-and under-exposed results, and a definite tendency of the picture to jump off the screen. This

proved to them a need for a trip to the camera store for tripods, light meters, and later on in seemingly rapid succession came filters, frame counters, faders, splicers, editors, lens, titlers, flood lights, range finders, etc.

While the acquisition costs were mounting from these gadgets, which by now had become a necessity, stock in a film company began to soar on the stock exchange.

When the gadget saturation point was reached, if that point comes before infinity, Betty finds that Pete has mortgaged their home. She, by now having been infected by the same bug, signed the mortgage, and they promptly started studying maps for their first trip.

The trip decided, camera and all this equipment was piled into their car, and to Betty's dismay, she found she couldn't find room in the car; so on to the running board she climbed, and through Zion, Bryce, Jackson Hole, Yellowstone, Carmel, and many other points here in the West they went. On this extended running-board trip, a rest period was decreed, at which time they evidenced great joy over a stock certificate they possessed, said stock having gone from \$43 to \$1000 per share.

They also burned the mortgage at this time, and then continued their trip. As they pull back on to the highway, they expose a sign saying: Los Angeles, 2048 miles, Canada, 2 miles—and so ends "How to Become an Amateur Cinematographer" on June 20, 1947.

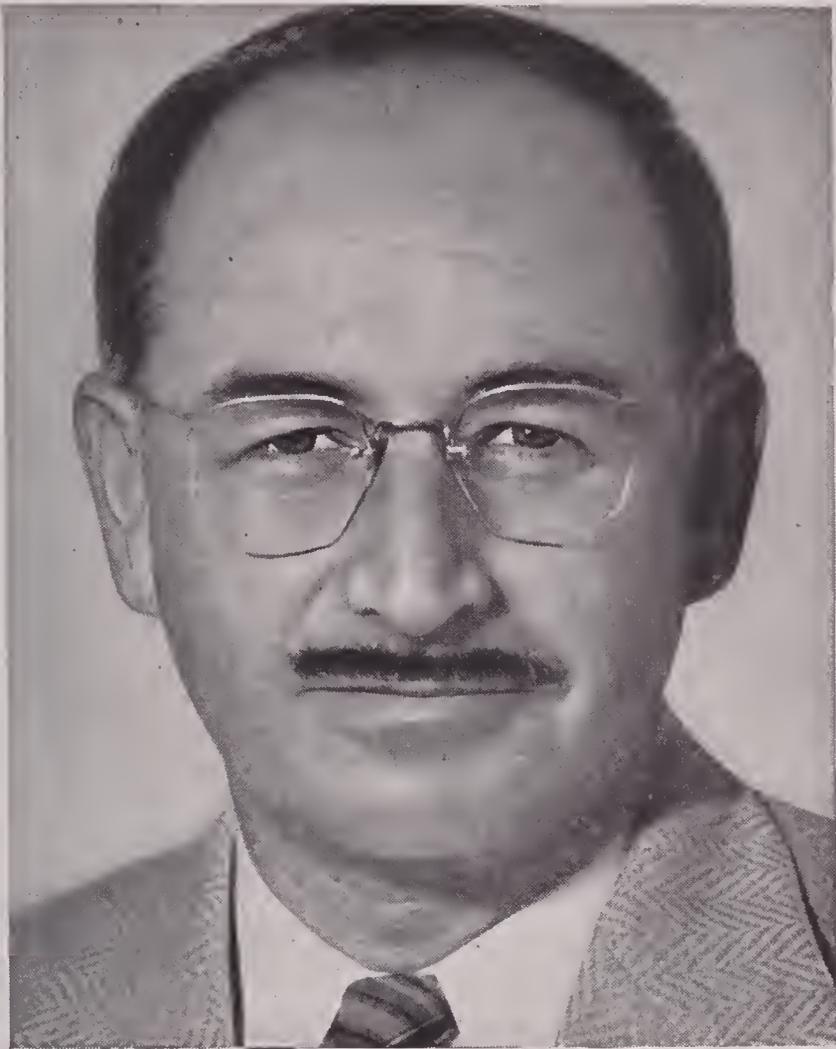
The question has been raised: How did Betty and Pete happen to make such a picture?

Very simple—just an attempt to depict a true story of what actually happened during this first year, or a reasonable facsimile thereof. One slight discrepancy, that film stock didn't go up. Pete knows. He is a Stock and Bond salesman!



Amateur cinematographer Charles M. Peters sets up his camera to shoot a scene of his wife, Betty, for his prize winning movie.

(photo by Jack Shandler)



*“The carbon arc is just as essential as good film.”*

*Lester White*  
A.S.C.



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# AMONG THE MOVIE CLUBS

## Oakland Camera

Movie section of Oakland Camera Club, under direction of Dr. Numa P. Dunne, has launched a project intended to compile a complete "movization" of the city of Oakland. Every member is expected to participate by filming 10 to 15 foot clips of what the individual considers an outstanding feature of the city or its environment. Later, all film clips will be edited according to classifications (transportation, industry, scenic, civic buildings, recreation, etc.) and spliced in continuity to provide a complete picturization of the community.

At the August 12th meeting, Don Flagg demonstrated proper use of lighting for interior shooting, while film program included: "Over the Bridge," by S. F. Russell; and "Yosemite" and "The Expensive Key," by E. H. Brown. "Expensive Key," originally produced in 1936, was exhibited to demonstrate the advance of amateur technique in the past 10 years.

## New York Metropolitan

Initial meeting of the new season was held by Metropolitan Motion Picture Club of New York at the Hotel Pennsylvania on September 18th, with splendid film program comprising: "A Trip to Yellowstone Park," by Ernest Miller; "A Day of Independence," by J. J. Harley; and "In His Judgment," 1944 prize-winner by Harley.

Club bulletin announced that regular meetings will be held on the third Thursday of the month, with the supplemental meetings on first Wednesday of each month. Joe Harley will have charge of the technical sessions, assisted by John Hefele. General movie contest for members, with prizes of \$75, \$50, and \$25 closes November 1st, according to contest chairman Ralph Eno.

## Seattle Amateur

Seattle Amateur Movie Club is currently celebrating its 10th anniversary, having been organized in 1937 with total of six members. Today it rates high among the top progressive clubs of the country.

Meeting of September 9th, held at Epiphany Hall, covered plenty of activity. It was firstly, gadget night, with members displaying and explaining accessories they find valuable for movie-making. Then there was a group of membership films exhibited; a demonstration of the Soundmirrow magnetic tape recorder; and showing of the prize-winning picture, "Motion."

## New York Eight

New York 8 MM. Club is one of the many which kept meetings going during the summer months, despite the absence of many members on movie making vacations. Film program included subjects made by members, including "The Wahnuts Review," by Sam Pollock; "Seasons" and "Hudson River Day Line" by W. H. Clouse; "Cynthia Is Freed," by Ben Spaner; and "Trip to Gaspé Peninsula," by Edward Roesken.

## Los Angeles Eight

Gadget Night was featured at the September 9th meeting of Los Angeles 8 MM. Club, held in the Bell & Howell auditorium. Members brought various accessories that had been devised to assist in the making of better movies and prizes were awarded to the best entries. Each entrant described the purpose of his gadget, and demonstrated practicability for the members and judges. Film program of members' films was headed by "The Frontier Preacher Reads the Bible," by Herman Hack.

Annual picnic of Los Angeles Eight was held on Sunday, September 21st at North Hollywood Park, with members participating in the usual picnic games and activities. A club movie of the event was shot for future screenings.

## San Francisco Cinema

Dave Redfield, with his 10 minute talk on "Up-to-the-Minute Ideas About Movie Film and Equipment" featured the September 16th meeting of Cinema Club of San Francisco, held at the Women's City Club. Film program for the evening included: "Swim and Live," from Film Library of United Air Lines; and "Rio—the City Marvelous," provided through courtesy of Moore McCormick Steamship Company. Loring Powell provided 25 minutes of kodachrome slides of the wild and rugged scenery of Western Canada under title of "On the Prowl with Powell."

Club members have been advised that a free course in "Making Amateur Movies" will be given two nights weekly at Marina Junior High School.

## La Casa, Alhambra

Monthly meeting of La Casa Movie Club of Alhambra, Calif., was held on September 15th at the Y.M.C.A., with film program comprising: "Pacific Northwest, Victoria, Yellowstone and Virginia City," by William A. Ware; "Grand Canyon Vacation," by George B. Stone; "Yosemite 1947, and Boat Races 1947," by R. H. Rollins; "Past and Present Farm Machinery," by William R. Wyatt; "1947 Vacation," by Clarence C. Hesse; and "Water Color Painting," by Frank Knaus.

## Subscriptions Offered For Contest Prizes

With annual contests by amateur cine clubs rolling around, chairmen of such events in the various organizations are reminded that AMERICAN CINEMATOGRAPHER will donate a year's subscription as a prize. This policy was adopted several years ago to encourage amateur contests in the clubs, and to further activities in the 8 and 16 mm. fields.

Contest chairmen can automatically set the subscription as a prize on the list, and advise AMERICAN CINEMATOGRAPHER of the name and address of the winner of the award.

## Brooklyn Amateur

Brooklyn Amateur Cine Club resumes meetings, after summer layoff, on September 17th at the Neighborhood Club auditorium. The latter has been engaged for all meetings during the coming year. Film program comprised "Railroad Signal," by Fred Beach; "Clear to the Top," loaned by Calvert Distillers; and a group of amateur subjects.

Board of directors voted to enlarge activities of the club by staging a "Special 8 MM. Gala Night" annually. Program will consist of member films, and admission charge of 75 cents will be made. Also regular technical lectures and demonstrations will be held during the year, first slated for October 1st when Gene Adams talks on lenses. Program will be augmented with a film, "Lenses and Their Uses," by the Harmon Foundation. Closing date for club's annual contest has been set for November 19th.

## Utah Cine Arts

Pete Larsen was chairman of the September 17th meeting of Utah Cine Arts Club, held at the Newhouse Hotel, Salt Lake City. A surprise film by Al Morton opened the meeting, followed by a technical discussion and demonstration by Al Londema on how to prepare titles for a film within 15 minutes so that the picture can be projected before an audience.

Finale was "Volcano," in 16 mm. kodachrome by Alan Probert, which recorded the three year development of the Paricutin volcano in Mexico. Probert, movie-making enthusiast and mining engineer, made the film on frequent trips to the volcano area.

## Victorian Amateur

Entries for the 1947 "Five Best" contest of Victoria Amateur Cine Society close on October 22nd, with competition open to all amateur movie makers in Australia. In addition to trophies for each of the five best, President C. D. Wicks of V.A.C.S. will present an engraved trophy for best film submitted by a member of his club. Entries will be screened publicly on November 7th.

## Los Angeles Cinema

Film program of the September 8th meeting of Los Angeles Cinema Club, held at the Ebell Club, included: "Arizona Holiday," by William P. Johnson; "Four Grand Symphonies," by C. W. Courtney; "Sierra Holiday," by Jack Staikey; "Grand Canyon and Bryce," by Mrs. Kellam; and two special attractions, "Bikini," and "Silent Service."

## Philadelphia Cinema

First fall meeting of Philadelphia Cinema Club was held at Franklin Institute on September 9th, with film program consisting of: "Grow What You Eat," by Charles Allen; and "Winter in New Hampshire," loaned by University of New Hampshire.

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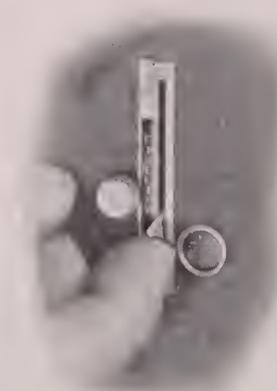
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## Aces of the Camera

(Continued from Page 351)

this production; and the expedition was about the longest and extended distant foreign location dispatched by a Hollywood studio to that time. In addition, it was the first such location-made film which had sound effects track, including music, native singing and background sounds of the islands.

Because the studio had set it as an important production, the expedition carried a complete production crew and equipment; with lights, generators, etc.; and all interiors were made in Tahiti—with only a dozen minor added scenes later shot at the studio. The unit was away from the studio a total of 11 months.

In impressing the importance of the portable laboratory for processing of the negative, DeVinna pointed out that—in those days—a minimum of a month to six weeks would have been required to get the exposed negative back to the studio for developing. Such a procedure would be fatal, he stated, as the long boat trip through the tropics was likely to deteriorate the emulsion. Another, and most important favorable factor, was the advantage of seeing daily prints of footage shot the previous day. So a full supply of both negative and positive was taken along, carefully handled with tropical pack and cold storage to prevent depreciation of the emulsion. Leahy was again in charge of the location lab.

One of the major problems in shooting at Tahiti, Clyde commented, is the terrific in-

herent contrast whereby the easiest thing to obtain is a sharp black-and-white contrast which can only be toned down by control in lab processing of the negative.

Photographing in Tahiti also presents many problems, he continued. In the dry season, it is difficult to filter without over-correcting, as the air is so clear. During the rainy season—November through March—it is virtually impossible to shoot as the air is full of water in contrast to the conditions existing in the dry season. But with all these unfavorable conditions, Clyde delivered an outstanding photographic job with "White Shadows," attested by the fact it was chosen for the Academy Award honors.

DeVinna had only been back at the MGM studios for a few months when he was tabbed as Director of Photography for another far-distant location—this time to equatorial British East Africa for the production of "Trader Horn." With the recent experience of the "White Shadows" expedition, the studio made this an even more complete production unit in all departments; and in addition to a large staff, virtually a boatload of equipment of all kinds was carried along.

For "Trader Horn," Clyde had practically the same camera crew that he had at Tahiti; and the unit was decidedly flexible so he could assign three or four cameras on wild game and game drive shots, although he used only the one camera for the dramatic scenes.

"Trader Horn" was originally started as a silent production, but after the unit was in Africa a few months, the studio executives de-

cidated that it should be made as a talkie due to the lightning introduction of sound into films. The far-off unit was advised that recording equipment and sound cameras were being shipped from New York direct to save time, but when the apparatus arrived there were no sound cameras in the shipment.

So a field Akeley was rigged up with a flexible shaft and interlock motors in an attempt to synchronize the dialogue, but this proved unsatisfactory and the idea of synking dialogue to action was abandoned entirely, with the sound recorder used only to obtain animal and jungle noises for dubbing in later at the studio.

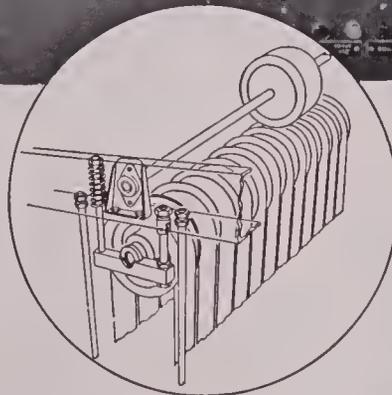
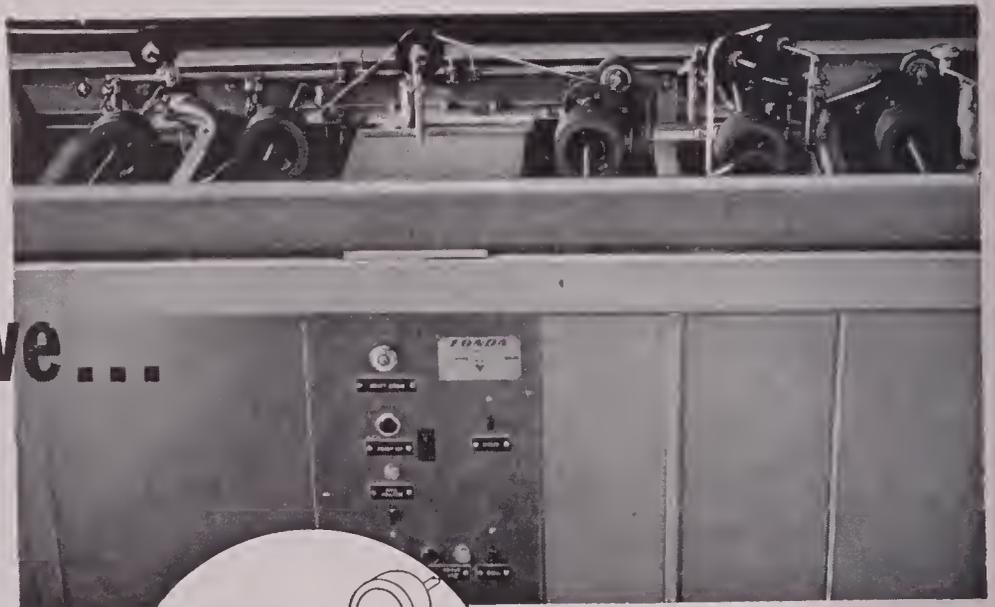
In Africa, the semi-portable film processing laboratory was not carried onto location, but set up in a big stone building secured at Nairobi. The film was sent from location for processing by either runner or truck, so that there was little danger of deterioration, and the daily rushes could be viewed to check on shooting. But where Leahy had the problem of dampness in handling negative and positive in Tahiti, the lab technicians at Nairobi encountered reverse conditions. The extremely dry climate necessitated watering down the floor of the lab to create proper atmospheric conditions for best film developing.

The African country right on the equator posed numerous problems for the cinematographer. DeVinna pointed out that anytime you get near the equator, the sun's rays are directed straight down and there is no reflected or slant light whatsoever—especially during the noontime period. In the afternoon, heat

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waves rising from the ground prevented shooting, as they were so strong that they would register on the film. Result was that the unit started early in the morning and was forced to knock off around 10:30 a.m. The same contrasty light encountered in Tahiti existed in Africa, with extreme flatness in the open country on account of the direct overhead light source. But in the woods, the trees were so tall and close together, that the sun never showed through to the ground and the latter was in virtual darkness. When scenes had to be made here, the camera was wide open and light was produced by plenty of artificial arc and inkie spots.

After 11 months in Africa, the unit finally returned to the studio, where many more months were consumed on interiors and tie-in scenes; and the necessary dialogue sound, before the picture was completed. DeVinna had a respite with a series of productions at the studio for a time, including several Tarzans and Wallace Beery starrers. But in early 1932 he was off again to northern Alaska to handle the photography on "Eskimo." The permanent location, where the unit spent more than 10 months, was 150 miles north of Nome and within the Arctic Circle. On this trip, the portable laboratory was not taken along, as arrangements had been made for the exposed film to be shipped via air to the studio for processing. But this was not feasible, as the director and photographer could not keep tab on the quality of footage shot from day to day. However, there was no danger to the film itself, as the climate was so cold that the precautions of the tropics could be ignored entirely.

On the "Eskimo" location, DeVinna stated that the main problem was the intense cold—which generally ran to zero or far below—requiring that both the camera and film be kept in a temperature close to that for which each would be used in shooting. As a precaution before leaving the studio, tests were made at California Institute of Technology to determine the best operative procedure for the cameras. As a result, the Bell & Howells were run practically without oil when used on the Arctic location; and the Mitchell camera was continually standing on the interior set between scenes to accustom it to the temperature.

In addition to the extreme cold which prevailed, the mosquitoes of the early summer were followed by hordes of black gnats to make life most uncomfortable in the far north; but somehow the unit struggled through to bring back a completed picture. Back at the MGM studios, DeVinna had a brief interlude on regular production, but shortly took off again for Tahiti on a six month stretch to photograph "The Last of the Pagans." This expedition was probably the first which used the process of de-hydrating the film and containers; a method which has been universally employed since in tropical countries to prevent film spoilage.

The globe-trotting Clyde later made filming trips to Indo-China, and China, on the latter occasion to obtain authentic backgrounds for "The Good Earth." Spotted in between these expeditions, he has made innumerable other short trips to Mexico (longest for location of "Viva Villa"); to Panama in 1926 with the

"Tell It to the Marines;" South America, Cuba, Dutch Guiana, and virtually every part of the United States.

It was in Panama that DeVinna became acquainted with a Marine captain who took him in tow during shooting. Clyde decided that the Marine branch was so fine that he would be a Marine if he ever went back into service. So, in 1942, he joined the Marines with the rank of captain—and soon ran into the former United States fleet to handle photography on

captain who was active as a general. As a photo officer with the fourth Marine division, Clyde went through the Pacific engagements, including Saipan and the Marshalls.

Now out of service—but a major in the Marine Corps Reserve—DeVinna has resumed his studio work with major companies on a free-lance basis. But he does not seem to be able to side-step any approaches that will take him on an extended film expedition to some distant part of the world!



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# THE S.E.I. EXPOSURE METER

THERE is no doubt that determining proper exposure has occupied the minds of photographers since the beginning of the art. The organic relationship between exposure and photographic results has long been recognized. The recognition of this relationship gave the photographer the H & D curve, which is simply the interdependence of exposure and density. The fact that this interdependence has been known for a long time did not help the photographers in selecting their exposure times to obtain best results. Experience has helped the compilation of tables and calculators that gave exposure times for average conditions. For unusual conditions the photographer had to fall back on his luck. No wonder that early attempts were made to mechanize the determination of exposure times and remove possible sources of errors.

This led to the development of visual exposure meters, frequently known as the "extinction type," requiring sighting the subject through a ground or tinted glass screen and using the scales when minimum visibility has

been reached. This type of meter offered advantages over exposure tables, but failed in its purpose on account of the sensitivity of the human eye, which adapts itself readily to changing light intensities and does not act as a measuring device.

There followed later as a great advance the adoption of photo-electric exposure meters in which the photo-electric cell converts light energy into measurable electrical energy. The electrical energy is indicated on a micro-ammeter generally calibrated in units directly applicable to exposure time or foot candles.

The photo-electric exposure meter further reduced guesswork, although readings are necessarily subject to a considerable degree of critical interpretation, principally because such meters record the average brightness of the scene, or, in the case of so-called incident light meters, indicate a total amount of light falling upon the scene without regard to its reflectance or its depth of shadows.

It is with the foregoing in mind that an entirely new type of exposure meter was designed

and developed by Salford Electrical Instruments, Ltd., of England under the trade name of S.E.I. exposure meter which combines all the advantageous features of both the visual meter and the photo-electric meter, while avoiding their disadvantages. It is independent of the eye fatigue or variation in human vision. It makes possible to select the most important subject or a small part of a subject in the scene, view it through a telescope of the instrument, and measure its reflectance in terms of exposure without reference to separate tables. The meter makes use of the well known photometric principle according to which the brightness of a small area in the subject is compared with a known brightness within the meter. The brightness within the meter is kept within very rigid limits through a unique self-calibrating device employing a photo-electric cell and a sensitive micro-ammeter.

The schematic diagram shows how the above principle has been applied. The meter coil in the micro-ammeter is connected to the photo-electric cell, directly above the electric bulb (9) which is fed from the flashlight battery (10). The rheostat in the base of the meter serves to keep the brightness of the bulb at a constant value by bringing the needle of the ammeter to a fixed point. Number 3 in the illustration is a cemented double prism forming a cube, which has a silvered comparison spot on its diagonal surface.

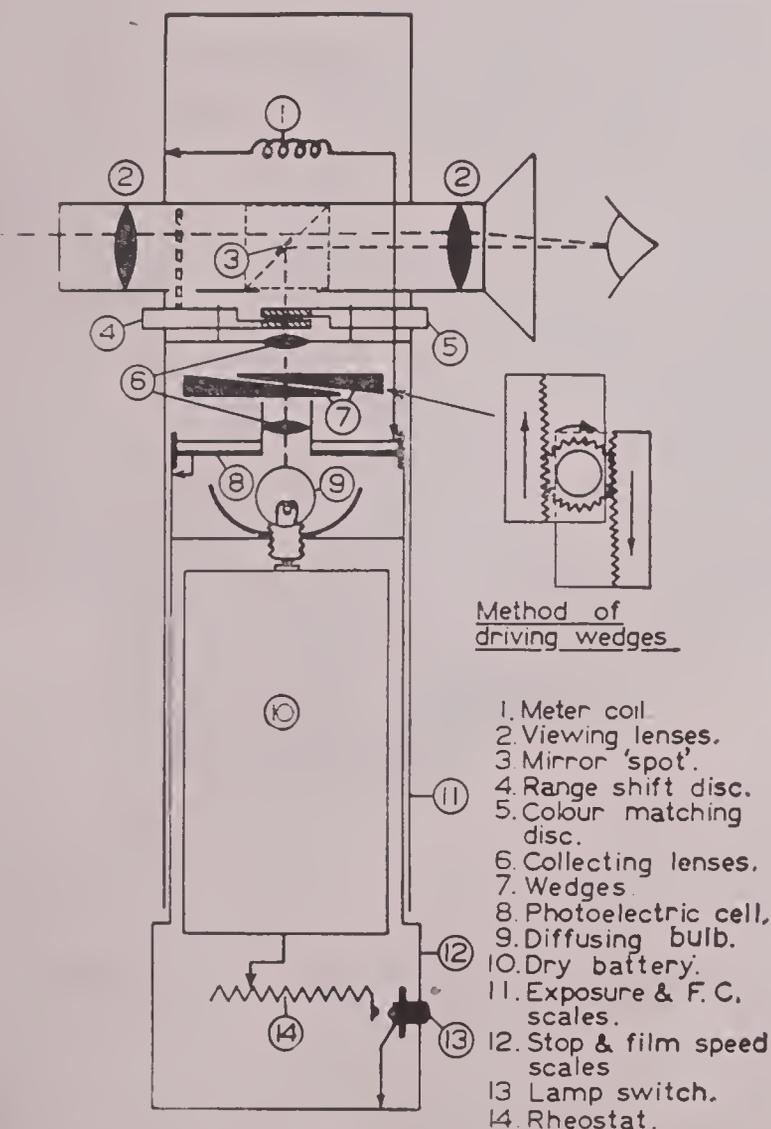
In practice the subject is sighted through the telescope and is seen approximately full size but inverted. By pressing the switch (13) in the base of the meter the lamps throw a beam of light through the collecting lenses (6) onto the silvered spot, which appears in the center of the field of vision. Placed between the two collecting lenses are two opposed photo-metric wedges (7). They are controlled through a rack and pinion mechanism by rotating the base of the meter. The light reaching the comparison spot can thus be varied through a brightness range of 100 to 1. Reduction of the subject or lamp brightness by interposition of filters (4) matching filters for daylight and tungsten light photography.

By turning the appropriate range disc and color matching filters the meter is brought into the desired range and by rotating the base of the meter, the brightness in the subject is matched exactly to the brightness of the spot. When the brightness of the spot equals that of the subject the meter is in the position where the exposure can simply be read off the scales.

Altogether, there are seven scales on the meter:

1. Relative densities
2. Log. foot lamberts
3. Low range exposure times
4. Normal range exposure times
5. High range exposure times
6. Lens apertures
7. A.S.A. film speed index

The exposure meter is equally applicable to the measurement of exposures in projection



Schematic diagram showing photo-electric self calibrating feature and opposed wedge control of the 'spot' brightness. Rotation of 12 relative to 11 slides wedges 7 over each other, and controls brightness of 'spot' 3.

printing and the addition of a supplementary lens converts it for use as a transmission and reflection densitometer.

The meter's working range is from 1/500,000 of a second to two hours and 47 minutes, or expressed in terms of visual perception from just above the threshold of human vision to bright white clouds near the sun.

It enables the photographer to secure measurements with an accuracy hitherto unobtainable by taking readings of very small areas from the camera position. It is recommended to proceed on the basis of the well-proven principle to expose for the shadows and develop for the highlights. The meter gives exact readings of the shadows either in terms of exposure or in units of reflectance, i.e. foot lamberts. After these readings have been taken the highlights can be measured, and the brightness range calculated directly from readings of the meter.

One of the greatest advantages of the meter for motion picture work lies in the fact that the meter can be used from the camera position for the measurement of selected sections in the scene, or parts of a face, unaffected by extraneous light such as backlighting, and the exposure determined within less than ten per cent deviation. Even under rigidly controlled studio lighting conditions, the meter is very useful, becoming indispensable in color work, where a much more precise measurement of light conditions is absolutely necessary.

For outdoor motion picture photography the meter is extremely useful because of the scattered light which makes the taking of incident light measurements impractical and the reading of a selected area in the scene is even more important.

The meter's extreme range makes it very valuable in motion picture process work, where it was found that photo-electric cells do not register the slight differences in light intensities any longer.

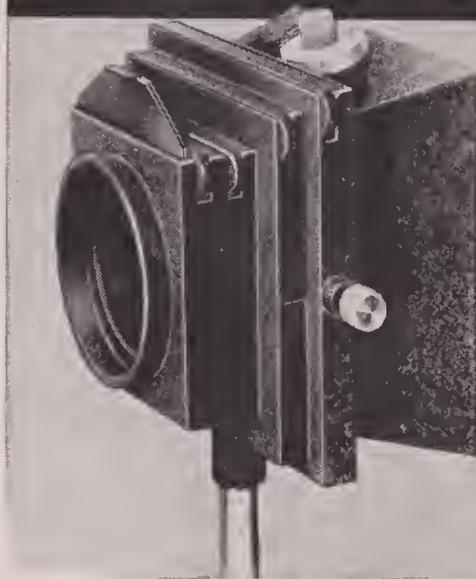
The meter is built to a rigid specification by the Salford Electrical Instruments Ltd. of Salford, a subsidiary of the General Electric Company Ltd. of England. The company has long specialized in the production of fine instruments and is well known in the industry for precision work and high standards of workmanship.

## P. S. A. Amateur Movie Exhibit at Convention

Major highlights of the annual convention of the Photographic Society of America to be held in Oklahoma City, October 8 to 31, will be a contest for selection of the best amateur 8 and 16 mm. movies; and exhibition of special industrial, educational and commercial films.

From the several hundred amateur films submitted for the contest, the best in opinion of the judges will be screened during a four-day period. The most outstanding films will be duplicated by owners' permission, and will later be sent around the country as a travelling show to demonstrate the finest amateur-made movies of 1947.

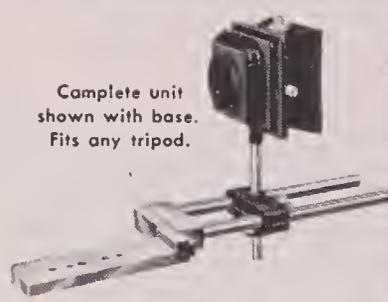
# USE FILTERS IN COMBINATION



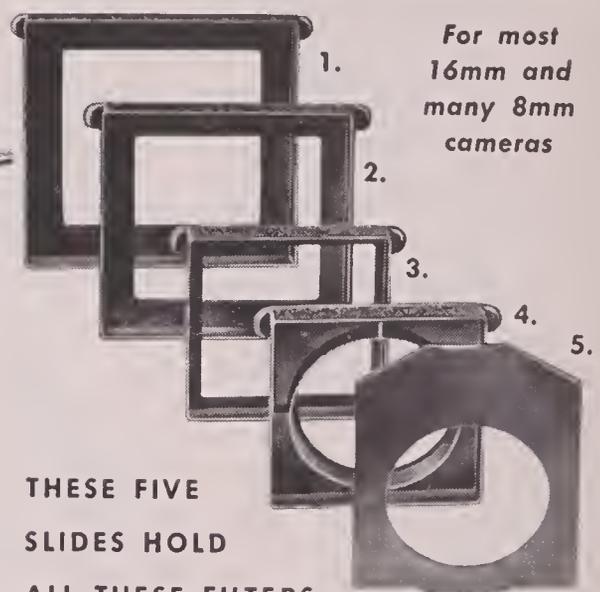
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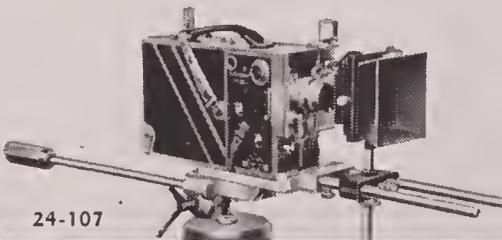
1. 3" sq. Filters  
3" sq. Graduate Filters  
3" sq. Fog Filters  
3" sq. Diffusion Filters  
3" sq. Gauzes
2. 2 1/2" Round Filters  
2 1/2" Round Diffusion Filters  
Standard Pala-Screen with 90° Arc Adjustment
3. 2" sq. Square Filters  
2" sq. Graduate Filters  
2" sq. Fog Filters  
2" sq. Gauzes  
  
NOTE — A duplicate 2" square slide accepting same filters as listed in Na. 3 is furnished with each unit.
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 HOLLYWOOD, CALIFORNIA

# SO YOU WANT TO ADD SOUND TO YOUR MOVIES?

By JAMES R. OSWALD

ASK any serious minded home movie enthusiast, who has already grappled with and mastered the fundamentals of good motion picture photography, what his ultimate aim is towards perfecting screen presentations. The answer will invariably be *talkies* . . . economical, theatre-like, yet easy-to-make talkies.

Not meaning to take a pessimistic approach to the subject, but merely a *realistic* one, let us consider for a moment the possibilities and practicability of home-made sound films from the standpoint of the average amateur's limited knowledge of acoustics and usually limited pocketbook.

To begin with, a basic model 16 mm. sound camera, even in normal times, costs upwards of one thousand dollars, a sum not to be trifled with no matter what one's financial standing. And I say *basic model*, for such a camera would incorporate only features absolutely essential to the simultaneous recording of both picture and sound *on location*, with none of the refinements for the post-recording or dubbing-in of the sound *after* the picture is filmed and edited, a feature so highly desirable for the "travelogue" or documentary type of movie the average amateur is most accustomed to making.

But disregarding entirely the monetary outlay and drawbacks of not being able to have the benefit of a pre-planned, carefully rehearsed narration or appropriate musical background accompanying the film, let us take into consideration now the problem of acoustics. It doesn't take a skilled sound technician long to impress upon the interested amateur the difficulties encountered, with the most expensive of equipment, in the attempt for true-to-life recordings. For, even the casual

theater-goer, with no particular inclinations toward the technical side of motion picture production whatever, is usually well aware of the painstaking work and elaborate set-ups that are a part of capturing the crystal-clear tones of the faintest whisper or most thunderous roar he hears emanating from the screen of his favorite theater. It becomes quite evident, therefore, that in recording on location, the slightest gush of wind, the noise of a passing automobile, or any other unexpected disturbance that arises while recording is going on, would be sufficient to spoil the sound track of a *photographically* perfect film, necessitating its being projected with these defects in sound, or with the reproducing system cut off entirely and no sound at all.

But there is a brighter side to this rather gloomy picture I have painted for the home movie enthusiast so desirous, and wisely so, of presenting his films with sound. Amateur movies, by their very nature of usually being the "travelogue" or documentary type, are highly adaptable to a smooth flowing *musical* background, with or without accompanying narration. If no running commentary is required, the use of an electrically amplified phonograph, automatic record changer, or better still, dual turntable assembly which permits an uninterrupted program of any length through skillful blending of selections, is suggested as a means of providing the desired musical background to a home movie presentation.

That narration is not essential in a well arranged sound film is substantiated by the fact that many professional movies of the variety filmed by the amateur, have as their sole sound accompaniment an appropriate musical background, even though the producers of

such films have at their disposal the finest facilities for making voice recordings. However, the amateur who still feels dialogue a "must" to bring out the best in his screen presentations, and believes himself well enough versed in the art of public speaking that his commentary will be definitely advantageous, rather than detrimental to the films, may employ the use of a microphone in conjunction with whatever type of sound reproducing system is being utilized.

After a technique has been acquired for the harmonious coordination of sound and picture, the critical movie maker will undoubtedly strive for closest possible synchronization between the two, and if his present collection of films does not demand such exacting standards the chances are, sooner or later, he will go into "production" on one that will. Indeed, many ambitious amateurs have attained so high a degree of perfection in adding sound accompaniment to their movies that they cannot be told from the professional, sound-on-film variety.

The series of pictures illustrated along with this article will offer suggestions to the filmer who would like to try his hand at turning out a movie that, when screened, cannot be detected from the true "soundies." With an obliging manager of a local public field house furnishing an appropriate setting, and through the splendid cooperation of versatile Miss Jane Ricketts, who provided the talent, the filming of these dance routines was made possible. In a movie of this nature, not only the rehearsals, but the actual shooting, itself, is carried out to the accompaniment of the music that will be cued to the picture on the screen. This, obviously, aids the dancer in performing the most difficult steps to perfection and at the



The taps of a dancer in routines as shown above, can easily be recorded for perfect synchronization of picture and sound.

same time simplifies synchronization when projecting.

The possibilities in presenting amateur made films with sound by one of the methods outlined are almost unlimited, as a good many enthusiasts have already found out. But opening still greater horizons to those who insist on nothing but the best, the recent introduction of a sensational new popular priced wire recorder-radio-phonograph combination is capturing the fancy of alert home movie fans everywhere. Employing latest scientific developments in electronics, this unique instrument not only makes it possible to record on a magnetic spool of wire and play back a continuous program up to one hour's duration, but in the event of error, or desire of change, through the flick of a switch the entire program or any part thereof may be completely "wiped off" the magnetized wire, and the wire reused.

With innovations such as this making history in the fields of sound recording and reproducing, and taking into consideration the endless array of talent available on conventional phonograph records, *surely* you want to add sound to your movies!

### New Equipment Catalogue Issued by S. O. S.

The 21st anniversary edition of the annual catalogue of S. O. S. Cinema Supply Corporation, listing in excess of 900 items for production and exhibition of 35 mm., 16 mm., and 8 mm. films, is now available from the company on request. Requests for copies should be addressed to S. O. S. at 449 West 42nd Street, New York City.

Each item, carrying guarantee, is described in detail and specifically priced. A large export department is maintained to handle orders from foreign countries.

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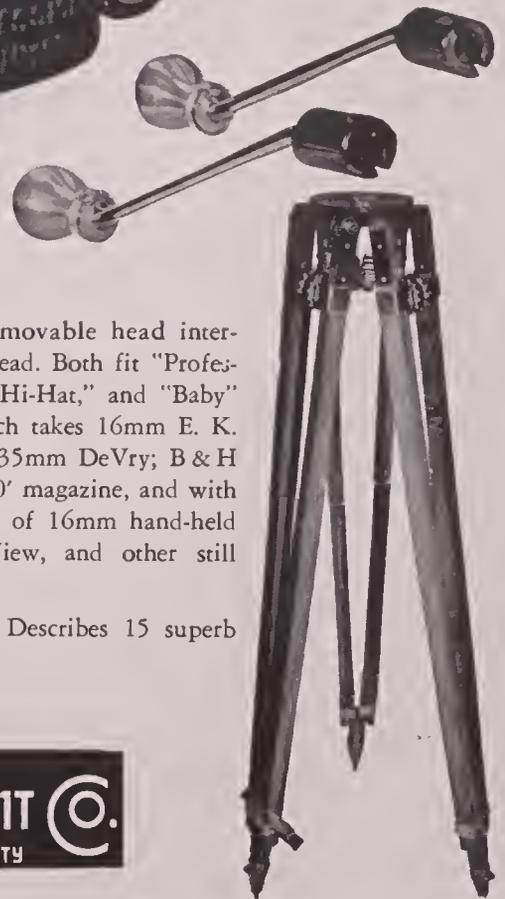
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Advantages of Lens Hood  
or Sunshade

A lens hood or sunshade is a box-like or tubular apparatus, which is attached to the lens—sometimes with clamps, or sometimes it is supported on a special bracket fastened either to the camera or to the tripod. The rear of the hood may be slotted, so that filters can be inserted.

To prevent stray light from reaching the lens is the average filmer's conception of the use of a lens hood. Many also think that a lens hood is unnecessary except when shooting into the sun. A very simple test will prove this mistake. Make an exposure with your lens pointed away from the sun; then, without altering the camera position, make another exposure of the same subject with a lens hood on. You will find that the hooded shot has more crispness. Professional cameramen practically never make a shot without using a lens hood.

There are many sizes of hoods available at the dealers if you have not already got one. My own is a home-made one, so made that a set of filters can be used. If you make your own, be sure that the inside surfaces are non-reflecting, a good flat black serving the purpose well. The length and diameter of the hood must be adjusted so that it cuts off none of the lens' proper field of view. A darkening of the corners of the exposure shows that the hood must be shortened or the diameter made larger.

When glass filters are used, a hood is practically essential. This is because of the additional glass surfaces which help to reflect stray light to the film.

More than ever is a deep lens hood necessary when shooting against the low, slanting rays of the evening sun. It is easy to determine whether the hood is adequate by looking to see how far in the sunlight penetrates. The top part of the hood throws a distinct shadow on the lower part, and this shadow must completely cover all the glass of the lens. It is too risky to assume that one is safe just because the sun cannot be seen in the viewfinder. Many cameras have "cheated" viewfinders, such that a little more is photographed at the top of the frame than is seen, and in such cases the sun would strike the lens and spoil the shot.

Furthermore, when a wide-angle lens is used, an additional margin of safety should be allowed, because these lenses are rather liable to flare; therefore, keep the shadow well over the lens glass. With flare the resulting picture is distinguished by a pale circular area in the center of the exposure. If no lens hood of adequate depth is available, other means—such as holding up a piece of cardboard or getting someone to stand in a suitable position—should be found to cast a shadow over the lens.

The effect on the brilliancy and contrast of the resulting film is most marked when a good lens hood is used, so much so that when you discover its advantage you will use one on every shot you make.

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New Sprocket Guards On  
B&H 16 MM Projectors

Newly-designed sprocket guards, now standard equipment on Bell & Howell 16 mm. Filmo projectors, prevent even defective film from jumping sprockets during running of film, according to announcement by the company.

## PROFITABLE BUSINESS DEVELOPS FROM 16MM. MOVIE HOBBY

IT has been stressed on numerous occasions, that the hobby of motion picture photography can be developed into a most profitable enterprise—if—after the fundamental initial novice photography of scenic landscapes, animals, trees, clouds, etc., is successfully hurdled for the filming of more serious and advance-prepared scripts.

With that preamble, it brings up the experience of John N. Ott, Jr., of Chicago. An officer with the First National Bank of that city, he started two decades ago experimenting with time-lapse motion picture photography as a hobby. He specialized on flower blossoms, using a 16 mm. camera in his work, and made individual frame exposures at regular intervals. Result was a film record of the entire growth of a plant or flower—greatly speeded up for study on runoff of only a relatively few feet of film.

The time-lapse idea was not new in motion picture photography—it had been done innumerable times. But Ott was not satisfied with the routine procedure, and decided to plow new ground in his experiments. Starting with one camera which he trained on individual blossoms, he has expanded to operation of a scientifically-controlled home studio in which anywhere from six to a dozen Bell & Howell Filmo model 70 16 mm. cameras may be used in recording various biological or horticultural developments simultaneously.

Ott has devised elaborate electrical and mechanical means for making the individual cameras move and operate exactly as they must to obtain the required results. Pulleys are used ingeniously, for example, in plant-growth set-

ups for moving the camera backward to include a wider angle as a plant grows taller. Rate of backward motion must coincide, naturally, with the rapidity of the plant's growth.

### Lighting Procedure

Since the plants require daylight for normal growth, but must be photographed under constant lighting conditions day and night, Ott has devised a roof shutter and a bank of No. 2 photoflood lights which operate automatically when any of the cameras are required to go into action. In this manner, the growth-producing daylight is shut off from the plants in the daytime only for the brief moments when the lights are lit for a separate exposure.

A solenoid on each camera regulates camera mechanism, lights, and shutter. Nerve center of all these contrivances is an elaborate setup of switch panels and controls hooked up to a 24-hour time-control clock.

### Delayed Recognition

After eventually realizing that his motion picture hobby had plowed new fields in the time-lapse photography of plans and flowers, Ott decided to share his experience and results with other amateur movie enthusiasts in the midwest. Snubbed by professional lecture bureaus just a year ago, he offered talks and film demonstrations under his own name; and was quickly deluged with bookings from schools, garden clubs, and other groups for lectures and film showings. The bookings became so great that he utilized three weeks of his annual vacation early this year for 24 talks and film exhibitions embracing district between Chicago and Florida. On many occasions he hopped off via plane from Chicago to give

an evening's talk at a midwestern city, and be back at the bank the following morning.

This rather slow recognition of his achievements, however, eventuated in growing inquiries from business firms and chemical companies vitally interested in various phases of horticulture, weed-killers, and plant nourishers. Assignments for specific research work via cinematography came so fast that Ott was forced to incorporate his original movie hobby for tax and business purposes.

### Hobby to Business

Ott's forced transformation of a hobby to a business with unlimited potentialities, is ably summed up in an article published in *Business Week* magazine, issue of June 21, 1947. One of his lecture pictures, the article stated, resulted in approach by a large firm making weed-killers requesting Ott to make five separate films. Another firm wants movies of root development—visual progress of root growth underground—and discovered that Ott had already devised a growing-box with glass front sloping inward. When the roots reach the glass plate, they grow along it to allow for minute study visually.

A growing list of chemical, fertilizer, and farm machinery companies are now in constant conference with Ott on the production of time-lapse films that will enable them to study various developments for the benefit of their research scientists and laboratories, *Business Week* disclosed, continuing that Ott has just signed a three-year exclusive contract with Films, Inc., distributors of educational films, whereby he will produce one subject a month during the period.

### Project of Major Proportions

With all of his commercial commitments, Ott was forced to move from his original hobby spot in the basement to a laboratory especially constructed adjoining his home. He has at present, one full-time assistant, and another who works part time.

Photographic apparatus includes the dozen 16 mm. H & H cameras, lighting equipment and microscopic attachments; and electrical controls, which have been devised to do the major portion of the work required for the time-lapse filming.

This includes automatic switching of lights on for each exposure at determined intervals; snapping of each individual film frame; excluding daylight when each picture is recorded; waters the plants periodically, and automatically adjusts the camera distance as the plant grows in height. Intervals of time lapse between pictures exposed can be regulated according to requirements, and set of six wall-type sockets alongside each camera allows separate time-lapse intervals on their circuits. Shifting exposure intervals only requires changing the plug-in to proper electrical time-lapse line.

Ott at this point seems well on his way to the establishment of a highly profitable and interesting enterprise—all through his concentration on a hobby, and the fortitude to progress away from the beaten path. His success in that particular field of motion picture photography cannot be said to be unusual for those enthusiasts who carefully study the wide ramifications of the field, and select a target that will generate interest from firms or organizations that can utilize visual aids for their promotional or research endeavors with most profitable results.



John Ott, Jr., with his cameras and lights for making time-lapse pictures of flowers and horticultural developments.

## A.S.C. CLUBHOUSE MORTGAGE BURNED AT LADIES NIGHT DINNER-DANCE

Formal burning of the mortgage on the clubhouse property of the American Society of Cinematographers at Orange Drive and Franklin Avenue, Hollywood, took place in happy ceremonies on evening of September 20th, when the organization staged a special dinner-dance for members and their lady guests.

Dinner for more than 200 was served on the spacious lawn under a canopy, with special electric lights providing unusual illumination for the evening. A Mexican string orchestra provided suitable dinner music, and later moved inside to the main room of the clubhouse for the three-hour dance session and entertainment.

The mortgage-burning ceremonies—a

most happy event for the members of the A.S.C.—came as a surprise to those present; especially as the property of more than an acre with its spacious clubhouse is particularly valuable and was acquired only ten years ago. Immediately following the dinner, President Leon Shamroy—flanked by Leonard Smith, John Seitz, Victor Milner and Arthur Edeson—announced that the mortgage had recently been paid off to completely clear the property. He then handed the mortgage to Phil Rosen, a founder and first president of the A.S.C., who put a match to the legal paper as a gesture of formally cancelling the mortgage.

Frederic S. Welsh has been appointed manager of the Cine Kodak sales division of Eastman Kodak Company, according to announcement by James E. McGee, general sales manager. Welsh, who joined Kodak in 1936, had been in charge of the midwest division for the sales department.

## Telefilm Sets 16 MM Program For Production, Distribution

Telefilm, Inc., Hollywood service studio which has heretofore concentrated on the production and processing of non-theatrical 16 mm. films, announces that it will establish a world-wide program of production and distribution of a full program of 16 mm. features and shorts in color.

President Joseph A. Thomas has appointed Ira H. Simmons, veteran film distributor, to conclude contracts with franchise representatives throughout the world for the regular distribution of the features to be produced.

Among the producers lined up, Spade Cooley is slated to deliver eight features with the first being "The Silver Bandit"; Frederick Feher of Films and Music, Inc., leaves immediately for Europe to produce group of operatic features in color; Ande Lamb, writer-director head of Valor Productions, Inc., is to deliver six features under series title of "The Westerners"; 24 musicals, shorts and featurettes will be provided by Stanley Simmons, former Paramount shorts director; and Orin Productions, headed by Al Lane, will make a series of featurettes.

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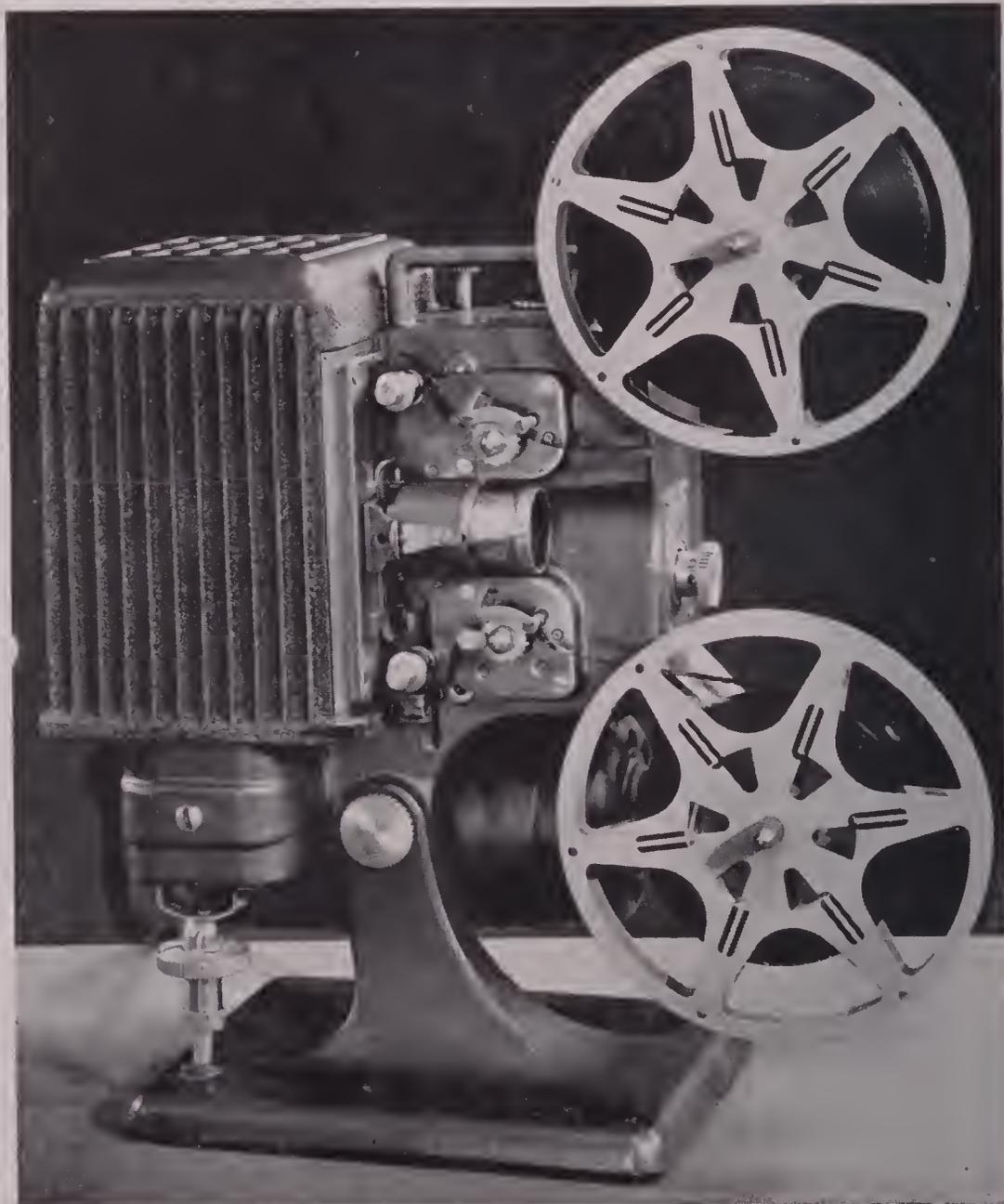
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## Day at Disney's

(Continued from Page 355)

weather passage, is the Inking and Painting Building, from which branch the Paint Laboratory and Process Laboratory. From the Inking and Painting Building the production flow line continues smoothly past a checking unit into the Camera Building and then on to the Cutting Building, which represents the end of the assembly line.

Three large recording stages are provided: one for orchestra, one for dialogue, and a third for sound effects. These stages, together with a theatre, are arranged so that they are handy to both the Animation Building and the Cutting Building. Several large "live action" sound stages are provided for shooting special sequences.

The furniture in all of the buildings was especially designed to meet the needs of cartoon personnel, and is unlike any standard equipment available on the market. Completely modern and streamlined, it was developed according to the results of a careful study of the work habits of directors, animators and background artists. Thus, there are huge oversize desks on which directors can lay out a score or more of scenic designs in sequence. There are chairs designed to favor an animator's working posture without causing fatigue. There are drawing-board desks with tops adjustable to any angle which suits the individual background artist.

The interior *décor* of the buildings was designed to create a soothing atmosphere. Carpets, drapes and wall tones are of harmonizing pastel shades, guaranteed not to jangle the nerves of high-strung artists. The walls and ceilings of the rooms are finished with acoustic plaster to deaden noise, and even the light switches on the walls are of a new silent type. The whole affair is kept at the most comfortable level of temperature and humidity by the latest type of air-conditioning equipment.

Cleanliness is of utmost importance in cartoon production, since tiny specks of dust clinging to the individual "cells" are magnified thousands of times on the screen. The cells entering the Camera Building from the Inking and Painting Department, first pass through a special cell-cleaning room where they are treated to discharge the static electricity which tends to attract dust.

Men and materials entering the Camera Building pass through a special de-dusting chamber where they are exposed to air blasts

from twenty separate nozzles, which remove the dust and lint picked up outside.

### The Sound and the Fury

In planning the new studios, it was decided to combine the sound recording facilities with a modernistic theatre that would serve as a reviewing projection room, besides providing an ideal set-up for re-recording music, dialogue and sound effects onto final master tracks.

The result is a 622-seat ultra-modern theatre of concrete and wood construction, complete with the finest recording and projection equipment. In the center of the auditorium is a multiple channel console with mixing panels and volume indicators. This console is so constructed as not to interfere with visibility from any seat in the house, and yet give the sound mixers an opportunity to sit in the center of the theatre and listen to the sound as it will later be projected to audiences in crowded theatres. Specially treated walls account for the difference in acoustic reverberation between an empty and a full theatre.

A beautiful cafeteria-style restaurant was built to accommodate 400 employees at a time. It has a strikingly modernistic dining room and a superbly equipped kitchen which turns out excellent food at moderate cost. In order to keep the prices of food low for the employees, the studio absorbs the bulk of the expense of running the commissary.

When Walt Disney walks into this pleasant dining room, picks up his tray, and takes his place in line to make his selection, he is greeted with hearty cries of "Hi, Walt!" from every corner of the room.

Plans for the comfort and recreation of employees were a prime consideration in designing the new studios, since drawing and writing are sedentary occupations which demand relief in the form of playful relaxation. Facilities were provided for exercise, sports and other forms of physical conditioning. A fully equipped gymnasium, sun-deck, steam and massage room and dining rooms operated as a private club were built on the top floor of the Animation Building for the masculine element. For those who prefer outdoor sports, there is a baseball diamond, ping pong tables, and a putting green. The park-like lawn areas between the buildings are ideal for promenading and picnicking.

All in all, this magic city is an artist's heaven—a world apart, where unreality becomes the reality of the moment; and where a symphony of sound, color and celluloid is born.

NEXT ISSUE: Part II—"How a Cartoon Is Made."

## THE 16 MM

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## 25 YEARS AGO

### With A.S.C. and Members

• At annual membership meeting of the A.S.C., board of governors was elected comprising: John Arnold, H. Lyman Broening, Gaetano T. Gaudio, Frank B. Good, Fred W. Jackman, John Leezer, Victor Milner, Philip E. Rosen, Homer A. Scott, John F. Seitz, James C. Van Trees, Gilbert Warrenton, Philip H. Whitman, and L. Guy Wilky. Jackman was re-elected president, with Wilky, Milner and Warrenton first, second and third vice-presidents respectively. Jackson Rose was elected as treasurer for the year, with Whitman functioning as secretary.

• Herford Tines Cowling, A.S.C., described the filming of a fight between two beta fish of Siam, disclosing that such fish fights in small bowls were a top sport of the Siamese natives.

• Reports from Germany stated that a film had been made explaining the Einstein theory of relativity. Professor Nicolai wrote the script and produced the 6,500 foot picture with the cooperation of Einstein.

• National Non-Theatrical Motion Pictures, Inc. was sending a motion picture expedition to Egypt and the Holy Land to produce a series of biblical and historical films for bookings in schools and churches.

• John Leezer, A.S.C., provided an article predicting early acceptance of motion pictures

as an important factor in classroom instruction; and suggested establishment of a normal school for visual education teachers. (His prediction is finally coming true—but 25 years later when the economy and easy operation of 16 mm. projectors for classroom showings accentuates the plan.)

• C. Francis Jenkins detailed his research and development of high speed photography, whereby he was able to photograph at the rate of 100,000 pictures per minute—with maximum of 400 feet of film run through the camera at exposure rate of 1,600 frames per second. He predicted that a camera could eventually be constructed to expose at the rate of 3,500 frames per second.

• Walter Lundin, A.S.C., just completed the photography of Harold Lloyd's starrer, "Grandma's Boy."

• Georges Benoit, A.S.C., was retained by Richard Walton Tully to handle the camera work on "Omar the Tentmaker," which starred Guy Bates Post.

• Joseph A. Dubray, A.S.C., was married to Grace Turner, and the couple immediately left for honeymoon in northern California.

• George Barnes, A.S.C., purchased one of the new Mitchell cameras, and used it to photograph King Vidor features.

• Paul W. Merrill described the largest camera in the world—to shoot the cosmos through the giant telescope at the Mt. Wilson astronomical observatory—and outlined the photographic problems involved.

• D. W. Griffith failed to give cinematography credits on main titles of "Orphans of

the Storm," so the American Cinematographer disclosed that Hendrick Sartov and Paul Allen provided the artistic photography for the production.

• Gilbert Warrenton, A.S.C., left Hollywood for New York, where he was to photograph an Alice Brady starring feature under direction of Joseph Henabery.

• Floyd Jackman, brother of president Fred Jackman, was elected a member of the A.S.C. (But now Floyd is a prominent Hollywood dentist.)

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## New Exposure Meter Developed by G. E.

A new photoelectric type exposure meter, designed from the ground up for amateur and professional photographers, has been announced by the Meter and Instrument Division of the General Electric Company.

Actually a meter with a "memory," this new unit contains a pointer-locking mechanism which "remembers" the light seen by the photocell. A trident analyzer is also included in this design for analyzing and studying photographic scenes to secure maximum accuracy in exposure. An automatic louver-coupled dial shifts the range of this meter from dim to bright light or back again, depending upon the scene requirement.

Light in weight, the magnetically-shielded unit is small and thin enough to fit in a vest pocket. It has a sensitivity range of from 0.4 to 4100 candles per square foot—corresponding to the light from one small candle to that of the brightest sunlight. The measuring accuracy is many times greater than that required for the most exacting color photography, according to G. E.

A new process light-sensitive hermetically-sealed cell assures the meter's long life and dependability, and tight-gasketed construction keeps out moisture and dust. A special alnico V magnet, a development of wartime research, provides more power with less weight in this small meter. The instrument may also be used to measure incident light by means of an incident light attachment which extends the range of this unit up to 61,000 footcandles. Incident light exposure may be measured directly by slipping this attachment on the meter. The incident light method has been used by General Electric Company since 1937, and it has been increasing in popularity, especially among the professional photographers who need to measure very accurate exposure.

Directions for operating the meter may be given in three words: press, set, and read. Press the button, set the trident in line with the pointer, and read the proper exposure. The meter clearly shows a complete range of combinations of f-stops and shutter speeds. A unique dial construction permits the meter to be shifted for movie use, and the proper exposure is then shown for all makes of movie cameras with varying shutter angle in a complete range of motion picture camera speeds

## New Filipino Studios

Movie Technical Services, Inc., has been organized in Manila with initial capitalization of 500,000 pesos, and has started construction of a studio on the former site of Exotic Films. New plant will provide studio and laboratory facilities for independent producers in the Philippines. William H. Jansen, A.S.C., credited with introducing modern motion picture technique in China and the Philippines, will function as chief technician for the company.

## Zornow Promoted by Kodak

Gerald B. Zornow has been promoted by Eastman Kodak from salesman to post of assistant manager of the company's New York branch.

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## Reflected Light

(Continued from Page 352)

So, instead of regulation lighting, with players and sets bathed in direct light from arcs and inks, Folsey put up large white silk sheets—projected the lights onto these sheets for reflection onto the set. As a result, the actors, their clothes, and the set were all immersed in one enveloping, soft, directional light.

Folsey states, "Results were very gratifying; I had details in my blacks far beyond what would have been obtained in the conventional

manner. From that point on, I continued to use the method, as the picture lent itself particularly well for this type of photography. I found reflected light particularly beneficial for faces, and especially for players difficult to photograph with direct lighting technique."

On "If Winter Comes," reflected lighting was used in all but a few scenes where it was impractical because of special lighting effects required.

Photographer Folsey has been thinking of some sort of soft lighting for practical production over a period of ten years, hoping and trying to find a method of reducing the harshness of present direct lighting. He found the reflection method ideally suited to the requirements. Folsey points out that the idea is based on the north light source used so successfully in painters' studios, and more closely resembles the latter type of lighting than what he has so far found in his many years as a director of photography.

The principle is that of an evenly distributed soft reflected light played on the scene from reflectors rather than from a direct source. The light of a large arc is directed onto an off-set white silk sheet, which is set at the proper angle to reflect the light onto the set as desired. This method allows for light control so that the spectator feels that the light comes through the windows and doors, rather than from a source within the set itself.

Silk reflectors were used for only one reason, Folsey pointed out, and that was because such material was available. However, he stated, any white material that will reflect light can be successfully utilized. At times the silk reflectors were provided with white cardboard backings to give a greater amount of reflected light onto the set when required.

Size of the white silk reflectors used on "If Winter Comes" varied. Four big sets, two 12 by 12 feet sheets and one round silk butterfly reflector were used in addition to smaller ones to kick light into portions of the set where specifically required. Incidentally, occasionally for a definite purpose, the light was projected

through the large silk rather than reflected. For closeups, Folsey used 150 ampere light source reflected from silk diffusers, in many cases only one of the latter.

Folsey, in describing his method of reflected light—which he anticipates will be developed to a high degree by A.S.C. members—cautioned that the method can only be adapted for certain productions, and there is no indication that it will become universal to replace the accepted technique of direct set lighting.

Results of motion picture photography with reflected light provides a soft, luminous quality through filtering the original light source, Folsey pointed out. Such light is not flat—it's round and rich in overall quality—and can be controlled on any black, white, or grey set; in hallways or confined quarters. He points out that a large bookstore set—with ceiling completely overhead—was shot entirely with reflected light for "If Winter Comes"; and appeared so realistic that it seemed to have been actually shot in a downtown store.

As previously pointed out, reflected-light interiors seem to have a more natural appearance, but of utmost importance to the photographer is the fact that actors are allowed more freedom of movement within the set. They can more readily turn from one side to another without the hazards to a cameraman attendant with such changing positions when direct lighting is employed. The photographer is always able to have a round light on the actors in any positions in a set, which does not apply with regulation lighting. This is a particular advantage when large groups of people are in a scene—but the same excellent results are obtained for single or duo groupings.

There seems to be few restrictions of movement in "panning" or dollying when reflected light is employed. However, there are some. A pan in a complete circle is obviously impossible, as it is always better to leave the front end of the set available for the light to be reflected from. As in most dolly shots, it becomes a matter of the photographer's ingenuity and—in some cases—the director's cooperativeness, for them to be successful. Admitting existence of a few restrictions at the moment, Folsey feels most of them can eventually be overcome.

Folsey credits adaptation of his lighting method for the production to the enthusiastic acceptance of the idea by director Victor Saville, and the latter's cooperation during production of the picture.

After completing "If Winter Comes," Folsey was assigned to photograph a Technicolor trailer for "Picadilly Incident," which Herbert Wilcox produced in England with Anna Neagle starred, and which Metro-Goldwyn-Mayer will release in the United States. Folsey shot the trailer with reflected light and Wilcox was both delighted and enthusiastic with the method and results.

John Arnold, head of the Metro-Goldwyn-Mayer Camera department, describes the effect of reflected lighting as "comparable to the latest practices in fluorescent lighting."

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# Current Assignments of A. S. C. Members

MEMBERS of the American Cinematographers were engaged as Directors of Photography in the Hollywood studios during September as follows:

## Columbia

- Ira Morgan, "Mary Lou," with Frankie Carle and orchestra, Robert Lowery, Joan Barton, Glenda Farrell, Thelma White.
- Fred Jackman, Jr., "Coroner Creek," (Cinecolor) with Randolph Scott, Marguerite Chapman, Edgar Buchanan, Sally Eilers.
- Allen Siegler, "The Wreck of the Hesperus," with Willard Parker, Patricia White.
- Vincent Farrar, "Blondie's Night Out," with Penny Singleton, Arthur Lake.
- William Snyder, "The Return of October," with Glenn Ford.
- Ira Morgan, "West of Sonora," with Charles Starrett, Smiley Burnette.
- Henry Freulich, "The Woman From Tangier," with Adele Jergens, Stephen Dunne.

## Eagle-Lion

- John W. Boyle, "Northwest Stampede," (Cinecolor) with Joan Leslie, James Craig, Jack Oakie, Chill Willis.

## Metro-Goldwyn Mayer

- Robert Planck, "Luxury Liner," (Technicolor) with George Brent, Frances Gifford, Jane Powell, Lauritz Melchior, Xavier Cugat.
- Hal Rosson, "Homecoming," with Clark Gable, Lana Turner, John Hodiak, Anne Baxter, Cameron Mitchell.
- Charles Schoenbaum, "Hills of Home," with Edmund Gwenn, Janet Leigh, Tom Drake, Donald Crisp, Reginald Owen, Rhys Williams, Lassie.
- Joseph Ruttenberg, "B.F.'s Daughter," with Barbara Stanwyck, Van Heflin, Richard Hart, Charles Coburn, Keenan Wynn, Spring Byington, Margaret Lindsay.

## Monogram

- L. W. O'Connell, "Jiggs and Maggie in Society," with Joe Yule, Rennie Riano, Dale Carnegie.
- Harry Neumann, "Panhandle," with Rod Cameron, Cathy Downs, Anne Gwynne.
- William Sickner, "A Palooka Named Joe," with Leon Errol, Joe Kirkwood, Jr., Elyse Knox.
- Mack Stengler, "The Old Gray Mayor," with Freddie Stewart, June Preisser.

## Paramount

- Ray Rennahan, "The Paleface," (Technicolor) with Bob Hope, Jane Russell, Samuel Z. Hinds, John Litel, Jack Searl, Joseph Vitale.
- John B. Seitz, "The Long Gray Line," with Alan Ladd, Donna Reed, Audie Murphy, Dick Hogan, Russell Wade.

## RKO

- Nick Musuraca, "I Remember Mama," with Irene Dunne, Barbara Bel Geddes, Oscar Homolka, Philip Dorn, Sir Cedric Hardwicke, Rudy Vallee, Edgar Bergen.
- Robert De Grasse, "The Miracle of the Bells," (Jesse Lasky Prod.) with Fred MacMurray, Valli, Frank Sinatra.
- Archie Stout, "War Party," (Argosy Pictures) with Henry Fonda, Shirley Temple, John Wayne, George O'Brien, Ward Bond, Irene Rich, John Agar, Victor McLaglen.
- Harry Wild, "Station West," with Dick Powell, Jane Greer, Agnes Moorehead, Guinn Williams.
- Lucien Ballard, "Berlin Express," with Merle Oberon, Robert Ryan, Charles Korvin, Paul Lukas, Robert Coote, Peter Von Zerneck.
- George Barnes, "Good Sam," (Rainbow Prods.) with Gary Cooper, Ann Sheridan, Edmund Lowe.
- Maury Gertsman, "Rachel," with Loretta Young, William Holden, Robert Mitchum, Gary Gray.
- J. Roy Hunt, "Race Street," with George Raft, William Bendix, Marilyn Maxwell, Freddie Steele.
- Joseph Valentine, "Joan," (Sierra Pictures) with Ingrid Bergman, Jose Ferrer, George Coulouris, Richard Ney, Robert Barrat, Selena Royle, Gene Lockhart.
- Gregg Toland, "A Song Is Born," (Technicolor) (Samuel Goldwyn Prod.) with Danny Kaye, Virginia Mayo, Steve Cochran, Felix Bressart, J. Edward Bromberg, Hugh Herbert, O. S. Whitehead, Ludwig Stossel, Benny Goodman, Tommy Dorsey, Louie Armstrong, Lionel Hampton.

## Selznick

- Joe August, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Ethel Barrymore, Cecil Kellaway, David Wayne, Albert Sharp.

## Twentieth Century-Fox

- Leo Tover, "The Snake Pit," with Olivia de Havilland, Leo Genn, Mark Stevens, Celeste Holm, Minna Gombell.
- Harry Jackson, "Ballad of Furnace Creek," with Victor Mature, Coleen Gray, Reginald Gardiner.
- Victor Milner, "The Flaming Age," with Jeanne Crain, Dan Dailey, Barbara Lawrence.
- William Daniels, "The Naked City," (Mark Hellinger Prod.) with Barry Fitzgerald, Howard Duff, Dorothy Hart, Don Taylor, Ann Sargent.
- Russell Metty, "Mortal Coils," with Charles Boyer, Ann Blyth, Sir Cedric Hardwicke, Jessica Tandy, Nigel Bruce.
- Frank Planer, "Letter From an Unknown Woman," (Rampart Prod.) with Joan Fontaine, Louis Jourdan, Mady Christians.

## Warners

- Carl Guthrie, "April Showers," with Jack Carson, Ann Sothorn, S. Z. Sakall.
- Karl Freund, "Christopher Blake," with Alexis Smith, Robert Douglas.
- Robert Burks, "To the Victor," with Dennis Morgan, Viveca Lindfors, Tom D'Andrea, Victor Francen.
- Ted McCord, "Johnny Belinda," with Jane Wyman, Lew Ayres, Charles Bickford.
- Ernest Haller, "Winter Meeting," with Bette Davis, James Davis, Janis Paige, John Hoyt.

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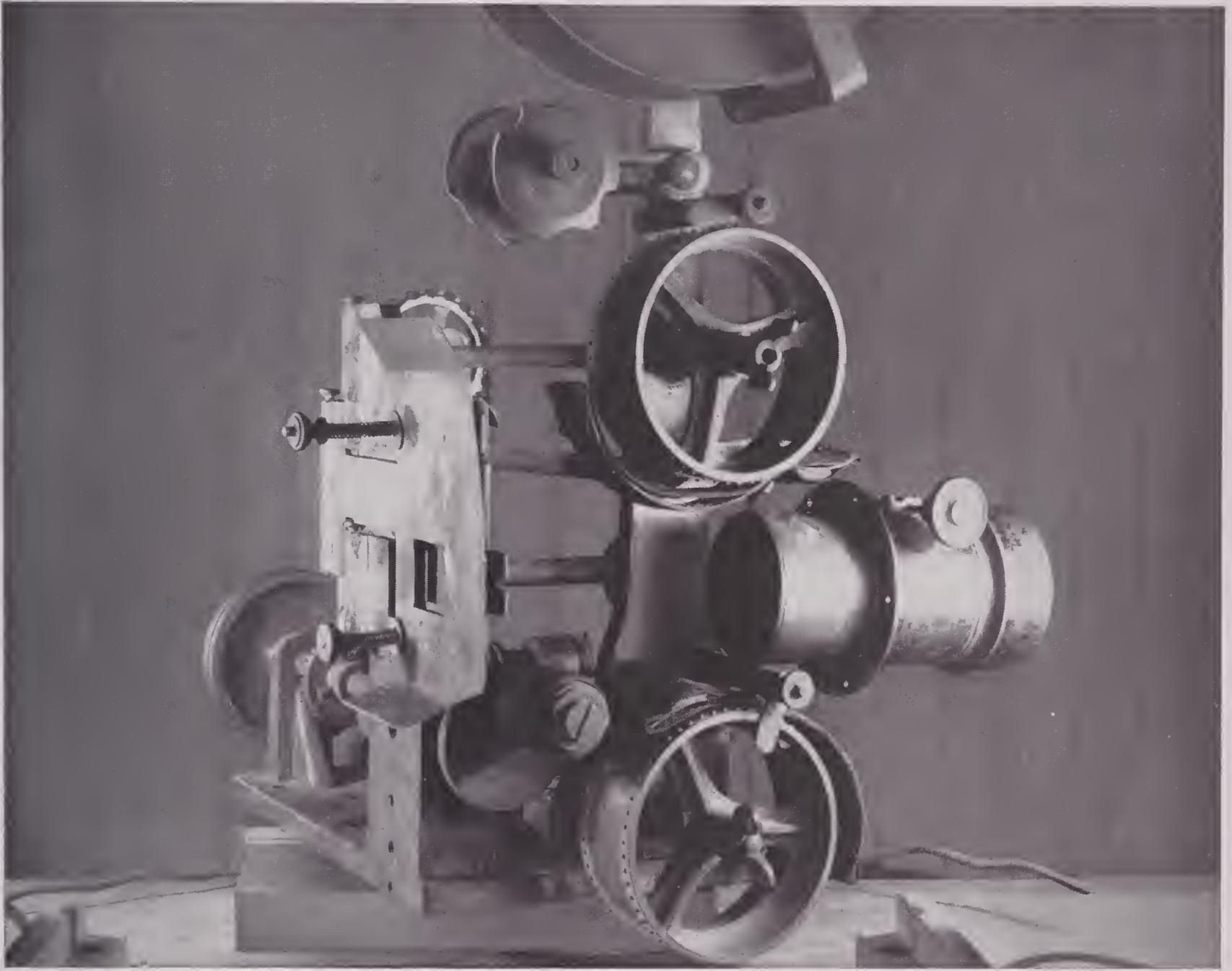
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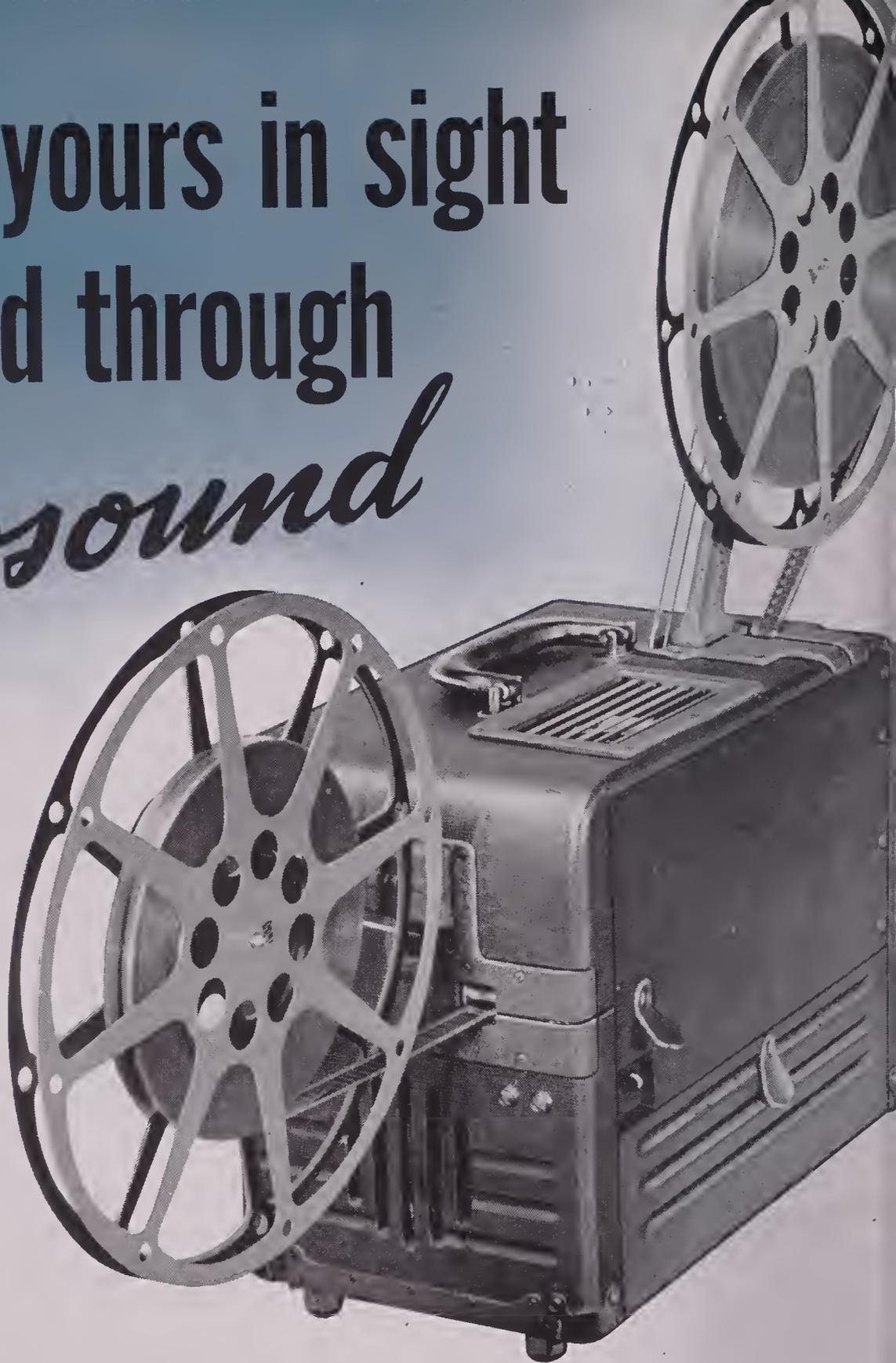
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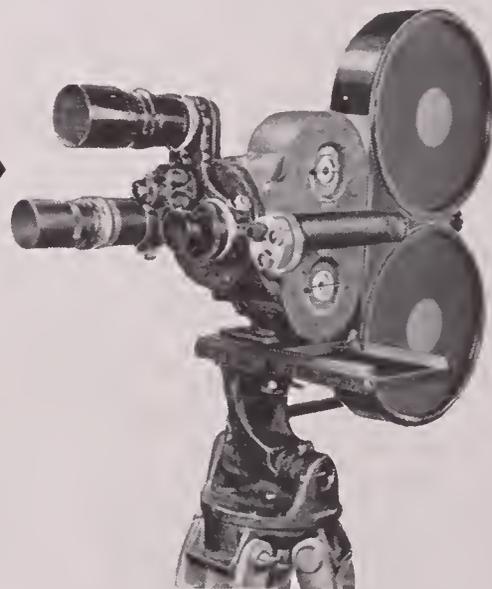
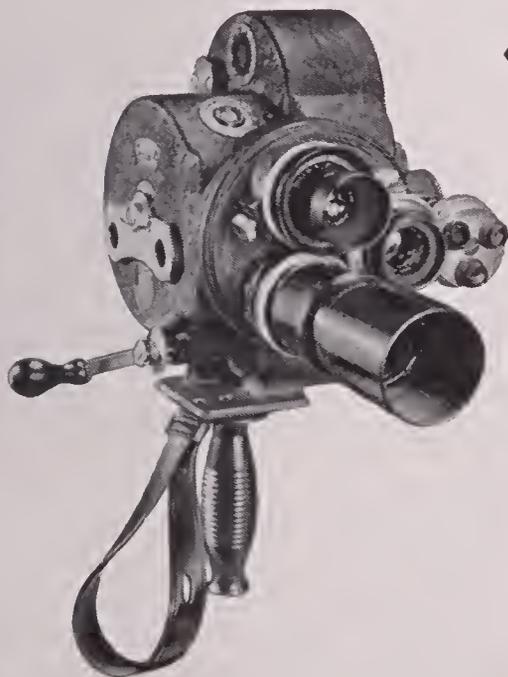


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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

NOVEMBER, 1947

NO. 11

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ON THE FRONT COVER—Outdoor travelling shot on location in Mexico for the Twentieth Century-Fox Technicolor production, "Captain from Castile." Charles G. Clarke, A.S.C., and Arthur Arling, A.S.C. were Directors of Photography on the production.

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### AUSTRALIAN REPRESENTATIVE

McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1947 by A. S. C. Agency Inc.

Entered as second-class matter Nov. 18, 1937,  
at the postoffice at Los Angeles, California, under  
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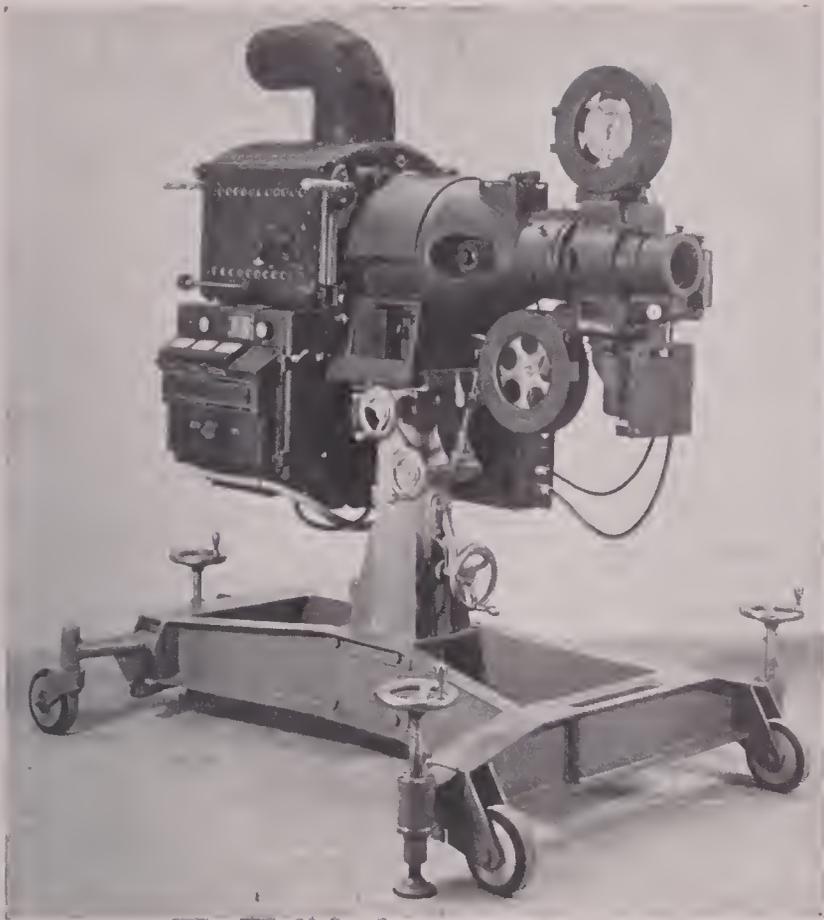
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# MITCHELL BACKGROUND PROJECTOR

**L**IKE the famed Mitchell Cameras, the Mitchell Background Projector has been designed for superior performance and utmost reliability. A high-precision instrument, this projector was developed to meet every requirement for perfect process cinematography. Typically Mitchell in design and construction, it incorporates features found in no other background projector. No covering or sound-damping device is needed when the Mitchell Background Projector is used. Every consideration has been taken to minimize noise, and all moving parts are designed for quiet operation. The projector is mobile and self-contained. It may be moved with comparative ease and adjusted to practically any position. Its flexibility and ease of operation will save many hours of costly set-up time.

The Mitchell Background Projector is constructed in four sections: projector head, light tube, lamp house and base.

The projector head contains all the film-moving mechanism, projec-lenses, projector motor and the selsyn receiver used for remote control focusing. The light tube, directly behind the projector head, is a casting which contains the iris, fire shutter and optical relay system. The lamp house section consists of a Mole-Richardson Type 250 lamp, together with a radiator, fan, water pump, relay box, control panel and associated wires and tubing. The optical condenser system is located in the front section of the lamp house. The base is a sturdily constructed steel unit which permits the projector to be moved with ease or positioned steadily for operation.

The eccentric type movement is a pre-

cision mechanism which will perform faithfully over long periods of time. It may be operated either forward or backward. The pull-down arm has two claws on each side of the film, engaging four perforations simultaneously. Two positive registration pins are adjacent to the aperture. A special arrangement of levels provides a fast pull-down with a long dwell on the registration pins. The pull-down claws and the registration pins overlap, one entering before the other disengages. Mattes with different size apertures may be inserted in the matte slot of the movement. A 180 shutter is located directly in back of the movement.

Two sprockets, located above and below the movement, are geared to the motor drive. As the film leaves the magazine it passes over idler rollers and between the adjacent sprocket and sprocket film guides, which hold it securely in place. After passing through the movement, the film moves over the second sprocket and idler rollers to the take-up reel. The film-moving mechanism will operate with equal efficiency in either direction.

The magazines are corduroy-velvet lined and are readily accessible. Each magazine has an adjustable clutch, used to regulate film tension as the film winds onto the take-up reel. An adjustable brake is also provided to regulate tension on the film being fed into the movement.

The projector motor is mounted on the bottom of the projector head and geared to the film-moving mechanism. The 720 RPM, 4-pole motor operates of 220 volts, AC, 3-phase and is reversible. It may be operated either in interlock for synchron-

ized background projection work or "wild."

The optical system is designed to project the image brilliantly and with even illumination. A flat field may be obtained or less light may be thrown on the center of the screen than on the edges. An  $f:2.0$  system, it utilizes Bausch and Lomb lenses throughout. All lenses are coated, increasing the light by approximately 22%. The projector optical system consists of three main elements: the condenser system, the relay system and the projection lens. Light from the arc passes first through the condenser system and into the light tube, where it comes to a focus point and is then directed through the relay system to the film aperture. It then passes through the projection lens onto the screen. An adjustable iris is installed in the light tube.

The condenser system is comprised of a protective plate, a quartz lens and a pyrex lens.

The relay system consists of two borosilicate lenses separated by water. Each lens is mounted on opposite ends of a hard chrome plated, aluminum water cell. Distilled water is used between the lenses and circulating water from the radiator flows through a jacket in the cell. The use of hard chrome plating in this unit eliminates contamination of the distilled water and makes water changes necessary only about every six months. The lenses in the relay system are so well protected that they will function for approximately two years of normal operation before they require polishing.

Three projection lenses are supplied  
(Continued on Page 419)

# 30 YEARS OF TECHNICOLOR

By WALTER R. GREENE

**T**ECHNICOLOR has come a long way since production of its first color feature, "The Gulf Between," 30 years ago.

Development of the present three color Technicolor process is the result of one of the outstanding engineering achievements of the motion picture industry; combined with the perseverance of president Dr. Herbert T. Kalmus, who—many times during the past three decades—successfully carried the company over some precarious financial periods.

Technicolor was not the first system for putting color onto the motion picture screens. There was the British Kinemacolor process—an additive method which utilized a special cumbersome projector which had a filter wheel and alternate frames of red and green on the print. Although Kinemacolor at the time was a novelty, it failed to survive due to the complexities of thrashing machine projectors which had to be set up in theatre booths for showings, and the fringing of colors was particularly noticeable. A few years later, about 1916, the American Pathe company made several features which were sent to France and hand-colored prints made via stencil method. But the cost was too great at the time, and Pathe abandoned the project.

Shortly after Technicolor was formed, the Boston consulting engineering firm of Kalmus, Comstock and Westcott was engaged to assist in developing a practical motion picture color process; and—with engineering enthusiasm, soon was deep in color research. At the time, Technicolor was engaged with a two-color, additive process, of standard frame size which demanded a minimum of laboratory procedure.

In recalling the formative years of Technicolor, Dr. Kalmus, in an address at

Detroit, pointed out that the best way to prove up the process was to make a picture—so "the earliest Technicolor laboratory was built within a railway car. This car was completely equipped with a photochemical laboratory, darkrooms, fire-proof safes, power plant, offices and all the machinery and apparatus necessary for continuously carrying on the following processes on a small commercial scale: sensitizing, testing, perforating, developing, washing, fixing and drying negative; printing, developing, washing, fixing and drying positive; washing and conditioning air; filtering and cooling wash water; examining and splicing film; and making control measurements and tests.

"In 1917 the car was rolled over the railway tracks from Boston, Massachusetts, where it was equipped, to Jacksonville, Florida, where the first Technicolor adventure in feature motion picture production was to take place. The camera was the single-lens, beam-splitter, two-component type, without the refinements which came later. The picture was 'The Gulf Between,' with Grace Darmond and Niles Welch playing the leads. Technicolor was the producer.

"During the progress of this production, February, 1917, I was invited by the American Institute of Mining Engineers to deliver a lecture of Aeolian Hall, New York, to expound the marvels of the new Technicolor process which was soon to be launched upon the public and which it was alleged by many could hardly do less than revolutionize their favorite form of entertainment. The Technicolor slogan was two simultaneous exposures from the same point of view, hence geometrically identical components and no fringes. At that time, hundreds of thousands were being spent by others trying in impossible

ways to beat the fringing of successive exposures and the parallax of multiple lenses.

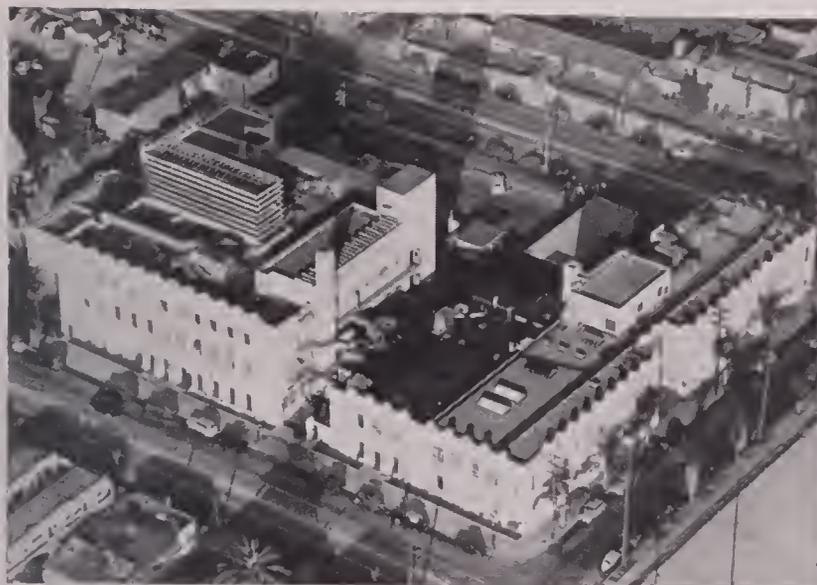
"I thought the Technicolor inventors and engineers had a practical solution, commercial at least temporarily, so I marched bravely to the platform at Aeolian Hall. It was a great lesson. We were, of course, introducing the color by projecting through two apertures, each with a color filter, bringing the two components into register on the screen by means of a thin adjusting glass element. Incidentally, Technicolor had to invent and develop a horizontal magnetically controlled arc which gave one-third more light for the same current than the then-standard vertical arcs and which could be relied upon for constancy of position of the source. This latter was vitally important with a double aperture. During my lecture, something happened to the adjusting element, and in spite of frantic efforts of the projectionists, it refused to adjust. And so I displayed fringes wider than anybody had ever before seen. Both the audience and the press was very kind but it didn't help my immediate dilemma or afford an explanation to our financial angels.

"Arrangements were made with Messrs. Klaw and Erlanger to exhibit 'The Gulf Between' by routing the photoplay one week each in a group of large American cities. During one terrible night in Buffalo, I decided that such special attachments on the projector required an operator who was a cross between a college professor and an acrobat, a phrase which I have since heard repeated many times. Technicolor then and there abandoned additive processes and special attachments on the projector."

Dr. Kalmus pointed out that two decisions of policy must be made in the



First Technicolor laboratory was completely housed in a railroad car.



The present Technicolor laboratory and plant in Hollywood (left); with the English plant on the right.

early development of a color process: first, how far will it permit departure from standard equipment and materials; and second, how will it attempt to decide the additional requisites of recording and reproducing color between the emulsion maker, the photographic and laboratory procedure, and the exhibitor's projection machine.

Although Technicolor permanently abandoned the additive method of motion picture color many years ago, variations of that method have cropped up for experimentation and heavy financial investment in the interim, but not one reached the point of commercial practicability for general use in theatres.

Despite the unhappy experiences encountered with attempts to exhibit "The Gulf Between," Kalmus and his associates did not abandon their search for a suitable color process. He stated, "As early as 1918 Technicolor had in mind two principal methods of attacking the color problem. Dr. Leonard T. Troland, who, at the time of his death, was Director of Research of Technicolor Motion Picture Corporation, had done some important pioneer work on the Monopack process. Some of his inventions were embodied in numerous patent claims which have been issued and which were intended broadly to cover the multi-layer method both for taking and printing. The other Technicolor attack was by the imbibition method. Both Monopack and imbibition were obviously capable of ultimate development into multi-component processes, but since imbibition seemed to load more of the problems on the laboratory and relatively less on the emulsion maker we pursued it with the greater vigor.

"A first approximation to the Technicolor imbibition method consisted of two gelatin reliefs produced upon thin celluloid which were glued or welded together back to back and dyed in complementary colors. Combined with the Technicolor two-component cameras, this method provided an immediately available system

(1919-21) capable of yielding two-component subtractive prints. A small laboratory or pilot plant was built in the basement of the building occupied by the Technicolor engineers, Kalmus, Comstock and Westcott, Inc., on Brookline Avenue, Boston."

About 1919, the Prizma color company was formed to investigate the potentialities of an additive color wheel method; but quickly switched to a camera with two lenses to take the red and green images simultaneously—but this created parallax and was abandoned in favor of a beam-splitting prism to register on two separate negatives. For prints, double-coated stock was used, with dyed images on each side. Prizma operated for several years, making and releasing one reel shorts; and J. Stuart Blackton's "The Glorious Adventure," produced in England and released in 1922. But, although Prizma charged 25 cents per foot for prints, losses in the laboratory were so great to turn out the product, that the company finally folded.

Technicolor, with its new two-component, subtractive print method, was again forced to invest its own money in a feature picture to sell the industry on the merits of color. So "Toll of the Sea" was produced in Hollywood in 1922, and was released by Metro, although insufficient laboratory capacity made it impossible to deliver prints until the following year. These prints were made at the original pilot plant in Boston, at a manufacturing cost of around 27 cents per foot. Producers were greatly interested in color—if prints of quality of that time could be delivered for about eight cents per foot!

With a new plant building in Boston with expected capacity of 1,000,000 feet of prints monthly, a group of officials were sent to Hollywood in 1923 to set up a small laboratory and photographic unit. Some months later, Paramount contracted for Technicolor photography for "Wanderer of the Wasteland," and during the six weeks of shooting, the Technicolor

group worked night and day to develop the negative—always terrorized by the thought that at least some of the negative might be ruined in processing. It turned out satisfactory, however, and 175 prints of the feature were made at price of 15 cents per foot.

"Wanderer of the Wasteland" and Douglas Fairbanks' "The Black Pirate," latter made a year or so later, proved milestones in the progress of Technicolor. These two all-color features, combined with color inserts for other productions, not only supplied Technicolor with income required to carry on and develop the project, but supplied invaluable information and training for the technical and research engineers. But the release prints of "Black Pirate" created major problems in the theatre projection machines. The prints were double-coated cemented-together relief prints, which were considerably thicker than ordinary black-and-white film, and had a tendency to cup easily when run. When cupping occurred, the picture would jump out of focus, and field men had to replace prints for shipping back to the laboratory for de-cupping.

Kalmus admitted that the double-coated process of that time was at best but a temporary method, and the work of developing a true imbibition process was being pressed by the research department to obtain single-coated prints at a cost the industry could stand.

Producers recommended that Technicolor itself produce a picture to prove quality and costs, so Kalmus went before the board of directors to reiterate his faith in the ultimate success of Technicolor, despite the fact it was a difficult undertaking technically, and one which required business sagacity and financial endurance. Prior to 1926, more than \$2,500,000 had been spent. The board approved capital for the production of a series of 12 two-reelers, and Metro distributed them worldwide.

(Continued on Page 410)

# THE MEN BEHIND THE MOUSE

## PART 2. How Animated Cartoons Are Made

By HERB A. LIGHTMAN

THE audience roars with laughter as a frustrated Donald Duck hops up and down, blistering the sound track with belligerent squawks. Sitting on the edges of their seats in the darkened theatre, everyone from Grandma on down to Baby Daughter squeals with delight as Mickey Mouse and Pluto romp about in a burst of Technicolored hilarity.

Little do these delighted spectators realize that at the Walt Disney Studios in Burbank, California, 184 technicians

worked a total of 16,502 man-hours to turn out 14,907 separate paintings, in order that those nine minutes of animated laughter might appear on the screen.

The making of an animated cartoon is not a simple affair. It involves a series of precise, lengthy, and completely fascinating processes. The medium is, in itself, a happy marriage of art and science skillfully blended to create a unique form of screen entertainment.

By now, almost everyone knows the

basic theory behind the production of an animated cartoon. They know that a cartoon, like any other motion picture, consists of thousands of separate still pictures recorded consecutively on a narrow length of film—that each succeeding picture or "frame" records the action at a slightly more advanced stage—and that when these pictures are flashed on a screen at the rate of 24 per second, an illusion of motion is produced. In cartoon production, each of these individual frames must be hand-drawn, painted, and separately photographed one after the other onto a strip of film.

It takes at least six months to turn out a one reel cartoon comedy. Full-length features like "Fantasia," "Song of the South," and "Fun and Fancy Free," take upwards of two years. Putting one line of Donald Duck dialogue on film requires the combined efforts of a director, narrator, dialogue director, two recording engineers, five sound effects men, a story man, and a musical director. All in all, it is *not* as easy as rolling off a log.

### "The Story's the Thing . . ."

The first step in the production of a cartoon is the selection of a story. For this purpose, the studio maintains a staff of story experts whose job it is to review existing stories, dream up original plots, and do detailed story research. Walt Disney very rarely buys an outside story, preferring to stick to plots originated in his own shop. Now and then, however, a book like "Pinocchio" or "Bambi" catches his eye, and he bases a picture around it.

When an idea has been selected, it is made the subject of a story conference, during which it is "kicked around" by a brace of idea men. These worthies sit around and let their imaginations play with the plot, while a secretary jots down the pearls of wisdom that drip from their lips.

Disney usually sits in on the first two or three story conferences. At succeeding meetings his men work up an outline of the story which goes to Disney for his O. K. As the story is discussed, ideas for gags and action begin to develop. At these confabs some of the best acting in Hollywood goes unrewarded, as writers bound about the room acting out bits of action.

From these bull sessions, sketches are prepared to illustrate each step of the action. Characters (which may go through quite a process of evolution before being okayed) are designed to populate the story. The sketches are then arranged in sequence around the walls of a room in what is known as a "story board." Each separate scene or change of action has



The photographing of a cartoon feature is a lengthy process, since each individual celluloid painting has to be photographed separately on top of its corresponding background. The operator must clean each cell carefully with an air hose before exposing it.



The three main steps in the production of cartoon animation. (Left) An animator tries out a facial expression in the mirror, before transferring it to the whimsical cartoon character he is drawing. This is the primary step in animation. (Center) The pencil drawings of the "roughs" are carefully traced onto the cells with ink. Steady-handed girl artists do this highly exacting work. (Right) After inking, the separately outlined areas of the characters are painted according to a precisely worked-out color plan. Disney manufactures more than 2,000 separate shades of paint in his own laboratories.

its own sketch, with dialogue written under the picture. Hundreds of these sketches covering the walls of a room give the effect of a giant page of comics. As story changes develop they are indicated on the story board. After considerable juggling about, the story is approved and actual art work can begin.

A *director* is assigned to each picture, and it is his task to follow the story through every phase of production, timing and co-ordinating all the elements that go to make up the finished picture: story, action, dialogue, sound and music. The picture is his "baby," and he is the one technician who follows the story through from beginning to end.

### The Layout Man

The designing of every phase of the production is supervised by a layout man, who visualizes the overall graphic presentation of the story. He often works with the director in developing the original

plot—and he definitely has a hand in the construction of the final shooting script.

The layout man establishes the backgrounds, sets, characters, paths of action, perspectives and key positions. It is he who designs camera angles and movement, fitting the aesthetics of art to the mechanics of the camera.

If he finds that the story is pictorially weak in one spot, he works with the writers and director to add more visual appeal to that sequence. He is not actively concerned with sound and music, nor with the actual dramatics of the action. His main concern is to make sure that the story will look well on the screen.

The layout man breaks the story down into separate scenes and sequences, indicates where close-ups are to be cut in, decides what types of transitions (dissolves, wipes, etc.) will be used to tie the sequences together, and works out the details of camera movement. He devises spe-

cial effects and tricks, develops interesting patterns of light and shade, and indicates the colors which he feels will best set off the characters against the backgrounds.

This completed, he assigns separate phases of the art work to appropriate departments. His sketches of the proposed characters are sent to the Animation Department, where they will be developed in greater detail. His basic designs for backgrounds are sent to the Background Department, where they will be precisely laid out and painted. His suggestions on color scheme are given to a color specialist to be more precisely worked out.

The layout man and the director next collaborate on the writing of the *shooting script*, which is made up of individual *exposure sheets* for each scene. The basic time unit of the exposure sheet is the *second* and every second is ruled off into 24

(Continued on Page 412)



(Left) A large portion of the preliminary work in designing a Disney picture is done by "layout men," known on the title credits as "art directors." The above artist is shown laying out a background. Layout men work with the director and designate color lighting, backgrounds and effects, as well as establishing the proportions of the characters. (Right) A Walt Disney background artist is shown in the process of creating one of the settings for a feature cartoon: Working with oils and watercolors, he turns out backgrounds for the animated action. Such paintings are often precise works of art worthy of museum display.

# MOTION PICTURE ART DIRECTION

By HAL HERMAN

**R**ED SKELTON'S antics as he sets out to charm the country's housewives in his portrayal of "The Fuller Brush Man," should provide theater-goers with a nifty ration of laughter.

His role of the dashing young fellow who is quick to put his best foot forward (before the door can be closed in his face,) is right down the funster's special avenue. As king of the clan of doorbell ringers, "a brush salesman who just can't take a brush-off," Skelton has a story tailored to his talents. During preparation for shooting the film, however, there arose many problems which, like Red himself, just couldn't be "brushed off."

"One of the early scenes in the picture shows Skelton racing up on the porch of a neat little cottage with his case of Fuller brushes," explains Carl Anderson, art director on the Columbia film. "Right there we ran into a problem."

"In fact we discovered the problem and worked out the answer days before the cameras turned on the first scene," he said. "The action called for Skelton to ring the doorbell, and then see the lady of the house as she goes to answer the

telephone, mistakenly thinking that it has rung.

"In the interest of the story," he explained, "Les White, A. S. C., Director of Photography, and Sylvan Simon, producer-director, wanted to have the set constructed in such a way that the camera would be able to show Skelton impatiently ringing the doorbell, and also include in the same scene, the lady inside the house as she moves around to answer the phone."

After a huddle with Simon and White, the art director re-designed the front of the cottage so that a set of spacious bay windows came out at right angles from the front of the house, opening into a sort of sun room or den. Thus the camera lens could easily capture the comic implications as Red's impatience rises while he repeatedly rings the doorbell, and the lady, seen through the windows, by the audience (but not by Red) gets equally wrought up over the puzzle of which bell is ringing.

"This is a simple example of the way an art director can collaborate with the cameraman and permit him to tell the

story through more direct photographic interpretation, and with greater dramatic effect," Anderson said.

"It is neither fair nor reasonable," Anderson asserted, "to expect the cameraman to get more on the screen in the way of backgrounds than the art director has given him."

"Of course all cameramen operate differently," he declared, "but I've found that advance planning and interesting use of materials, of design, color, glass, wood and stone, lend much to the drama of photography."

"I also have a personal belief," Anderson said, "that the success of the art director depends to a great degree on his close cooperation with, and understanding of the cameraman's problems. For no set is any better than it is photographed. The best sets can be made to look good or bad pictorially."

"Constant meetings which permit joint planning between cameraman and art director so that each may know the desires and limitations of the other are imperative," he emphasized.

Anderson has a definite personal viewpoint concerning his work. He feels that sets are designed and created to help establish the mood of the story, while at the same time blending with, and yielding to the requirements of the camera in space, angles, lighting problems, texture of materials and colors, and of course the movement of the players as required in telling the story.

One of the main sets erected at Columbia for the Skelton comedy, "The Fuller Brush Man," was conceived and entirely built around the opening shot in the sequence.

The set was perfectly round, low and quite large. The scene opens on a medium



The sombre dramatic mood of "The Sign of the Rose" was accentuated by the art director's subdued design of the living room with low beamed ceiling for a house on the English coast (left). On right is one of the 20 open-sided sets constructed on a single stage for the elaborate thematic dance sequence by Rita Hayworth, Larry Parks and Marc Platt in Columbia's Technicolor film musical, "Down to Earth." The open-sided sets in series allowed the dancers to progress from one to the other while being photographed continuously from a travelling camera crane.

close shot of two brush salesmen sitting on a circular dais and rubbing their aching feet. The camera pans up to show a large, transparent globe with its map of the world, then dollies back to a long shot of the room which carries out the round, curving lines of the globe.

"The problem here," Anderson said, "was to make some sort of ceiling piece which could 'gobo' out the lights around the top of the set (which was extremely low) and yet fit into the design of the room. I finally created a round, semi-transparent ceiling piece which was suspended overhead, covering the central portion of the room. While carrying out the rounded lines of the set, it acts as a sort of combination 'filter-gobo' which cuts down the illumination, masks out the lights around the top of the set, still allowing enough to come through to satisfy cameraman Les White. All departments cooperated in effecting this job. The result is striking and effective," Anderson says enthusiastically.

Use of scale models of sets in conferences held prior to the start of shooting, are, in the opinion of Rudolph Sternad, veteran Columbia art director, of the highest importance.

"I consider models the greatest source of collaboration between art director and Director of Photography, as well as with the director, the electrical crews and every other department concerned with preparing and shooting the film," Sternad declared. "Furthermore, I have found these models of greater value to the cameraman than they are even to the director. I mean because of the physical setup for planning camera angles, for working out the lighting effects and for covering the action of the scene planned for that set.

"Actually, I am more concerned with getting the okay of the cameraman on a given set than I am with the approval of the director, even though the models are also a great help to the director," Sternad asserted.

By way of illustrating the practical value of miniature models of sets, Sternad described his work with Rudy Mate, A. S. C., in cooperating on plans for the lavish New York musical number in Columbia's "Down to Earth," currently released.

"This big musical number called for twenty different sets. All had to be built on one single stage, and opening one into the other," he explained. "This arrangement was required to permit Rita Hayworth, Larry Parks and Marc Platt to go through their dance routines while moving progressively through the different sets without interruption.

"By using a master model of the whole set, and having small models of the individual sections which could be moved in and out, Rudy Mate and I, along with

the dance director, Jack Cole, and the gaffer, 'shot' that whole musical sequence before the sets were built."

As a further illustration of the use of models on that same production, Sternad cited a sequence in which Miss Hayworth as Terpsichore, goddess of the dance, walks on clouds among fluted columns which, in perspective, fade away into the distance.

"After shooting the sequence with Miss Hayworth alone," the art director explained, "we wanted to move a huge, stylized airplane to the same cloud covered area without having to tear down the whole set. This was shot at the Sonja Henie Ice Palace in Westwood. We arranged to swing the airplane on an angle up into the grandstand. Then, after finishing with the column routine we could clear space for the plane to be moved into position for shooting."

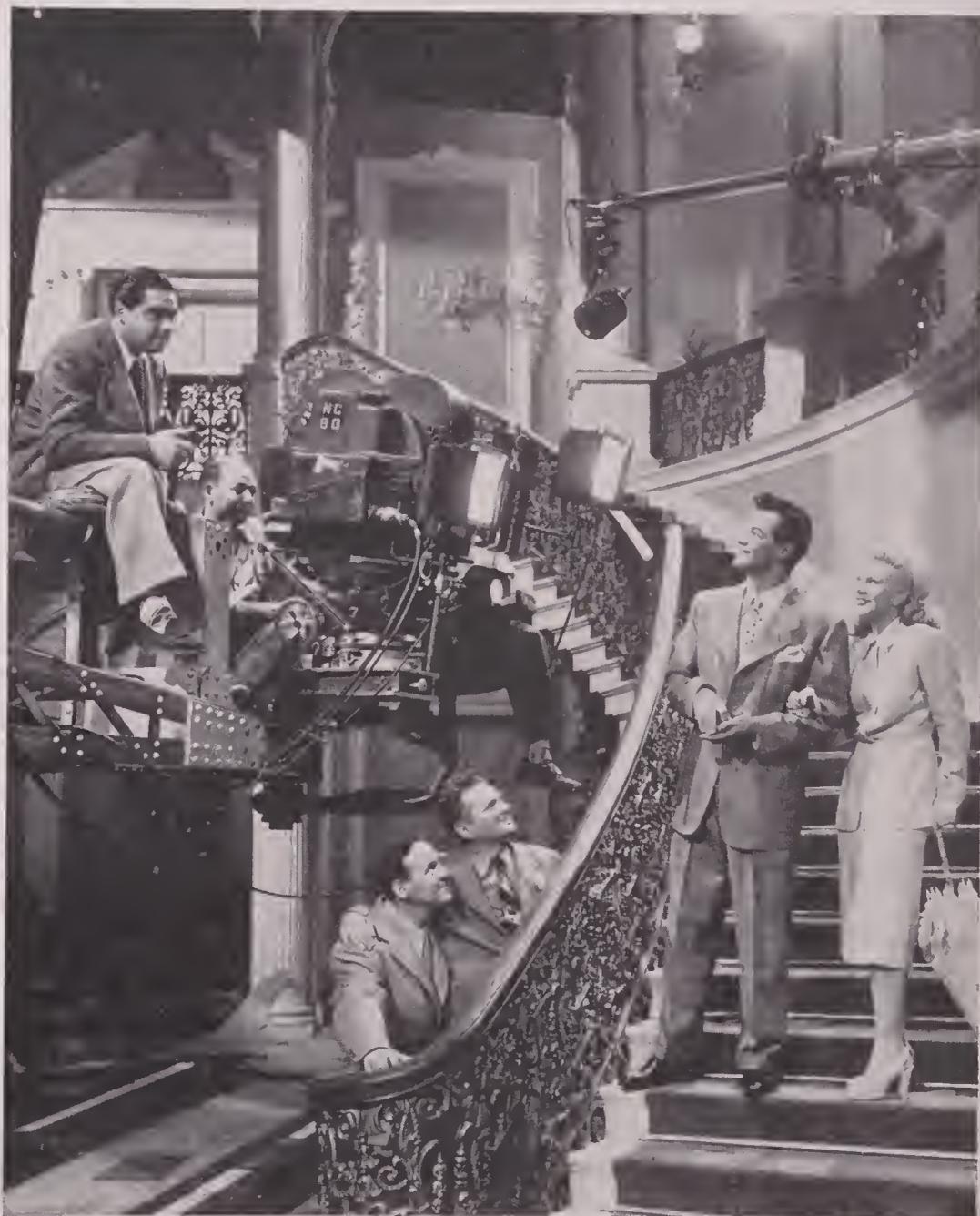
"All the action for these sequences," Sternad said, "was planned and worked

out with Rudy Mate, Director Al Hall, the electrical department and myself in advance of our taking the company out to the location. We got exactly what we wanted with a minimum of delay and expense. Those models were worth their weight in platinum."

An authentic and luxurious Park Avenue drawing room, that literally breathed "Social Register," was needed for key scenes in the Columbia picture, "It Had to Be You." The drawing room was to be the setting for several fashionable weddings for Ginger Rogers.

"Here again the models were of great value to Vincent Farrar, A. S. C., and Director Don Hartman, as well as myself," Sternad said. "We wanted a grand mansion suitable for a swanky wedding with two or three hundred guests filling, but not crowding the drawing room. It had

(Continued on Page 416)



Two story drawing room especially created by art director Rudolph Sternad to accommodate script action for "It Had to Be You."

# HISTORICAL DEVELOPMENT OF SOUND FILMS

By **EARL I. SPONABLE**

(Twentieth Century-Fox Film Corp., New York)

## PART 5

*(Editor's Note: This most informative paper was presented by the author at the October, 1946 convention of the Society of Motion Picture Engineers in Hollywood; and published in the May, 1947, issue of the SMPE Journal. It is reprinted through permission of the SMPE.)*

(Continued from Last Issue)

1925-'26: Major development of the disk system of sound motion pictures, later trade-named "Vitaphone," was carried on by a group in the Bell Telephone Laboratories headed by Dr. J. P. Maxfield. At about the same time, another group headed by Dr. Crandell and Dr. MacKenzie were working out a sound-on-film system using a "light valve" designed by Dr. Wentz in the recording.

Apr. 20, 1926: Western Electric Company entered into a contract with Warner Brothers and W. J. Rich, a financier, giving them an exclusive license for recording and reproducing sound pictures under the Western Electric system. The Vitaphone Company was formed.

June, 1926: The Vitaphone Company opened a recording studio at the Old Manhattan Opera House, 34th Street, New York.

Aug. 6, 1926: Warner Brothers gave their first public performance of Vitaphone at the Warner Theater, New York, showing a scored picture, "Don Juan," and several shorts including a talk by Will Hays, and songs by Martinelli, Marian Talley, and others. This received favorable comment from some papers, enthusiastic comment from others, and grave doubts from the industry that talking pictures would ever be commercial.

Dec., 1926: The Vitaphone corporation gave Fox a sublicense to use Western Electric equipment in the field of sound pictures.

Dec. 31, 1926: Western Electric had equipped about twelve theaters with sound installations for Vitaphone.

Jan. 1, 1927: Electrical Research Products, Inc. (ERPI) was formed as a subsidiary of Western Electric and AT&T to commercialize equipment for the sound motion picture field, the equipment business having been bought back from the Vitaphone Company. The name Vitaphone was retained by Warner Brothers for their sound picture system.

Spring, 1927: Vitaphone recording was moved to Hollywood.

Feb. 23, 1927: MGM, First National, Paramount, Universal, and PDC, termed "The Big Five," agreed to stand together for the purpose of determining the right sound system and used the facilities of the Hays organization for this investigation.

Apr.-Aug., 1927: ERPI made their first light-valve installation in the Fox Movietone studio at 54th Street and 10th Avenue, New York. This was installed at ERPI's expense and operated experimentally by Bell Telephone Laboratory engineers. The ERPI film processing specifications were rigid and their technique of operation was not sufficiently advanced to impress the Fox group that the light-valve system offered any commercial improvement over the Case system then in use.

Apr. 19, 1927: Warners secured 100 per cent ownership in Vitaphone by purchase of W. J. Rich's interests.

Oct. 1927: Warners released "The Jazz Singer." This is spoken of as the turning point in the coming of sound, and served to convince the industry of its potentialities.

Dec. 31, 1927: One hundred and fifty-seven theaters were equipped for sound, of which fifty-five included film units. The rest were disk only.

Apr.-May, 1928: ERPI contracts were signed by the "Big Five" group. This ensured the general use of talking pictures. The Warner contract was revised when ERPI took over the equipment business and a new Fox license was also signed about this time. Victor and First National announced the release of their product under the name of "Firatone." The ERPI licenses granted during this period included the following companies: Paramount, United Artists, Metro-Goldwyn-Mayer, First National, Universal, Christie, Hal Roach, and Victor Talking Machine Company.

May-Dec., 1928: There was great activity in getting studios equipped for recording. Everyone wanted to start at once and equipment was at a premium, with deliveries most indefinite.

At about this time, sound equipment and recordings were standardized to a

sufficient extent that apparatus made by either RCA or ERPI could satisfactorily play the product made with the other equipment. In the beginning, ERPI tried to restrict the use of its equipment to sound tracks made on the Western Electric system.

July, 1928: Paramount began recording in Hollywood on a temporary channel and first used sound in their picture, "Warming Up," with Richard Dix.

July-Sept., 1928: Their first all-talking picture was "Interference," directed by Roy Pomeroy. This was followed by "The Doctor's Secret" and others. During this early work in a temporary studio, many of the scenes were made at night to avoid outside noises.

Dec., 1928: Paramount began recording in its new sound studios on regular channels.

Dec. 31, 1928: ERPI had 1046 theaters wired for sound, of which 1032 were for sound-on-film.

Jan., 1929: Warner Brothers became interested in the Pacent sound system and approved Pacent installations in April, 1929. ERPI began suit against Pacent for patent infringements.

Aug. 3, 1929: The first issue of Paramount Sound News was released.

Dec. 31, 1929: The tremendous growth of the sound motion picture business in a little over two years is evidenced by the fact that there were 77 ERPI recording channels in operation in the United States. ERPI also had equipped about 4000 theaters in this country and some 1200 in Europe. Most of the theater installations were for both sound-on-film and sound-on-disk.

Also at this time it became evident that there was a trend to favor sound-on-film over sound-on-disk for theater release purposes.

Apr., 1930: Warner Brothers announced the purchase of an interest in the T. H. Nakken patents. These patents related to the use of a photoelectric cell and an amplifier. (Subsequently they were used as a basis for litigation.)

### Sound Work Under the RCA System

1925: About this time, a small group of engineers at Schenectady, headed by C. A. Hoxie, experimented on recording sound on film photographically, using a special oscillograph as the recording unit and making records of the variable-area type. This sound-on-film system was called the "Pallophotophone." Also at this time, Hewlett (a research engineer in the General Electric laboratory) was perfecting his induction-type loudspeakers, and Rice and Kellogg (also General Electric research men) were developing their electro-dynamic cone speakers.

Feb., 1927: During the year 1926,

(Continued on Page 415)

What's the name  
of the oldest  
the most important  
the most progressive

**SERVICE ORGANIZATION**

of

**THE MOTION PICTURE INDUSTRY?**

**RIGHT! . . .**

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nor can you get

**BETTER SERVICE**

**BECAUSE . . .**

we are now

and always have been

and will continue . . .

**THE LEADERS . . .**

# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 17. Sound Cutting and Recording

By CHARLES LORING

**I**N an earlier chapter we discussed motion picture sound in terms of its role as a dramatic element applied to the visual image. We are now ready to take up some of the mechanics of sound cutting and recording, omitting the more technical phases which would be of interest only to someone specializing in sound engineering.

In order to discuss the subject intelligently, we must first define certain fundamental terms that are used constantly in recording.

There are two standard types of recorded sound track: *variable area* and *variable density*. The *variable area* track has a split pattern of opaque black and clear white which varies in width according to the modulations of the recorded sound. The *variable density* track is composed of a continuous band of minute striations which vary in density according to the modulations of the sound.

Individual producers have their own preferences as to which type of track is best. It is generally agreed, however, that for 16 mm. production, *variable area* track gives a clearer rendition of the sound, and is also less likely to be adversely affected by improper development.

*Direct sound* refers to that which is recorded in synchronization as the action is shot—so that the dialogue of the actors, for instance, is perfectly matched to their lip movements.

*Narrated Track* refers to commentary which is not closely synchronized with the action when it is shot, but which is "dubbed in" later and delivered "off-screen" by a narrator describing the action.

*Wild Track* refers to dialogue or sound effects recorded independently of the action, and later cut to fit.

*Pre-recorded Sound* is that which is recorded beforehand (either on disc or film) and then "played back" on the set so that the actors can match their action to it. Musical numbers are usually handled in this way.

*Post-recorded Sound* refers to dialogue synchronized with silent footage that has been shot previously and cut into continuity. The actors watch the film as it

is projected in the sound studio, and speak their lines to match the lip movements on the screen.

*Single-channel Sound*, or "radio type" recording, is a process in which narration, music and sound effects are all recorded through the same microphone, onto a single strip of film, at the same time.

*Multiple-channel Sound* is a process in which narration, music and sound effects are each recorded separately onto film or discs. Each of these is channeled separately through a central control board, and can be blended or "mixed" on a monitoring console to achieve precisely the right balance.

### Types of Recording Equipment

There are two general kinds of sound recording systems: *single system* and *double system*. *Single system* sound is that which is recorded right in the camera onto the same strip of film which is being used to expose the picture. This type of equipment has the single advantage of being relatively portable, since no separate recorder is needed. It has, however, certain marked disadvantages—mainly the fact that while the sound and picture are recorded onto the same strip of film, they are recorded "out of sync." This means that in order to get them to synchronize, it is necessary to make a duplicate negative of the sound track and match it up with the picture negative in printing. A certain amount of sound quality is invariably lost in this process.

Another disadvantage of *single system* sound is that the sound must be recorded onto whatever type of film stock you may be using to expose your picture. A special slow-speed, fine-grain film is necessary for really fine sound recording, and the ordinary fast emulsions used in modern cinematography are too grainy to render really good sound fidelity. This means that if you are using an ultra-fast film to expose your picture, the sound recorded on that film will be of a relatively poor quality.

*Double system* sound, which is the type used in professional photoplay production, is based upon three separate mechanisms: *the camera*, *the synchronous motor*, and *the recorder*. The synchronous motor

serves to "lock" the mechanisms of the camera and the recorder in synchronization so that they turn at exactly the same rate of speed, thus keeping the sound matched frame-for-frame with the picture.

In *double system* recording, two separate strips of film are used; one in the camera and one in the recorder. This means that you can use whatever emulsion you wish, fast or slow, in your camera—and at the same time get a fine quality of sound by using fine-grain sound recording stock in your recorder.

On the set, the initial synchronization for each scene is made by snapping a clap-board slate in front of the lens, after the camera and recorder have reached proper recording speed. The frame on which the two blades of the clap-board meet serves as the "sync mark" for the visual footage. A sharp, easily-recognized mark on the sound track (caused by the sharp click of the clap-board) serves as the reference point for syncing the sound. When these two marks are later lined up in the cutting room, the sound and the picture are sure to be "in sync."

Besides sound-on-film recorders, there are several other devices which may be used for recording. These include disc, tape and wire recorders. All of these machines are especially good for recording sound effects on location where it would be impractical to transport heavier sound-on-film equipment. In order to use them for recording *direct sound*, however, the recording mechanism must be carefully interlocked with the camera by means of a synchronous motor, and a similar arrangement used when the sound is re-recorded onto film.

Recently perfected wire and tape recorders have certain advantages over disc recordings. They do not develop surface noise—and the sound can be edited, just as when it is recorded on film. The tape recorder has a wider frequency range than the wire machine, and therefore greater fidelity.

### Working With Narrated Sound

A great majority of commercial, educational and documentary films employ *narrated sound* rather than direct dialogue, the main advantage being that narration is much less expensive than direct sound, because it eliminates the necessity of having bulky equipment and a trained sound engineer available on location while the picture is being shot.

From a dramatic standpoint, narration can be more objective at times than direct sound, since it can "stand off" from the situation and present facts that would take a great deal of dialogue to explain. Good narration is always to be preferred over second-rate direct sound. It has a definite versatility, and is sometimes very effective when written in the first person

singular. Its force depends upon how well it is written and cued.

Narration should be planned to *complement* the visual image, rather than repeat exactly what is shown on the screen. A film should never be packed solid with narration. Leave spaces for audience reaction, so that the ideas will have time to register fully. Such gaps in narration can be effectively filled in re-recording by bringing up the volume of the background music at that point.

In timing your narration to your footage, allow approximately 3 words per foot, if the commentary is to be read at normal speed. Before going into the actual recording session, project the film several times and read the narration along with it, taking note of any places where the commentary does not correctly jibe with the visual image. Also, notice at which point in each scene you must begin your block of narration in order that it will closely fit the action and not run over into the following scene.

Having gotten the "feel" of the narration, you will be ready to cue the narrator during the recording session. Divide your commentary into separate blocks and hand a marked script to the narrator. You will cue him in on each block by means of a hand signal. Record one reel at a time, rehearsing it well beforehand so that the

narrator can get the sense and tempo of it.

### Recording the Master Track

In *single-channel* recording—narration, music and sound effects are all recorded simultaneously, just as in a radio broadcast. Each separate element is cued by the director or one of his assistants. The sound effects man will produce his noises on cue, and the man at the turntables will *bring up* or *fade down* his music in response to hand signals from the director.

While this system of recording is quite a bit less expensive than the *multiple-channel* variety, it also leaves less margin for error—since the whole reel must be recorded over again should there be a mistake in cueing any one of the separate sound elements.

In *multiple channel* recording, a different sound channel is used for each separate element of sound, all of these various channels being correctly blended together on a monitoring board by the sound mixer. There will usually be two music tracks (cut into A and B rolls so that themes can be faded one into the other). There may also be one or more sound effects tracks, with the effects cut to precisely match the action. These separate sound-on-film tracks are run in synchronization through sound reproducing

devices called *film-phonographs*, which are channeled through the central control board. Additional music or special sound effects can be run on discs and similarly channeled.

In the making of the master track, each sound channel is represented by a separate dial on the mixer's console. The narrator's voice (recorded directly onto the master track for greater fidelity) is assigned a recording level, and all of the other sound elements are keyed to favor that level. In actual recording, the mixer will bring up his music level to fill gaps where a block of narration ends, and will fade the music down again as the next block of narration is cued in.

### Music and Sound Effects

Suitable background music adds greatly to the effectiveness of a motion picture. Select music to closely complement your various sequences, but do not allow the music to overwhelm either the dialogue or the action.

The re-recording of published disc music onto film is a rather ticklish proposition, due to the fact that copyright laws and union restrictions closely limit such recording. Be sure that you have specific written permission from all parties concerned before you dub music off of discs. There are a few services that

(Continued on Page 408)

## Professional Type Combination SUNSHADE and FILTER HOLDER



The Sunshade-Filter Holder is supported by a double arm bracket. This attaches to a plate which you can fasten on to the base of your camera where it can remain at all times if you desire. The Sunshade-Filter Holder is demountable into 3 small units which, when not being used, fit into your camera carrying case.

Manufactured exclusively by the makers of "Professional Junior" Tripods and other fine camera accessories.

For E. K. Cine-Special, Bolex, Filmo and other fine 16mm cameras. It resembles the professional 35mm type Sunshade Filter Holders and Matte Box generally used with professional 35mm cameras.

Designed for use with all popular types of 16mm cameras, the "Professional Junior" Sunshade and Filter Holder holds two 2" square glass filters, also a 2½" round Pola Screen with handle which can be rotated for correct polarization. By using our Sunshade and Filter Holder you will not require filters of various sizes as the 2" square filter will cover all lenses from 15mm to 6" telephoto.



Compact, simple to assemble or dismount, the entire Sunshade-Filter Holder and 2 filter holders which are supplied are precision-made of non-corroding metals. Every serious cameraman appreciates the advantages that accrue when a fine Sunshade-Filter Holder like this is used.

Order your Sunshade and Filter Holder today. And also ask for our complete catalog.

# AMONG THE MOVIE CLUBS

## Los Angeles Cinema

Program of slides taken by Major R. R. Leslie during an assignment at Trieste, Italy, comprising interiors and exteriors of famous architectural achievements— together with great artistic masterpieces— featured the October 6th meeting of Los Angeles Cinema Club, held at the Ebell Club. Dr. Leslie Smart also showed his "Trails Through the Tropics," his personally-produced travelog through Jamaica, Haiti, and the Bahamas. Mrs. Leslie narrated the slides, while Dr. Leslie gave running commentary on his film.

An anonymous member of the club has donated \$100 to be used for prizes in the club's annual contest, which closes on November 20th. Contest Chairman James H. Mitchell announces that contest will have two separate classifications—silent and sound sections.

## Milwaukee Amateur

Film program for the October 8th meeting of Amateur Movie Society of Milwaukee, held at the Red Arrow Club, was provided by Metro Movie Club of Chicago, with subjects including: "Sunday Morning," by Stanley Yasbec; "Black Widow," by Carl Frazier; and "Flying South," by Arthur Elliot. Special gadgets and titling held the stage at the meeting of October 22nd.

Pictures entered in the club's annual film contest for both 8 and 16 mm. will be exhibited at the meetings of November 12th and 26th. Contest committee comprises Mrs. Agnes Muehlbach, Ray C. Fahrenberg, and Mrs. Gertrude Militzer.

## New York Eight

Due to financial problems arising from necessity of paying rent for meeting room, members of New York Eight MM. Motion Picture Club voted unanimously for dues of five dollars annually, and to reduce number of meetings a year to 10. An operating committee of six was appointed to handle the future business affairs of the organization. Film program at the October 20th meeting comprised: "Granite Quarry," by Harry Jewel of Albany; and "Pilgrimage to Oriskany," by Fred Furman.

## Utah Cine Arts

Members of Utah Cine Arts Club provided the film program for the October 15th meeting, held at Newhouse Hotel, with a number of 50 foot rolls exhibited. Surprise film to launch the meeting was supplied by president Theo Merrill, and technical session was presided over by Merrill, LeRoy Hansen and Al Morton.

## Washington Cinematographers

Initial meeting of the new season for Washington Society of Amateur Cinematographers was held in auditorium of Review and Herald Publishing Co., Takoma Park, on September 15th. Officers elected for the ensuing year include: William C. Kuhl, president; Harold K. Wagar, vice president; Wilbur F. Comings, recording secretary; J. Donald Sutherland, corresponding secretary; Theodore H. Sarchin, treasurer; and Charles H. Ward, chairman, publicity committee. Film program for the evening displayed "Coast to Coast" and "Union Pacific and the Grand Canyon."

## San Francisco Cinema

At the October 21st meeting of Cinema Club of San Francisco, held at Women's City Club, a fine selection of films were exhibited, including: "My Cattle Ranch Vacation," by member Fred Youngberg; "Canada's Tacklebusters," through courtesy of Canadian Pacific; "History of Lighter Than Air Rigid Ships," loaned by the U. S. Navy; and "Our Western Wonderland," series of kodachrome slides by C. D. Hudson.

## Philadelphia Cinema

A. R. Nichols, program chairman, presented a splendid group of films for the October 14th meeting of Philadelphia Cinema Club held at Franklin Institute, including: "Mackerel Expedition," by Harry Taylor; "The River," documentary through courtesy of Bob Haentze; "How Lenses Are Coated," by courtesy of Acra Instruments; and "Sightseeing at Home," presented by General Electric Company.

## Los Angeles Eight

Larry Zeman was master of ceremonies for the annual Past President's Night of the Los Angeles Eight MM. Club, which was held at Arden Farms Clubhouse on October 14th. Meeting brought out a big attendance of former officers, and film program comprised a number of the outstanding films produced by members in prior years. Club bulletin announced that current president, J. R. Hornaday, has left for a permanent position in Erie, Pa.

## Alhambra La Casa

Mr. and Mrs. McHenry were honored on their 50th wedding anniversary at the October 20th meeting of La Casa Movie Club of Alhambra, California, held at the YMCA building. For the film program, Dr. Leslie A. Smart exhibited his "Trails Through the Tropics," taken during his recent trip to the West Indies.

## Brooklyn Amateur

Initial guest night of the new season was held by Brooklyn Amateur Cine Club at the Neighborhood Club auditorium on October 15th, with film program comprising: "Onset of Spring," by John Larson; "Cheated," by Herbert Erles; "World's Fair," by Francis Sinclair; "Vacation in Connecticut," by Charles Benjamin; "Life of a Fireman," by Harold Cahn; and "Vacation With Pay," by Irving Gittell.

Gene Adams presented a lecture and demonstration on the subject of lenses at the October 1st meeting, followed by exhibition of "Lenses and Their Uses," through courtesy of Harmon Foundation. Club members won two first and six second prizes in the film contest of the Mincola Fair to take major honors in the event.

## San Francisco Westwood

Gadget Night held attention of members and guests of Westwood Movie Club of San Francisco at the September 26th meeting held in St. Francis Community Hall. Event brought out many favorite gadgets and pieces of apparatus—both home-made and standard brands—that members feel make better movies.

Film program for the August meeting included: "Super Salesman," by J. M. Rigby of Long Beach Movie Club; "Diaper Diary," by Lee Bacon of Petaluma Movie Club; and "Indiana Washday and California Washday," by Dr. Sovine of Indianapolis Movie Club.

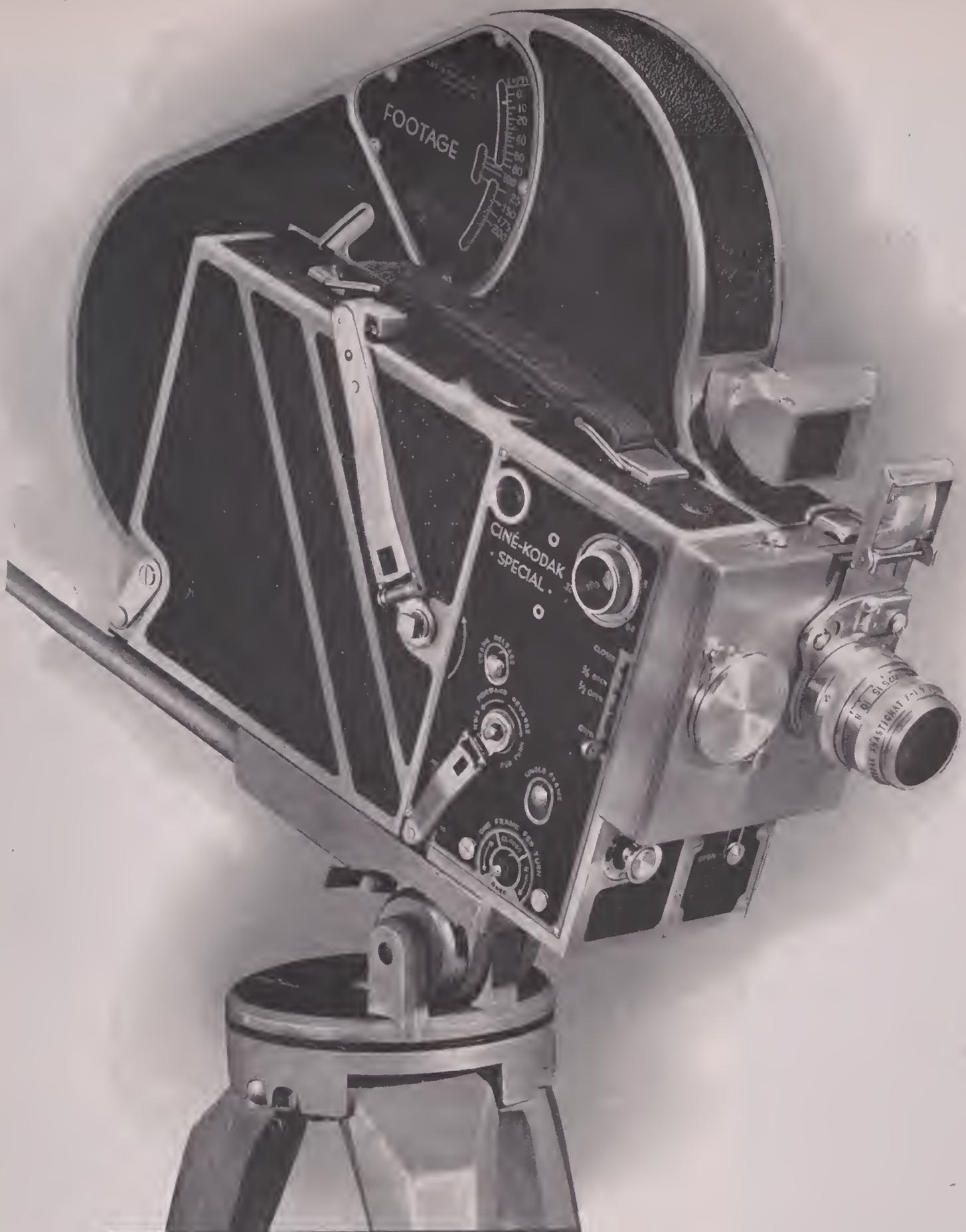
## Saint Louis Amateur

Regular monthly meeting of the Amateur Motion Picture Club of St. Louis was held on September 9th at the Roosevelt hotel. Neil Buttiger screened his 16 mm. kodachrome film, "University City Track Meet;" and Frank Gunnell's "Biae St. Paul" was shown through courtesy of Amateur Cinema League.

Judges handed first prize for the best club picnic film to Ralph Meteka, with Martin Manoville placing second.

## Tri-City Cinema

September 18th meeting of Tri-City Cinema Club (Rock Island, Ill., Moline, Ill., Davenport, Iowa) was held in Davenport, at which time Cliff Hyland of General Electric Company, Cleveland, presented "The Family Album," and presented a most informative talk on triangle lighting. The club alternates meetings between the three cities, and annual banquet will take place in Rock Island in December.



*We are making more*

Ciné-Kodak Special cameras

today than ever before. We wish, as you do, that our production could match strides with the demand. But the importance of this fine camera to the growing fields of personal, educational, industrial, and entertainment movies has overtaxed the output facilities for a product that permits no short cuts.

**EASTMAN KODAK COMPANY, Rochester 4, N. Y.**

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# BLUE SEAL CINE DEVICES

## 35MM. SOUND RECORDER

A COMPLETE new line of 35 mm. sound-on-film recording equipment is announced by Blue Seal Cine Devices, Inc. of Long Island City by president J. Burgi Contner. Three different types of equipment are included: the portable type; the studio-location recording equipment, and the de luxe studio recorder. Recording cameras are the same in each instance, but the amplifier equipment is of different design for each of the models. The recording equipment is de-

scribed in detail as follows by Mr. Contner:

The Recorder is of modern streamlined design. The motor and galvanometer are entirely enclosed in the housing. The sound is recorded upon a rotary drum connected with a special dampened stabilizer. Flutter content is less than 0.07%.

The galvanometer records a dual symmetrical variable area track. The optical system uses color corrected achromatic lenses which are coated. There is a total absence of flare or spill light. The impedance of the galvanometer is 50 ohms and the approximate level required for 100% modulation is +20 d.b. Galvanometer is tuned at 11,000 cycles, and has a flat frequency response. Noise reduction is obtained by biasing the galvanometer.

### *Portable Recording Amplifier*

The Blue Seal recording amplifier system has been designed for compactness, light weight, and for maximum flexibility of operation. This system is constructed as a single unit, containing a high quality amplifier with ample output to modulate the recording galvanometer 100%, with less than .2 of 1% total distortion. Incorporated in this same unit is also a direct current amplifier for supplying bias to the galvanometer. The input signal for the bias amplifier is obtained from the output of recording amplifier which has a pre-equalizing circuit to compensate for the film recording losses, therefore no further frequency correction is necessary in the noise reduction circuit. Signal limiting system, consisting of a diode rectifier and adjustable threshold control has also been added for the protection of the galvanometer when recording high amplitude sound such as gun shots, etc. For purposes of determining recording level and bias margin, a thousand cycle oscillator has been included, and may be inserted or removed from the system circuit by means of the switch mounted on the control cabinet.

The power supply is of the same type as furnished with the de luxe recording system, with the exception that it is contained in a separate portable field type carrying case. This system also includes a metering circuit, by means of which all circuits may be checked as to performance. Amplifier specifications—2 microphone input positions, input impedance,



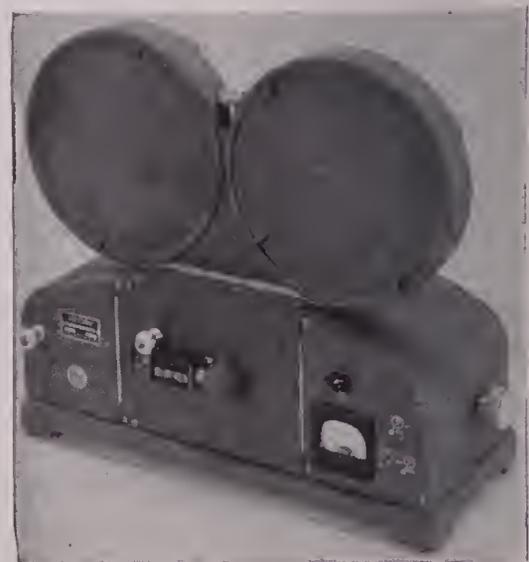
Blue Seal de luxe model console type mixer, with four mixers, VU meter, dialogue equalizers, and low and high pass filters.



Amplifier cabinet for De Luxe Recorder.



Standard model portable recording amplifier.



35 mm. sound-on-film recorder, with variable area galvanometer, color corrected optical system, and rotary stabilizer.

50 ohms balanced ladder controls on each position plus balanced T master control following the pre-amplifier stages, total gain of the system 120 d. b. Maximum output is —30 d. b. at 1% distortion. Distortion at 100% recording level (+20 d. b.) equals .2 of 1%. Minimum input level —90., maximum input level —45 d. b. Hum level —85 d. b. below zero decibels.

De luxe studio and location recording amplifier, consisting of two units, a portable extension mixer, containing microphone pre-amplifiers, balanced gain controls feeding into a self contained line amplifier to the main recording amplifier. Two input positions are supplied for 50 ohm microphones, each input position also has in-and-out switches to avoid possibility of input leakage. Provisions are also made in the portable mixer for metering circuit components, and 100% circuit performances are indicated in the mid scale of the VU meter. Current and voltage for the mixer is obtained from the main regulated power supply.

Minimum input level to the mixer is —90 d. b., maximum input —40 d. b. Maximum output level from the mixer to the main recording amplifier is —20 d. b. Total over all gain of mixer is 40 d. b. Recording amplifiers furnished with the de luxe systems are of the compression type. A master gain control is located on the front panel of the main recording amplifier and establishes the required output level from the main recording amplifier to the recording galvanometer. Compression threshold is adjustable by means of a control on the front panel and compression range is approximately four to one. Also contained in the main amplifier is a noise reduction unit for providing bias for the galvanometer. A thousand cycle oscillator has been included to facilitate adjusting 100% modulation of the galvanometer and margin for the biasing system. Maximum output level of the amplifier is +30 d. b. as measured by using .006 watts as a reference level.

A monitoring circuit is provided and access to this circuit is by means of a jack on the front panel and is also available at a jack on the mixer cabinet. Metering circuits are also included in the main amplifier, so that by means of selective switching, all circuits of the main amplifier may be checked for 100% performance. Output impedance of the main amplifier and the recording galvanometer is necessary. The total over all gain of the main amplifier is 70 d. b. The main amplifier is mounted in a rack type cabinet with a voltage regulator power supply from which it obtains its voltage and current.

#### *Voltage Regulated Power Supply*

The voltage regulated power supply is capable of supplying 250-325 volts D.C. at 200 milliamperes. 6.3 volts A.C. at 10

amperes and 6.3 volts D.C. at 2 amperes. The high voltage output variation in the operating range is + or — 1%. The ripple factor at maximum output is 10 millivolts.

#### *De Luxe Studio Equipment*

The de luxe studio equipment is furnished with a console type mixer with 4 mixers and one master gain control. Two types of plug-in pre-amplifiers are supplied for the console mixer. Type (A) low impedance input for microphone; Type (B), Photo cell input for re-recording. Dialogue equalizers are provided in each mixer channel. These can be inserted or cut out by the use of key switches. Also, high and low pass filters are incorporated in the mixer. These are also controlled with in and out keys. Mixer console is coupled to main amplifier through the use of high and low level cables. Main amplifier cabinet houses the main recording amplifier, compression amplifier, noise reduction amplifier, monitor amplifier, voltage regulated power supply and a distribution panel. All the equipment is finished in an attractive gray wrinkle paint.

Blue Seal also is manufacturing a complete line of re-recorders, Selenium Exposure Lamp and Exciter Lamp Rectifiers, Re-recording equalizers and Double Film Attachments with a looping attachment, making it possible to run separate track and picture and 150 foot continuous loops for dubbing purposes.

## Promotions in Kodak Research Lab

Dr. Cyril J. Staud has been appointed director of Kodak Research Laboratory, according to announcement by Dr. C. E. K. Mees, founder and director of the laboratories since 1912, who will continue to serve as Kodak vice-president in charge of research.

Dr. John A. Leermakers was named assistant director and head of the photographic theory department, while other appointments included: Samuel W. Davidson, formerly administrative assistant to the director, as business manager of the laboratories; Dr. Walter Clark, formerly technical assistant to the director, to head the black-and-white photography department; Dr. W. O. Kenyon, formerly assistant superintendent of organic research department, to head the high polymer department; and Dr. H. C. Yutzky, formerly assistant superintendent of emulsion research, to head the emulsion research department.

## Victor Promotes Executives

Lincoln V. Burrows, general sales manager of Victor Animatograph Corporation, was recently named a vice president of the company. At the same time, it was announced that Eldon Imhoff was promoted to post of domestic sales manager.

## LEONARD SMITH, A.S.C.

Leonard Smith, A.S.C., who passed away suddenly on October 20th from a heart attack, was one of the most popular and esteemed members of the Hollywood motion picture colony. Although in ill health for the past two years as a result of a food poisoning attack while on location, he had shown great improvement and expected to resume work shortly.

As a member of the board of governors of the American Society of Cinematographers for a number of years, and as president for the four years of 1943-1946, he was a great force and made most substantial contributions to the present growth and position of the Society.

His friendly and humanitarian interest in all matters pertaining to his fellow cameramen placed him high in the esteem of the entire membership of the Society; while his sincere interest in all persons connected with the industry gained him countless friends.

Born and educated in Brooklyn, N. Y., and later attending Rutgers University, Len Smith was an athletic enthusiast, and—while still in his 'teens—played professional baseball. Motion pictures intrigued him, and he went to work in the Vitagraph laboratory in 1911. Within a short time, he became a camera assistant, and 11 months later was promoted to post of first cameraman. He photographed many of the early features at Vitagraph, spent two years with the American forces overseas in World War I, and came to Hollywood for Vitagraph. Shortly after he joined Educational, then moved to Metro-Goldwyn-Mayer where he was under contract for the past 20 years.

As Director of Photography at M-G-M, he photographed many important productions, and for the past decade handled a number of Technicolor features, several of which were nominated for annual Academy Awards. He felt that "National Velvet," a finalist in 1945 for Academy honors, was one of his best efforts. Last year, he received Award for Best Cinematography in association with Charles Rosher, A.S.C., and Arthur Arling, A.S.C. for best color photography on "The Yearling." Smith was one of the first Directors of Photography to use Technicolor monopack on actual production, and shot all exteriors for "Lassie Come Home" for initial extensive use of that type of color film on a studio feature.

His widespread popularity among all classes of studio workers was demonstrated by the overflowing numbers that paid tribute to him at the services conducted by Dr. William E. Roberts on October 20th. Among the A.S.C. officers and members who acted as honorary pallbearers were: John Arnold, Charles G. Clarke, Arthur Edson, Harry Stradling, Sol Halprin, Sol Polito, and Charles Salerno. He is survived by his widow, and one brother.

# Akers Professional Conversion for the 16mm. Bolex Camera

By WILLIAM C. THOMPSON

Especially designed for professional cameramen and exacting amateurs who seek the most advanced equipment at minimum cost, the Akers Photo Engineering Company, Hollywood, has recently put on the market a new rack-over conversion of the standard H-16 Bolex camera.

This conversion is a professional engineering job and includes a rack-over, direct-view of field, motor drive, 400 foot magazines, many other practical innovations and improvements, and was engineered by Irving W. Akers, the designer of the Akers Featherweight 35 mm. hand camera.

The first working models have undergone thorough tests, and have proven satisfactory under all possible working conditions. Models are now in production and are available.

Among the salient features of this conversion are:

**QUICK RACK-OVER:** This is comparable to that of the standard 35 mm. professional camera and enables the operator to see the actual lens image on the ground glass, right side up and correct from left to right. Because of the high-powered optical system used, magnification of 16 power is achieved, permitting extremely critical focussing over the entire field of vision included in the aperture. There are no moving parts, but the eyepiece of the scope is adjustable to the eyesight of the operator.

**400 FT. MAGAZINE:** Full shooting capacity has been assured by adapting the camera to use the Akers 400 ft. magazine, thus affording eleven minutes of shooting at sound speed of 24 frames, and 16 minutes at 16 frames per second.

Ordinary 50 and 100 ft. spool stock, however, can still be used in the converted camera by the simple operation of removing the magazine and substituting the blanking plate. Spool stock can also be loaded in the magazine without danger of fogging more than one foot of film that is exposed in the mechanism itself.

This 400 ft. magazine is so designed that the film lies against a metal flange mounted on a ball-bearing spindle that revolves with the film roll as it is used. Static electricity is avoided by this pre-

caution, and the elimination of friction and rubbing on the edges lessens the possibility of the film being thrown out of alignment.

Easy threading is made possible by stainless steel rollers that are used as light traps and so spaced to make performance of this operation accessible. Scratches from lint and dirt, or hairs in the aperture, (inevitable when using cloth-lined magazines) are rendered impossible by using no cloth either in the magazine itself, the covers, or the light traps. This feature also makes cleaning the magazine by compressed air feasible.

**MOTOR:** The motor on this conversion is a 24-volt (AC-DC) model which can be operated on a light-weight 24-volt aircraft storage battery for location work. This type of battery will operate the camera motor long enough to expose 10,000 feet before recharging becomes necessary, and this can be done overnight on a trickle charger, or in a few minutes by the quick-charge method available in most service stations.

Where power is available, the motor will operate on 110 volt A.C. current by means of an inexpensive transformer.

Motor speed is regulated by a centri-

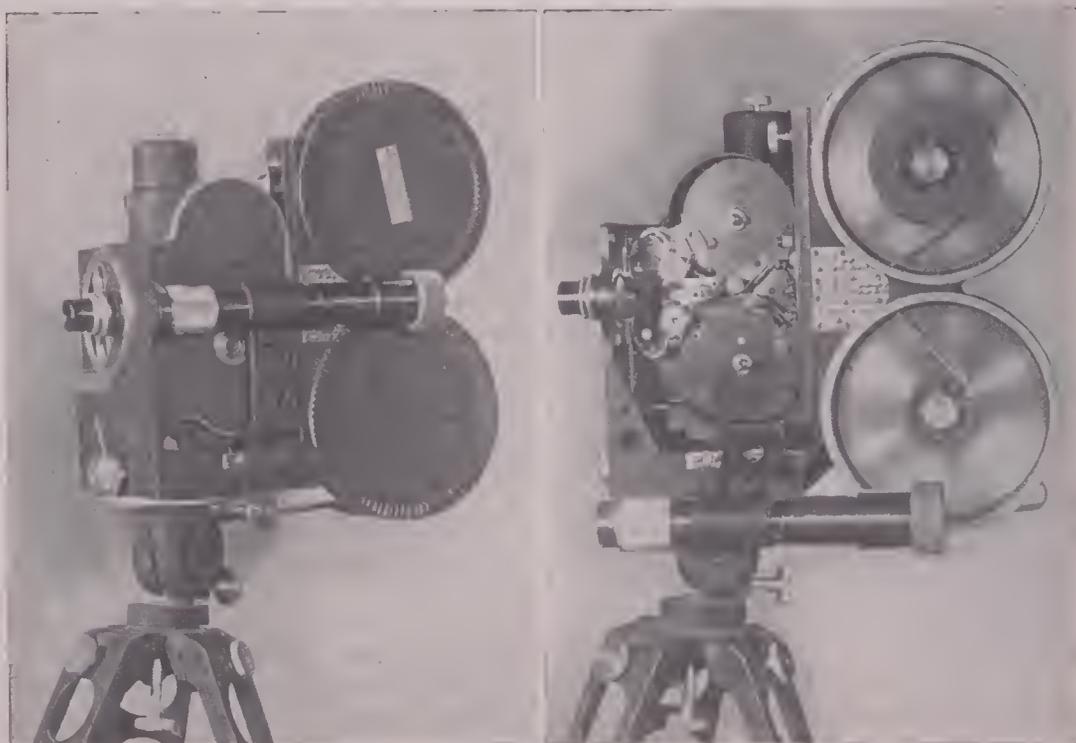
fugal-type electric governor which gives absolute control of revolutions per minute and frames per second speed. Identical with the electric governor used in the Norden Bombsight, it affords speeds ranging from 16 to 32 frames per second, and is controlled by the mechanical governor in the camera itself. For extreme ranges, the electrical governor cuts out with a selective switch, and the speed is then regulated by a rheostat.

Switches for stopping and starting and reversing are built-in features. Reverse switch is far enough away from the starting switch to prevent error in hitting the wrong switch while the camera is in operation. When buckling or mechanical breakdown causes a sudden overload, the electrical circuit is broken by a standard inexpensive fuse that is easily obtainable in any hardware store.

A synchronous sound (110 volt, A.C.) motor can be used instead of the above, if desired.

**SPRING DRIVE:** The original spring drive of the camera can be used when operating with spool stock inside the camera. In the event of a mechanical breakdown, this is an indispensable safe-

(Continued on Page 409)



On left, the Akers conversion of 16 mm Bolex; and (right) open to show movement and magazines.



## About lights . . . some sweet music!

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# Cinema Workshop

(Continued from Page 401)

offer original music recorded on film and copyright-free to the subscriber.

You should, however, have no trouble in recording by means of orchestra or solo instrument music specially written for your film, provided that you have the composer's written permission to use his score. The one disadvantage of this type of scoring is its prohibitive cost.

There are several methods of musical recording, and we shall deal first with the procedure used by a "live" orchestra in recording a specially written score. The composer will have timed and co-ordinated his score to the picture. In the recording of such music, the film is projected from a sound-proof booth through glass and onto a screen in the recording studio. The conductor keeps one eye on the screen and the other on the score, and cues his musicians according to the pace of the picture.

Where music is dubbed off of discs and directly onto the master track, the recorder also takes his cues from the projected film, fading one of them out and the other in as the action changes.

Another popular type of scoring is that in which edited sound-on-film tracks

are used. In this process, the music is first recorded onto film. In the cutting room, the workprint of the finished cut of the visual footage is locked into the synchronizer and the musical themes are cut to closely match the action of the various sequences. These themes are arranged alternately on A and B rolls, so that the mixer can smoothly blend one into the other in dubbing the master track. He takes his cues from punch marks or grease-pencil streaks on the film.

There are available several complete libraries of recorded sound effects of all descriptions. These effects, too, can be re-recorded "radio style"—that is, right off the disc. Or they can be re-recorded separately onto film and lined up to precisely match the action in the cutting room. In the latter case, a special sound effects track, or C track, is cut with all the effects in synchronization.

## Sound Cutting

The editing of sound is a separate science in itself, and one which merits a book all of its own. In a limited space we can only touch on a few of the more important principles involved.

The most important consideration in cutting synchronized direct sound is to keep the sound track "in sync" throughout the length of the picture. At the very beginning of the film, blank leader should

be spliced onto both the track and the picture—and master sync marks should be stamped into these strips of leader with a punch. These punch marks will be the master reference points for synchronization all during the cutting of the film.

At the beginning of each scene, sync marks will appear on both the picture and sound track if you have used the clapboards mentioned earlier. Match up your two strips of film in the synchronizer using these marks, and then make several other sets of marks along the length of the scene with a grease pencil. Use different symbols for each set of markings so that you will not confuse them. You are now free to cut off your *slates* and trim your scenes to proper length, knowing that you will still have sync marks left to refer to.

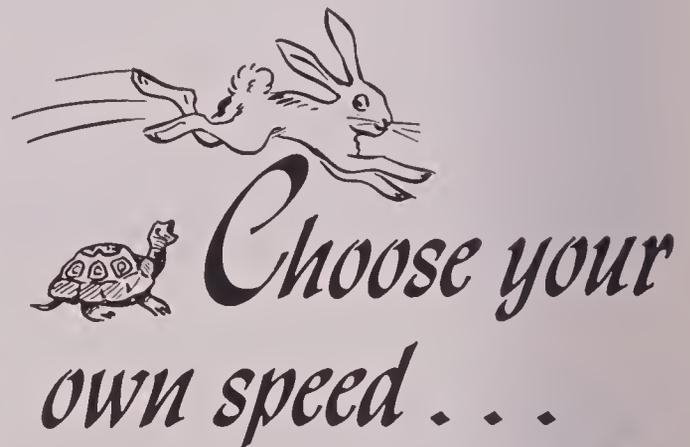
In synchronizing "wild track" narration or sound effects with the picture match the two up by careful examination on the Moviola, and make grease-penciled sync marks where they coincide. Use these marks as a guide in synchronous cutting.

Cuts in sound track must be "blooped"—that is, painted over smoothly with India ink, so that the disturbing *bloop* noise of the cut is not heard on the sound track.

NEXT ISSUE: Part 18—*Tilting*.

FONDA BASIC MODELS											
Speeds and developer times given are normal standards. Variations may be obtained by adjusting variable speed drive or altering developer loop lengths by the Fonda built-in adjustment mechanism.											
FILM TYPE	FILM SIZE	MODEL NO.	APPROXIMATE OPERATING SPEEDS			APPROXIMATE MACHINE SIZES Includes Feed Elev. & Work Tables Both Ends					
			Positive 4 Min. Dev.	Negative 9 Min. Dev.	Reversal & Min. 1st. Dev. & Min. 2nd Dev.	WET END			DRY END*		
						Length	Width	Reqd. Coiling	Length	Width	Height
Negative	16 mm.	F-1012 F-1021		29 fpm 58		6½ ft. 9	3 ft. 3	12 ft. 12	5 ft. 7	3 ft. 3	7 ft. 7
	16/35 mm.	F-3008 F-3018		17 34		6½ 9	3 3	12 12	5 7	3 3	7 7
Positive and Negative	16 mm.	F-1011 F-1014	65 fpm 131	29 58		9 13	3 3	12 12	7 9	3 3	7 7
	16/35 mm.	F-3017 F-3002	39 78	17 34		9 13	3 3	12 12	7 9	3 3	7 7
Reversal	16 mm.	F-1008	44	29	44 fpm	13	3	12	5	3	7
	16/35 mm.	F-3016	26	17	26	13	3	12	5	3	7
Microfilm	16 mm.	F-1020	75 fpm			9½	3	12	7	3	7
	16/35 mm.	F-3015	44			9½	3	12	7	3	7
Ansco Color	16 mm.	F-1009 F-1002			43 fpm 87	16 26	3 3	12 12	5 7	3 3	7 7
	16/35 mm.	F-3013 F-3004			26 52	16 26	3 3	12 12	5 7	3 3	7 7

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## Bolex 16 Conversion

(Continued from Page 406)

guard to bring back the picture.

**THOMPSON ACTION FINDER:** During the many years that the writer has been shooting a camera, he has often lamented the absence of a suitable finder for 16 mm. cameras, and it was this that prompted him to devote much time to designing the finder featured in this Akers conversion.

The main requirement of a desirable finder is that it supply approximately the same sized image as the standard 35 mm. professional model, and yet be light enough to mount on the smaller 16 mm. camera. The optical system of the Thompson finder used in this conversion model is cased in lightweight magnesium in a single casting. The front element requires no shading from direct rays of the sun, and the finder gives a clear, brilliant image (2¼ by 3 inches upright, correct left to right when using the 15 mm. lens) at all distances and under all light conditions, without focussing. Calibrated scale insures perfect adjustment for parallax, and the gib on the camera in which this finder sets will also take the 35 mm. studio professional model. This finder meets the demands of fast-action shooting admirably and has met with enthusiastic approval from all who have used it. For focal length lenses in excess of 15 mm., mattes are provided.

Other features of the conversion model include provision for inside filter-holder behind the lens for gelatine filters, a great aid in making aerial shots or running inserts.

A matte box and sunshade with slots for two glass filters, polaroid screens, diffusion, etc., are also optional equipment.

The mechanism driving the take-up pulleys on the magazine is geared directly to the motor itself and is not connected with the camera proper. Shooting can be either forward or reverse without having to cross the take-up belt on the magazine for reverse running. This greatly reduces the possibility of buckling on double-ex-

posure rewinding, which is a great help in shooting background titles, other double exposures and trick effects. Multiple exposures can be made with perfect registration, and ease in reversing is notable.

The Thompson Action Finder can be mounted on the front plate of the camera close to the original Bolex three-lens turret, and this reduces parallax to a minimum.

## Theatre Practices at SMPE Convention

Engineering progress, new equipment, methods and practices featured the annual fall convention of the Society of Motion Picture Engineers held at the Hotel Pennsylvania, New York, October 20th to 24th.

The large number of papers and demonstrations on the program necessitated total of 12 technical sessions over the five day period. In addition, a large number of manufacturers and suppliers presented their products in the exhibit auditorium.

At the convention banquet, held on evening of October 22nd, Dr. John G. Frayne of Electrical Research Products Division of Western Electric Company, Hollywood, was presented with the Progress medal for "his work in originating and developing a number of outstanding improvements in the art of sound recording and reproduction." John A. Maurer received the Samuel L. Warner Memorial Award for his contributions to the development of sound engineering; while Dr. Albert Rose, of RCA Laboratories, Princeton, received the SMPE Journal Award for the best technical paper of the past year, "A Unified Approach to the Performance of Photographic Film, Television Pickup Tubes, and the Human Eye."

Spring convention of the SMPE will be held in Hollywood in 1948.

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## 30 Years of Technicolor

(Continued from Page 393)

The process of making two-color imbibition prints with silver sound track was brought out by Technicolor in 1928, and the advantages in respect to focus, cupping, scratching, size of reel and cost of manufacture, were immediate. With the studios of Hollywood launching sound productions in early 1929, the barrier erected against change of usual procedure in production was removed in favor of volume color production.

Jack L. Warner, head of the Warner-First National Studios, which company had revolutionized the industry by making the first sound pictures, was the first producer to go for color features on a large scale. His initial commitment, according to Kalmus, was for more than 20 productions in Technicolor, "On With the Show" was the first all-talking Technicolor picture.

"As evidence of the increased color-mindedness throughout the industry," Kalmus recorded, "Technicolor had contracts for the ten months beginning March, 1929, covering photography and delivery of prints of the footage equivalent of approximately 17 feature length productions. This required a doubling of the Hollywood capacity which was ac-

complished in August, 1929. For the year 1930, Technicolor had closed contracts for 36 feature-length productions which would call for some 12,000,000 linear feet of negative to be sensitized, photographed and developed during that year in the Hollywood plant, and a print capacity of approximately 60,000,000."

But Kalmus realized the short comings of the two-color method for lasting acceptance by the industry, and had the research department concentrating on a system which would provide three color prints at reasonable costs. During 1929 and 1930, Technicolor appropriated \$3,000,000 for plants, equipment, and research work. But the depression of 1931 curtailed film production, and the company felt the effects in a large way. The 1,200 employes at the peak dropped within a few months to 230.

However, a year later, the first three-component camera had been completed, and a unit of the plant ready to handle a nominal amount of three-color printing. With virtually all film companies struggling to weather the financial crisis of the time, the outlook was very dark for the introduction of Technicolor's new three color system. Walt Disney was persuaded to experiment with one subject, "Flowers and Trees," which proved a great success. As a result, he signed a contract to produce his cartoons in Technicolor, obtain-

ing, as a concession for pioneering the process on the screens, an exclusive three-year contract for the cartoon field.

Even though the base price for prints was dropped from seven to five-and-one half cents per foot, the major studios were not too interested in adding extra costs to productions at a time of low box office returns. It looked like Technicolor would have to again produce a feature for showcase purposes, when Merian C. Cooper and John Hay Whitney contracted to produce in color for their Pioneer Pictures. While searching for a suitable story, a three reel short, "La Cucaracha," was made in three-component Technicolor by Pioneer, basically to test the system in actual production. About the same period, closing sequences for "The House of Rothschild" and "Kid Millions" were turned out, which further served to generate interest towards color among the studio heads.

"Becky Sharp" was finally produced by Pioneer and released early in 1935. This was made entirely within the studio walls—no exteriors—to become the first feature production made via three-color Technicolor. Walter Wanger's "Trail of the Lonesome Pine," produced shortly after the former, was an excellent demonstration of Technicolor on an exterior feature. With impetus given the new three-color system, many shorts of Warners and Metro-Goldwyn-Mayer were being produced in color; and the plant was making 2,750,000 feet of prints a month during the 1935-36 season.

"Wings of the Morning" was the first Technicolor feature produced in England later in 1935, with Ray Rennahan, A.S.C., as Director of Photography. The negative and prints of this production were entirely serviced by the Hollywood plant; but a British affiliate, Technicolor, Ltd., was organized and a complete laboratory was built at West Drayton in 1936. The latter has not only been handling negative processing of the numerous British-made productions in Technicolor, but has been turning out color prints of American-made pictures for release in the United Kingdom.

When the new three-color Technicolor process was initially offered to producers, the three original special cameras were increased to seven. In the interval, nearly 20 more have been built at approximate cost of \$25,000 each; and currently it is reported that 10 more are under construction.

Ray Rennahan, A.S.C. functioned as Director of Photography on the initial "La Cucaracha," and "Becky Sharp"—and, as a member of the Technicolor staff, has probably shot more color productions to date than any other motion picture photographer, and was honored with Academy Awards for best color photography in 1938 with Ernest Haller, A.S.C., for "Gone With the Wind," and with

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Ernest Palmer, A.S.C., in 1940 for "Blood and Sand."

Since the use of three-color Technicolor by studios, the company has maintained a staff of cinematographers especially trained in the method to collaborate on regular production with Directors of Photography when required. This staff, in addition to Rennahan, included W. Howard Greene, A.S.C., the late Allen Davey, A.S.C., William V. Skall, A.S.C., Wilfrid Cline, A.S.C., Charles Boyle, A.S.C., Winton Hoch, A.S.C., Art Arling, A.S.C., and William Snyder, A.S.C. Rennahan is now under contract at Paramount; Arling at 20th-Fox; and Snyder at Columbia.

But the general rule has been that the Director of Photography, after exploring the intricacies and angles of color motion picture photography on one production, has been eminently successful in handling future color productions without outside aid. Many of the restrictions suggested by Technicolor have been circumvented by actual production experiences of the cinematographer, which has greatly aided color progress during the past 10 years.

In 1937, Walt Disney released his first cartoon feature in Technicolor, "Snow White and the Seven Dwarfs," which further impressed the importance of color as a box office asset on the studio executives. The increasing number of pictures contracted for production and processing by Technicolor required enlarged laboratory facilities for greater output of prints; and a lab addition was opened and operating in 1939.

At that time, Technicolor was engaged in intensive research on monopack negative and processing. For 34 mm., monopack is similar to kodachrome—a multi-layer stock which allows for taking in a regulation camera rather than the three strip negative generally employed for shooting in Technicolor cameras.

Leonard Smith, A. S. C., was the first Director of Photography to use Technicolor monopack on a major studio production—shooting the exteriors for MGM's "Lassie Come Home" in 1942, while the interiors were made on regulation three strip negative. Monopack was improved, and its speed increased, to the point that it was used entirely for both interiors and exteriors on the 20th Century-Fox production of "Thunderhead" in 1944; with Charles G. Clarke, A. S. C., as Director of Photography. For the past several years, the monopack negative has been increasingly used on productions for all or part of negative footage.

For the year 1946, Technicolor hit a high peak of output; delivering total of 165,027,297 feet of positive color prints covering 33 American and five British productions, in addition to the large number of cartoons and short subjects. It is expected that this record figure will be greatly surpassed for 1947, as capacity of the laboratories has been increased.

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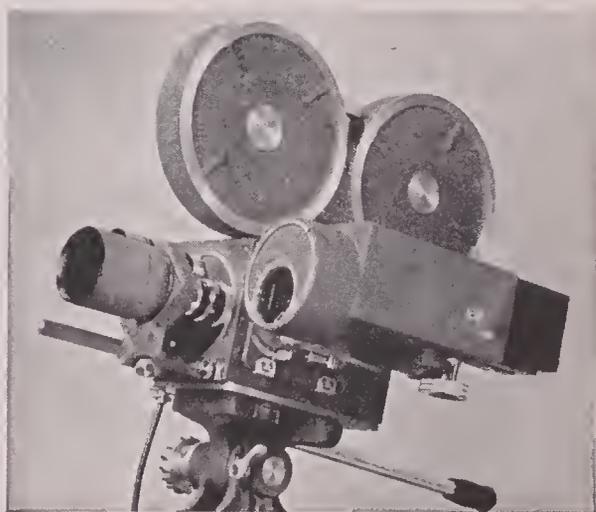
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## Men Behind the Mouse

(Continued from Page 395)

spaces, each of which represents a single picture or frame.

Every action in the script is estimated in seconds and then broken down into the corresponding number of frames. While this is being done, the dialogue is being written, musical score composed, and sound effects set. All of these *aural* elements must be precisely co-ordinated with the action. The musical themes are conceived while the story is being built, and a staff of four musical directors (aided by a corps of copyists and arrangers) work to blend them into a complete score. Not only must correct moods be set, but the musical beats must fit the action and still maintain something like correct musical form. While the musi-

cians tear their hair, the music is revised and revised again to match changes in the action suggested by Disney or the director.

Sound effects, too, must be keyed to the action. The sound effects laboratory, which is like a box-seat in Bedlam, is presided over by noise experts who are all drummers by profession. The sound effects cue sheets are written exactly like the drum parts in musical compositions. A rehearsal of this crew looks like an orchestra of madmen, as they bang away on old tar barrels, moonshine jugs, and sections of tin roof.

Finally all of the visual and aural elements (including music, animation, dialogue and sound effects) are co-ordinated on a master sheet in columns side by side. The result looks like a huge player piano roll. All you have to do is run it through the studio, and out comes a picture—but it will take gallons of sweat and at least six months of painstaking effort.

### The Task of Animation

Using the master script as his guide, the director breaks the story down into sequences and assigns them to various animators. The characters have by now been definitely set. All of their proportions and peculiarities are standardized on *model sheets* which are distributed to the artists. Naturally no one man could draw the vast number of pictures required for a single short subject, but the figures of Disney characters are always identical no matter who draws them, because each artist works with model sheets constantly before him.

The actual task of making cartoon characters move falls to a crew of artists known as *animators*. They work at desks with sloping tops, in the center of which are little ground-glass windows with lights behind them. The animator piles his paper drawings one over the other on this lighted surface so that he can follow all phases of that particular bit of action at a glance. For example, the next picture shows the leg lifted and

moving forward, and the top picture shows the finish of the step with the leg out in front. These are the "key drawings" showing the *extremes* of the action.

Next, an artist known as an "in-betweenner" takes these *key drawings* and draws the number of pencil sketches needed to fill in the action between the *extremes*. Later, a "clean-up man" will go over this series of drawings, smoothing out the rough curves, erasing any superfluous sketch lines, and making sure that all of the tiny details have been included.

When an animator completes a sequence of these pencil drawings (which are known as *roughs*), he sends them to the Test Camera Department where they are photographed in succession on black and white film. The film is developed, and a print (spliced as a *loop*), is sent back to the animator along with the original rough drawings. The animator runs the loop over and over again in his *Moviola* to check the smoothness of the action.

He makes whatever corrections are necessary, and when the bit of action is approved, he sends the test loop to the Cutting Department where it is cut in continuity and synchronized with the sound track of the production. The director reviews such tests from his film once a week in a small projection room (or "sweat-box") which is equipped with sound and blackboards for making notes. Each approved sequence is cut into a master test reel—until, finally, the entire picture is assembled in test form. This footage is then previewed by a large audience of studio personnel in the main theatre, so that audience reaction can be noted and pointed up where necessary.

### Inking and Painting

Having finally received the official O.K., the *roughs* are sent to the Inking Department where they are carefully traced in ink onto sheets of transparent celluloid.

Following the tracing of the outlines, the various solid areas of the characters are painted in full color. The paint is applied on the backs of the *cells* so that the inked lines will stand out. Highly skilled girl artists keep the colors uniform by referring constantly to color samples which they keep before them.

Disney has found that he cannot buy commercial paints fine or brilliant enough to suit his requirements—so he manufactures more than 2,000 separate color pigments in his own laboratories. The paints are made to stick to the celluloid by means of a secret chemical ingredient—but they are water-soluble, a fact which permits the cells to be washed and used over and over again.

Meanwhile, appropriate backgrounds have been laid out and carefully painted

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to harmonize with the colors used on the characters. These backgrounds are sometimes highly intricate works of art which could stand on their own merits in any museum.

### Getting It Onto Film

When the inking and painting of the cells has been completed, they are sent (together with their matching backgrounds) to the Production Camera Department. Here, each cell is individually photographed by a three-color camera.

If the background is not required to move or change throughout the scene, it is securely locked into place and the transparent cells are placed over it to be shot in order, one by one. If the background is to move (as for a scene in which one of the characters walks down the street), it is painted in the form of a long strip and fastened onto a bar geared to a lever. For each exposure the bar is moved a distance varying from 1/40 of an inch to 2 inches, depending upon the rate of movement of the character.

The camera can be made to "zoom in" or "pull back" by moving it in or out a fraction of an inch per exposure. A set of gears linked to the focussing ring of the lens assures sharpness as the distance from camera to subject changes. All of the gears on the camera-stand are precisely calibrated so that camera movement is always smooth and steady.

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When a complete scene has been shot, it is sent to the Technicolor plant for developing, after which it is returned to the Walt Disney Cutting Department, where it is spliced into the master color reel. In the final synchronizing process it is carefully matched up with the sound track, printed, packed into cans, and sent on its way to scatter laughter to the four corners of the earth.

That's all there is to the making of an animated color cartoon. It should prove an amusing weekend project for the home movie enthusiast.

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## New Cinematographer Handbook Ready

The sixth edition of the American Cinematographer Hand Book and Reference Guide, indispensable for both professional and amateur motion picture photogra-

phers and cinema workers, has just been issued by Jackson Rose, A. S. C., and ready for distribution.

New edition is crammed full of in-

formative tables, charts, lens angles, formulas, etc.; for 35 mm., 16 mm., 8 mm. and min-cam film. All of the 300-odd pages, including color charts, have been brought up to date to cover latest models of cameras, projectors, lenses, and both monotone and color films of all manufacturers.

Original compilation of the material in the handbook was assembled by Rose, a veteran of nearly 40 years as a motion picture photographer on numerous Hollywood productions, more than 12 years ago. He found the data invaluable as an aid in his work in the studios, and soon had other cinematographers requesting copies of his material for guidance. Thus, he published the first issue of his compilations in 1935; and changes in film emulsions, cameras, projectors and equipment, and other factors, necessitated frequent revisions and issuance of further editions.

During and since the war, the Handbook has been widely used by various photographic services of the United States Army, Navy, Marines, etc., as the only accepted reference work of its kind. Virtually all of the Directors of Photography and members of the A. S. C., together with numerous cinema technical workers in the studios, continually use the Handbook in photographic and laboratory activities.

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## Historical Development Of Sound Film

(Continued from Page 398)

probably stimulated by the work of Western Electric and others, the General Electric group combined their Pallophotophone with moving pictures and held a demonstration at the State Theater, Schenectady, in February, 1927, before a group of newspaper men and engineers. Their system of combined pictures and sound was called the "Kinegraphophone." The demonstration included speech and several musical numbers produced by amateur talent. Later this demonstration was given at the Rivoli Theater in New York.

*Mar., 1927:* It was reported that five of the big producers were negotiating with General Electric to compete with Movietone and Vitaphone.

*1926-'27:* The research laboratory of the Westinghouse Electric and Manufacturing Company, not to be outdone, carried on the development of a system of sound recording, using for its light modulator the Kerr cell based on the principle of the rotation of a beam of polarized light by electrostatic means.

Toward the end of 1927, Paramount released its picture "Wings," with a sound score prepared by the General Electric group. This score was used in several different ways. At the Criterion Theater, New York, the airplane sounds were taken from disk recordings using a multiple turntable device and synchronized by an operator back stage. The effects were reproduced in other theaters through the use of condenser-discharge devices as well as from a score recorded on film.

*1928:* The sound picture work of General Electric and Westinghouse was combined into one system and handled by a new subsidiary of the Radio Corporation of America called RCA Photophone, Inc. The variable-density Kerr cell method of recording was dropped, and the variable-area system further perfected under the name of Photophone. RCA Photophone announced to the trade that it had perfected reproducing apparatus and would equip theaters.

*Oct., 1928:* Shortly thereafter, RCA acquired the B. F. Keith and Orpheum chain of theaters and the FBO Producing Company. A subsidiary was formed called Radio-Keith-Orpheum. Through this producing organization, sound pictures made by Photophone's methods were introduced to the public. The first efforts along these lines were limited to the presentation of musical accompaniment; the first picture was "The Perfect Crime," which included some dialogue sequences. Important stage plays were acquired by the RKO producing organization, including the very successful "Rio Rita," which they produced as a sound picture.

*Feb. 9, 1929:* RKO Productions, Inc., announced that they had selected "Radio Pictures" as the trade name for RKO Productions (which was the motion picture producing and distributing unit of the Radio-Keith-Orpheum Corporation, sponsored by the General Electric Company, the Westinghouse Electric and Manufacturing Company, and National Broadcasting Company).

An affiliation was subsequently effected with the Pathe Exchange, Inc., which adopted the RCA Photophone System of recording in the production of sound motion pictures. The first Pathe production shown with a musical synchronization was "Captain Swagger" with Rod La Rocque; and this was followed by several others in rapid succession. The Pathe organization also released a sound newsreel recorded by the Photophone process.

*Jan., 1929:* RCA closed a deal for the acquisition of the Victor Talking Machine Company.

*Mar., 1929:* RCA, Tobis, and Klangfilm announced a working agreement.

*Dec. 31, 1929:* RCA Photophone had equipped for sound about 1200 theaters in the United States and about 600 abroad.

*Dec., 1929:* It was announced that RCA Photophone would shortly center all of its sound picture development work at Camden, N. J., combining the General Electric and Westinghouse groups who had previously operated independently.

### Miscellaneous Sound Systems

*May 22, 1926:* Thomas A. Edison declared no field exists for talking pictures.

*Nov., 1926:* A device called the "Remaphone" was brought out. It consisted of a Victor "Electrola" with two turntables connected by a shaft to the two projection machines in the booth.

*Feb., 1927:* Synchrophone Corporation offered a new synchronization device for use in small theaters and provided music from disks.

*Spring, 1927:* Vocafilm and Orchestraphone were made available for synchronizing pictures. The Orchestraphone was designed primarily for small theaters and initially tried in Chicago.

*July, 1927:* Vocafilm gave a showing using its sound picture system at the Longacre Theater, New York.

*Dec., 1927:* Orchestraphone, marketed by the National Theater Supply Company, was shown at the Tivoli Theater, New York.

Bristolphone was demonstrated before the Franklin Institute.

*Apr., 1928:* Motion pictures were transmitted over telephone between Chicago and New York.

*Aug., 1928:* M. A. Schlesinger bought control of the de Forest Phonofilm Company. He had previously held an option

to purchase the company; the option had expired in 1927. General Talking Pictures was formed as the new operating company.

*Nov., 1928:* Acoustic Products (Sonora) acquired manufacturing, distributing, and licensing rights to Bristolphone.

*Dec., 1928:* Cinetone, a sound device for home use, was offered by DeVry.

*Jan., 1929:* Pacent started installations approved by Warners.

*Sept., 1929:* Powers Cinephone was placed on the market.

*Dec., 1929:* At the end of this year, there were 234 different types of theater sound equipments in use; most of these, produced by the independents, were for sound-on-disk. The total number of theaters equipped for sound of all makes in the United States was 8741. Of these installations, ERPI and RCA had provided 4393.

As has been indicated in the introduction, these notes have treated certain developments very fully and have made only the briefest mention of some others. This is not to be construed as a judgment of relative importance *alone*; rather, it also has been decided on the basis of what has previously been written on the subject, and the author's more intimate knowledge of certain details. For example, the material on the Case work has, for the most part, never before been made public; and even this could not be reviewed in great detail in an article of this kind. It is hoped, however, that enough has been told to give the reader a concise picture of what took place during this rather brief development period.

It has seemed appropriate to end this history in the early thirties, since at this time sound-on-film had completed the initial stages of its development, and had justified its existence as a commercial achievement of the first order.

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## Art Direction

(Continued from Page 397)

to be big and rich, and yet not look like the ballroom at the Waldorf," he added. "We finally made the drawing room two stories in height, with spacious balconies at one side opening upon a broad staircase which sweeps impressively down into the drawing room, where the guests are assembled and the ceremony takes place," Sternad said. "All camera angles, backgrounds and wall surface tones which would provide separation between players' faces and costumes and the walls themselves were figured out in advance to the full satisfaction of everyone concerned. The time we spent in huddles saved costly production time later on the set."

In preparing for shooting of "The Return of October," a whimsical comedy drama which has a racetrack theme as its background, but not as its story line, Sternad found a new problem.

"We had to show action taking place at Churchill Downs during the running of the Kentucky Derby," he explained. "That was a major problem in this Technicolor story. Even though we used long shots of the Downs, and then other footage taken at Del Mar Track, where we shot with our own crews, horses, train-

ers and jockeys, it was still a headache to plan."

Finally, Sternad bridged the gap between the long shots at the two racetracks, and his closer shots of dramatic scenes in the grandstands and around the barns—by the use of color.

"We used color in the backgrounds and in the costumes of the players to blend the sequences in natural transition to the eye," he said. "There was no loss of reality although our closer shots were taken on sets built at Columbia Ranch and tinted to match the grandstands at the tracks.

"Furthermore, at the ranch I was able to swing the grandstands around to face into the sun. This afforded much better lighting for color photography. Real grandstands," according to Sternad, "usually face away from the sun which makes them difficult to use for color photography. Also, by facing the set into the sun, cameraman Bill Snyder, A. S. C., had light for a maximum day of shooting; an important economy factor."

A different situation was faced by Walter Holscher when he was assigned as art director on the comedy, "The Mating of Millie." He recalled that fellow art directors had told him about Joe Walker, A. S. C., having an aversion to shooting wood-grain paper as a wall surface.

"I was very unhappy," Holscher said, "when I found that I was going to have

to use a set which had wood-grain paper on its walls for some test scenes which Walker was shooting with Evelyn Keyes and Glenn Ford, who star in the film."

"When I came on the stage during the shooting," he said, "I asked Joe how he liked the wall surfaces. To my surprise, he told me that they were very acceptable. When I explained about his reputation among Columbia art directors as a cameraman who did not like to shoot wood grain paper, he merely smiled."

"That was a long time ago," he said. "There was a set on which the paper was varnished and given a high gloss that I didn't like. This wall surface is fine," he assured me.

"That bit of information from Walker enabled me to go ahead and use a nice wood-grain paper on many huge department store and showroom interiors in the story. The sets were built more rapidly, they looked good and photographed well, and everyone was happy."

Holscher holds to the belief that no location site should be approved for shooting without the Director of Photography being there. His contention was borne out in the selection of a location to be used as a Foundling Home in the same picture, "Millie." The McKinley Home for Boys, near Hollywood, had been okayed for use at a time when Walker himself was unable to personally check the site. Later, with Holscher, he got a look at the location and turned it down.

"I heartily agreed with Joe on his decision," Holscher declared. "Three days were scheduled for the shooting of this sequence at the Foundling Home, and at this first site there was sunlight on the face of the set only half the day. Limited to half-day shooting, that sequence would have stretched into a week—at extra labor and expense."

Walker and Holscher had a huddle with the producer, Casey Robinson and Director Henry Levin, and a new location at the Banning Home in Wilmington was approved for the sequence.

"Here we found a setting much more readily adaptable for the picture," Holscher said. "And we were able to use the morning light on the front of the building, and then shoot all afternoon at the rear of the structure. Another example of efficiency and economy gained through cooperation."

While Orson Welles was working as producer-director on "The Lady from Shanghai," he asked for a huge kitchen which would definitely establish itself as part of a great, palatial mansion.

"I designed a kitchen that was big enough for the White House, and automatically started to tone down the gleaming walls with a bit of off-white paint," explained Sturges Carne, the art director on the picture.

Buddy Lawton, A. S. C., the cameraman on the Welles picture, took a look at the

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set and asked me why I was using the off-white paint.

"When the scene calls for gleaming white walls, like this," he said, "I like them perfectly white. Let them shine all they want to. They're just right for me."

"Since I'd only started finishing the wall surfaces," Carne explained, "it was easy to give them the gleaming white that Lawton liked. On the screen the kitchen looks beautiful. And it gleams. Yet, some cameramen would much prefer a soft white surface before the lenses of their cameras when white is called for. Each cameraman is different. I always show them wall materials and paint surfaces, as well as fabrics, before going ahead with work on important sets."

Carne has established a personal policy of having frequent huddles with both cameraman and director, as well as with head gaffer and others intimately concerned with the work, to assure that there will be no waste of materials or loss of time.

The way Carne looks at his profession, the art director has to be a specialist in taking the imaginative idea of the writer and the orally spoken wishes of the director and cameraman and produce for them a physical setting which can be photographed. Something which will give them all a satisfactory answer to the mental

picture each of them has in his own mind.

An outstanding example of practical cooperation between the art director and the cameraman came during preparation for the melodrama, "The Sign of the Ram." This psychological film had to create a very powerful dramatic mood. It demanded the fullest sensitiveness of each department in its working with others.

Sturges, Carne, the art director, spent hours in huddles with Burnett Guffey, A. S. C., Director of Photography, and with John Sturges, his own brother, who was director on the Irving Cummings production.

"The whole photographic theme of this picture," Carne said, "was clearly established before we constructed the first set. We did it from models. There was a real meeting of minds," the art director added, "with everyone bowing in favor of the cameraman, Guffey, to make sure he would have plenty of interesting angles, great beams, intriguing windows and doors, and space for long shots and intimate, close corners to keep this set interesting for a full nine days of shooting."

"I am quite sure," Carne declared, "that the dramatic impact of these sequences in the production will illustrate the genuine all-around benefit of both art director and cameraman thinking first of the other man's problems, before definitely

putting his plans into action on any given production."

As a final example of striving to aid the cameraman, Carne recalls a key scene in the climax of the same picture. Guffey was shooting a scene which included the sea, the cliffs, the sky and his players in the foreground.

"Then we found that there was no horizon line. The set just seemed to hang in mid-air in front of the beautiful sky backings we had specially painted for the picture," Carne said. "Guffey needed a moving, reflecting surface as a marine horizon somewhere between the sky backing and the cliff on the set."

After some hurried conferences, Carne finally came up with a curved cutout, and rigged up a moving, reflecting surface which looked very convincing during the short time it was on the screen.

"That just goes to show you," concludes Sturges Carne with a smile, "that we art directors sometimes actually move heaven and earth to give the cameraman that extra bit of realism he may need to solve a particular photographic problem."\*

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# 25 YEARS AGO

## With A. S. C. and Members

• Robert S. Newhard, A. S. C., in an extensive article, detailed cinematographic adventures in shooting snow scenes for the Nell Shipman studios near Spokane, Washington. In the high mountains, equipment was carried via dog teams, and the cameramen trudged along on snow shoes.

• John Dored reported from Riga, Russia, that the Baltic states were suffering from an acute economic crisis; rates of money exchange were extremely low. Poland, he cited, had picture earnings of 6,000,000 marks a year—about \$2,000 in American money at the then current rate of exchange.

• John M. Nickolaus was in charge of the new Standard Film Laboratories.

• A most prophetic illustration in *THE AMERICAN CINEMATOGRAPHER* of 25 years ago was a picture captioned: "C. Francis Jenkins with his apparatus by means of which he claims to be able to transmit movies via radio. The movies may be broadcasted from a central station, just as are concerts, etc., and received in the homes of those with receiving sets. Mr. Jenkins has been experimenting for 20 years on various stages of motion picture projection, and only recently conceived the idea of movies by radio."

• Sol Polito, A. S. C., and Norbert Brodine, A. S. C., were two of the latest cinematographers to purchase Mitchell cameras.

• John Arnold, A. S. C., was busily engaged in photographing Viola Dana in "Page Tim O'Brien" at Metro, with Harry Beaumont as director.

• Charles Stumar, A. S. C., has been signed to handle cinematography on "Ivanhoe" for Universal, and goes to England to shoot the picture.

• Jackson J. Rose, A. S. C., joined the John Stahl unit at Mayer studios to photograph "The Dangerous Age."

• Ed B. DuPar, A. S. C., was at Warners photographing "From Rags to Riches," with Wesley Barry starred.

• Frank B. Good, A. S. C., joined the staff of Jackie Coogan Productions.

• George A. Mitchell, perfecter of the Mitchell camera, predicted increasing production of motion pictures for non-theatrical and industrial fields; but such films would not affect regular theatrical production.

• Georges Benoit, A. S. C., was functioning as Director of Photography on "Omar the Tentmaker."

• Charles Van Enger, A. S. C., had just returned from England, where he handled photography on "The Christian" and re-

ported that the curiosity of Londoners made it virtually impossible to secure scenes called for in the script; but the authorities were decidedly cooperative at every point.

• Rudolph Berquist, A. S. C., was engaged to handle photography on Metro's "Quincy Adams Sawyer."

When the horizon line is included in a scene, be sure and hold the camera straight, so that the line will not be slanted in the picture.

## Salon of Photography At Des Moines

YMCA Movie and Camera Club of Des Moines, Ia., will stage its thirteenth annual International Salon of Photography, January 1 to 21, 1948. Prints may be entered up to December 10. Entry blanks may be secured by writing the club direct.

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CINE KODAK SPECIAL Black Model F1.9, 1" Eastman Lens, in perfect, like new condition, Auricon Sync Motor, Camart Tripod, Carrying Case—absolutely guaranteed..... \$875.00  
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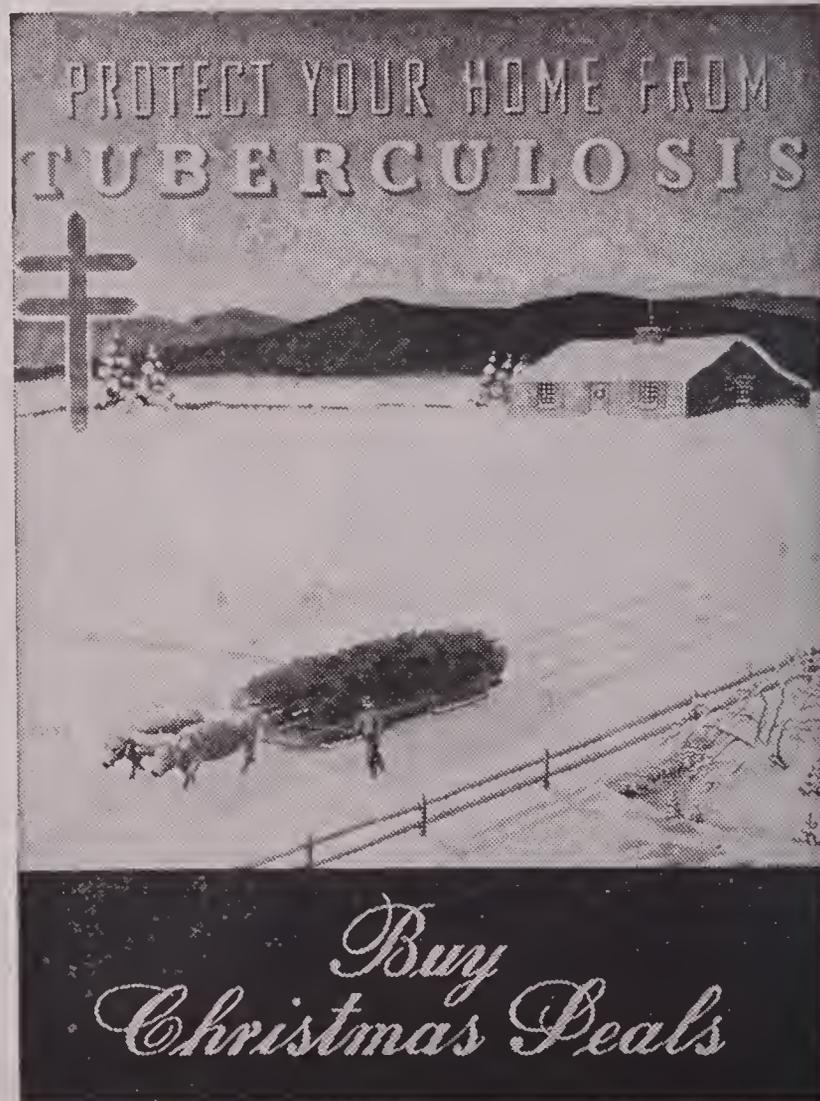
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## Background Projector

(Continued from Page 391)

with the projector: 5-inch, 6-inch and 7-inch. Each lens is installed in a specially-designed Mitchell lens mount. The lens mount fits on the front of the projector head and is held securely in place by a lens retainer. Lens mounts may be removed or installed merely by lifting the lens retaining knob. Interchanging lenses does not alter the rest of the optical system. Lenses are all f:2.0 Super Cinephor, manufactured by Bausch and Lomb.

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Bell & Howell Company announces availability of newly-designed all-metal film storage cases. Twelve 8 mm. 200 foot reel cans may be stored in one model, while a dozen 400 foot cans of 16 mm. are accommodated in the other. Upper portion of each case is hinged for easy removable of individual cans, while sectional dividers on inside back and bottom keep reel cans separated.

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Leica desk viewer for two-by-two inch slides and 35 mm. film strips, is again available through dealers, according to announcement by E. Leitz, Inc.

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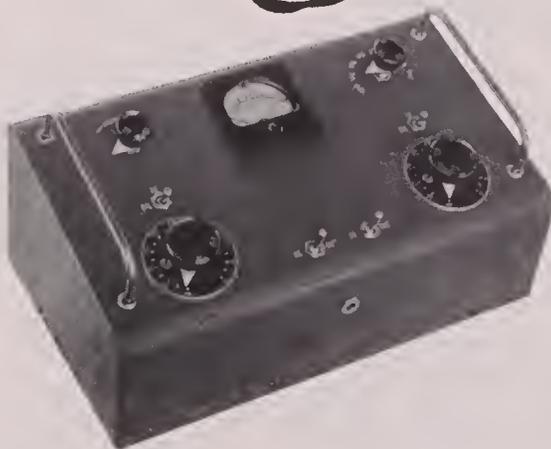
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# Current Assignments of A.S.C. Members

MEMBERS of the American Society of Cinematographers were engaged as Directors of Photography in the Hollywood Studios during October as follows:

## Allied Artists

- Stanley Cortez, "Smart Woman," with Constance Bennett, Brian Aherne, Barry Sullivan, Michael O'Shea.

## Columbia

- Fred Jackman, jr., "Coroner Creek," (Cinecolor), with Randolph Scott, Marguerite Chapman, George Macready, Sally Eilers, Edgar Buchanan.
- Vincent Farrar, "Blondie's Night Out," with Penny Singleton, Arthur Lake.
- William Snyder, "The Return of October," (Technicolor) with Glenn Ford, Terry Moore, James Gleason.
- Phil Tannura, "The Return of the Whistler," with Michael Duane, Lenore Aubert.
- Les White, "The Fuller Brush Man," (Edward Small Prod.) with Red Skelton, Janet Blair, Don McGuire, Hillary Brooke, Ross Ford.

## Independent

- Karl Struss, "Untamed," (Adventure Pictures) with Robert Lowery, Martha Sherrill.
- Phil Tannura, "The Last Nazi," (Carl Krueger Prod.) with Marta Mitrovich,

Lee Bonnell, Raphael Bennett, Al Zeidman, David Bair.

## Metro-Goldwyn-Mayer

- Hal Rosson, "Homecoming," with Clark Gable, Lana Turner, John Hodiak, Anne Baxter, Cameron Mitchell.
- Charles Schoenbaum, "Hills of Home," (Technicolor) with Edmund Gwenn, Janet Leigh, Tom Drake, Donald Crisp, Reginald Owen, Rhys Williams, Lassie.
- Joe Ruttenberg, "B. F.'s Daughter," with Barbara Stanwyck, Van Heflin, Richard Hart, Charles Coburn, Keenan Wynn, Spring Byington, Margaret Lindsay.
- George Folsey, "State of the Union," (Liberty Prods.) with Spencer Tracy, Van Johnson, Angela Lansbury, Adolphe Menjou.
- Robert Surtees, "The Big City," with Margaret O'Brien, George Murphy, Robert Preston, Danny Thomas, Karin Booth, Betty Garrett, Lotte Lehman.

## Paramount

- John Seitz, "The Long Gray Line," with Alan Ladd, Donna Reed, Audie Murphy, Dick Hogan, Russell Wade.
- Lionel Lindon, "Sainted Sisters," with Veronica Lake, Joan Caulfield, Barry Fitzgerald, George Reeves, William Demarest, Beulah Bondi.

## RKO

- Nick Musuraca, "I Remember Mama," with Irene Dunne, Barbara Bel Geddes, Oscar Homolka, Philip Dorn, Sir Cedric Hardwicke, Rudy Vallee, Edgar Bergen.
- Harry Wild, "Station West," with Dick Powell, Jane Greer, Agnes Moorehead, Burl Ives, Gordon Oliver, Guinn Williams.
- Lucien Ballard, "Berlin Express," with Merle Oberon, Robert Ryan, Charles Korvin, Paul Lukas, Robert Coote, Peter Von Zerneck.
- George Barnes, "Good Sam," (Rainbow Prods.) with Gary Cooper, Ann Sheridan, Edmund Lowe, Clinton Sundberg, Joan Lorring.
- Maury Gertsman, "Rachel," with Loretta Young, William Holden, Robert Mitchum.
- Joe Valentine, "Joan," (Sierra Pictures) (Technicolor) with Ingrid Bergman, Jose Ferrer, John Emery, George Coulouris, Richard Ney, Robert Barrat,

Selena Royle, Gene Lockhart, Roman Bohnen.

- Joseph Walker, "The Velvet Touch," (Independent Artists) with Rosalind Russell, Leo Genn, Claire Trevor, Sydney Greenstreet, Leon Ames, Frank McHugh.

- Roy Hunt, "The Arizona Ranger," with Tim Holt, Jack Holt, Steve Brodie, Nan Leslie.

## Selznick

- Paul Eagler, "Portrait of Jennie," with Jennifer Jones, Joseph Cotten, Ethel Barrymore, Cecil Kellaway, David Wayne, Albert Sharp.
- James Wong Howe, "Mr. Blandings Builds His Dream House," with Cary Grant, Myrna Loy, Melvyn Douglas.

## Twentieth Century-Fox

- Leo Tover, "The Snake Pit," with Olivia de Havilland, Leo Genn, Mark Stevens, Celeste Holm, Minna Gombell.
- Harry Jackson, "Ballad of Furnace Creek," with Victor Mature, Coleen Gray, Reginald Gardiner.
- Victor Milner, "The Flaming Age," with Jeanne Crain, Dan Dailey.
- Joseph MacDonald, "Call Northside 777," with James Stewart, Richard Conte, Helen Walker, Lee J. Cobb.
- Joe LaSelle, "Deep Water," with Dana Andrews, Jean Peters, Cesar Romero, Anne Revere, Dean Stockwell, Mae Marsh.

## Universal-International

- Frank Planer, "Letters From an Unknown Woman," (Rampart Prod.) with Joan Fontaine, Louis Jourdan, Mady Christians, Art Smith, Marcel Journet.
- Russell Metty, "All My Sons," with Edward G. Robinson, Burt Lancaster, Mady Christians, Howard Duff, Frank Conroy.
- Milton Krasner, "Up In Central Park," with Deanna Durbin, Dick Haymes, Vincent Price, Albert Sharpe, Thurston Hall.

## Warners

- Carl Guthrie, "April Showers," with Jack Carson, Ann Sothorn, Robert Alda, S. Z. Sakall.
- Karl Freund, "Christopher Blake," with Alexis Smith, Robert Douglas, Ted Donaldson, John Hoyt.
- Robert Burks, "To the Victor," with Dennis Morgan, Viveca Lindfors, Tom D'Andrea, Victor Francen, Richard Walsh.
- Ted McCord, "Johnny Belinda," with Jane Wyman, Lew Ayres, Charles Bickford, Agnes Moorehead, Mabel Paige, Jan Sterling.
- Ernest Haller, "Winter Meeting," with Bette Davis, James Davis, Janis Paige, Florence Bates.
- Sol Polito, "Adventures of Don Juan," with Errol Flynn, Viveca Lindfors, Robert Douglas, Romney Brent, Alan Hale.



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**STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933**

Of THE AMERICAN CINEMATOGRAPHER published Monthly at Los Angeles, California for October 1, 1947.

State of California, }  
County of Los Angeles } ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Walter R. Greene, who, having been duly sworn according to law, deposes and says that he is the Editor of the AMERICAN CINEMATOGRAPHER and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and address of the publisher, editor, managing editor, and business managers are: Publisher, A.S.C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif.; Editor, Walter R. Greene, 1782 N. Orange Dr., Hollywood 28, Calif.; Business Managers, Marguerite R. Duerr, 1782 N. Orange Dr., Hollywood 28, Calif.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) A.S.C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif., wholly owned by the American Society of Cinematographers, Inc., a non-profit corporation whose address is 1782 N. Orange Dr., Hollywood 28, Calif. Officers of the American Society of Cinematographers, Inc. are: President, Leon Shamroy, 1782 N. Orange Dr., Hollywood, Calif.; 1st Vice President, Charles G. Clarke, 1782 N. Orange Dr., Hollywood, Calif.; 2nd Vice President, Wm. V. Skall, 1782 N. Orange Dr., Hollywood, Calif.; 3rd Vice President, Lee Garmes, 1782 N. Orange Dr., Hollywood, Calif.; Executive Vice President and Treasurer, Fred W. Jackman, 1782 N. Orange Dr., Hollywood, Calif.; Secretary, Ray Rennahan, 1782 N. Orange Dr., Hollywood, Calif.; Sergeant-at-Arms, John W. Boyle, 1782 N. Orange Dr., Hollywood, Calif.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is—(This information is required from publishers of daily, weekly, semi-weekly and triweekly publications only.)

WALTER R. GREENE  
Editor

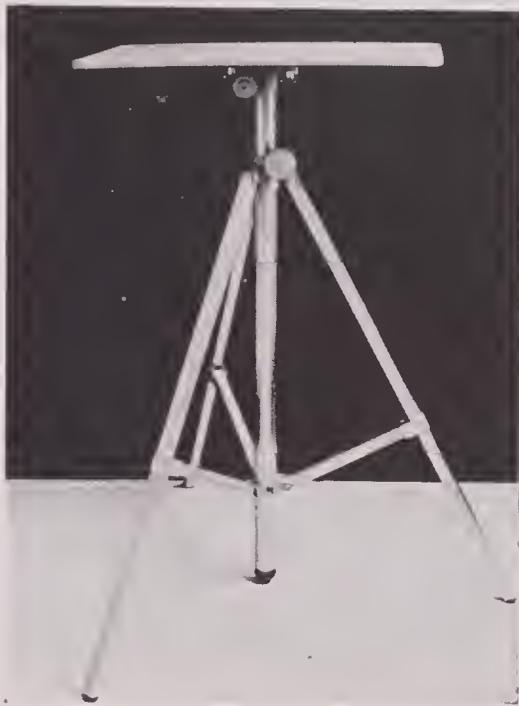
Sworn to and subscribed before me this 1st day of October, 1947.

(Seal) Franklin H. Mills  
Notary Public

(My Commission expires July 3, 1949.)

**NEW BELL & HOWELL  
ADJUSTO-STAND**

Immediate availability of a new-type projector stand known as the "Adjusto-Stand," is announced by the Bell & Howell Company, Chicago manufacturers of precision motion picture equipment.



Made of aluminum alloy, the Adjusto-Stand is guaranteed to support 300 pounds, even though it weighs only 12 pounds itself. The stand is collapsible into one compact unit, and is adjustable in height from 33 inches to 57 inches, a range which assures projection above the heads of the audience. The spatter-finish top is 12 inches by 22 inches, large enough to hold all makes of motion picture projectors.

Three rubber-tipped supporting legs are joined to the shock-absorbing rubber-tipped center post by means of riveted, hinged units which grip in two places. Special locks prevent the height adjustment from slipping and a tilt adjustment operated with three thumb screws takes care of uneven floor level to give perfect alignment of the picture on the screen. Tilt adjustment of the table may be accomplished in complete safety while the projector is upon it, for although the tilt range is ample in all directions, the table cannot tilt enough to allow the machine to slip off.

**Minneapolis Octo Cine**

Minneapolis Octo Cine Club launched its fall season with the September 30th meeting at the Main YMCA, with members displaying unusual gadgets for those attending. Film program of the evening comprised a group of member pictures taken during the summer vacation period.

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 New 16mm. Auricon Single System Sound, complete outfit including power pack, battery, amplifier, tripod, etc.....\$1725.00  
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**CINE LENSES:** 1" Eymax F:4.5 wide angle "C" mount, fixed focus.....\$37.50  
 1" Pan Tachar F:2 in barrel.....\$45.00  
 3" Pan Tachar F:2.3 in barrel.....\$60.00  
 3" Apo Kino F:2.....\$75.00  
 3" Baltar F:2.3 in barrel.....\$75.00  
 5" Pan Tachar F:2.3 in barrel.....\$100.00  
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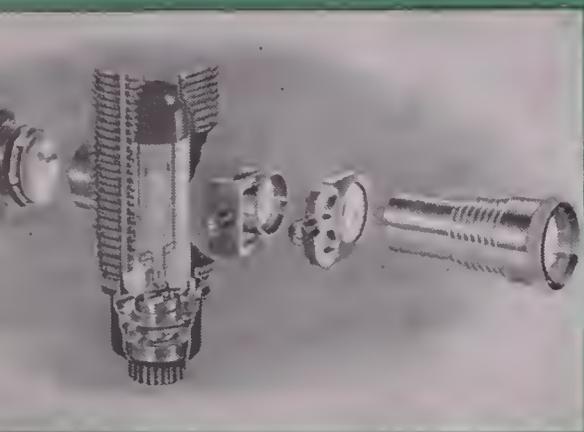
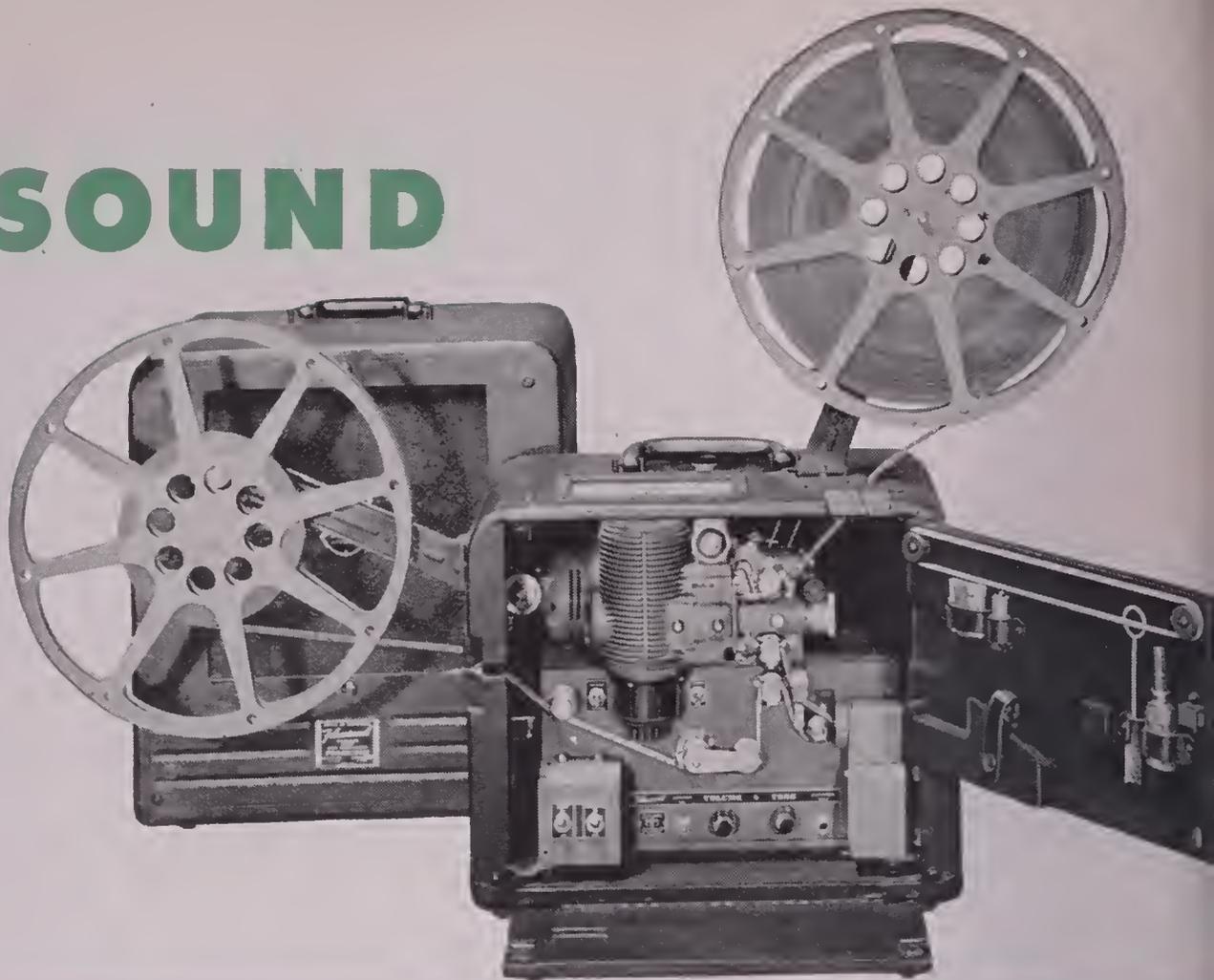
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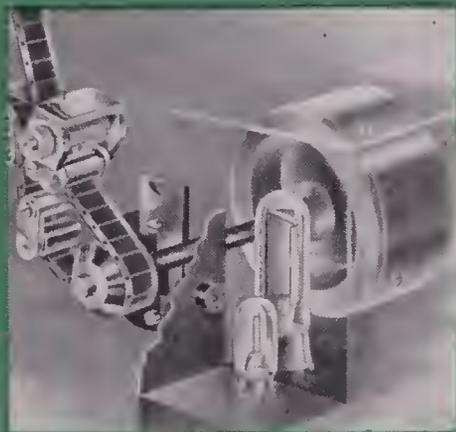


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# AMERICAN *Cinematographer*

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY



DECEMBER  
1947



"Superior 2"



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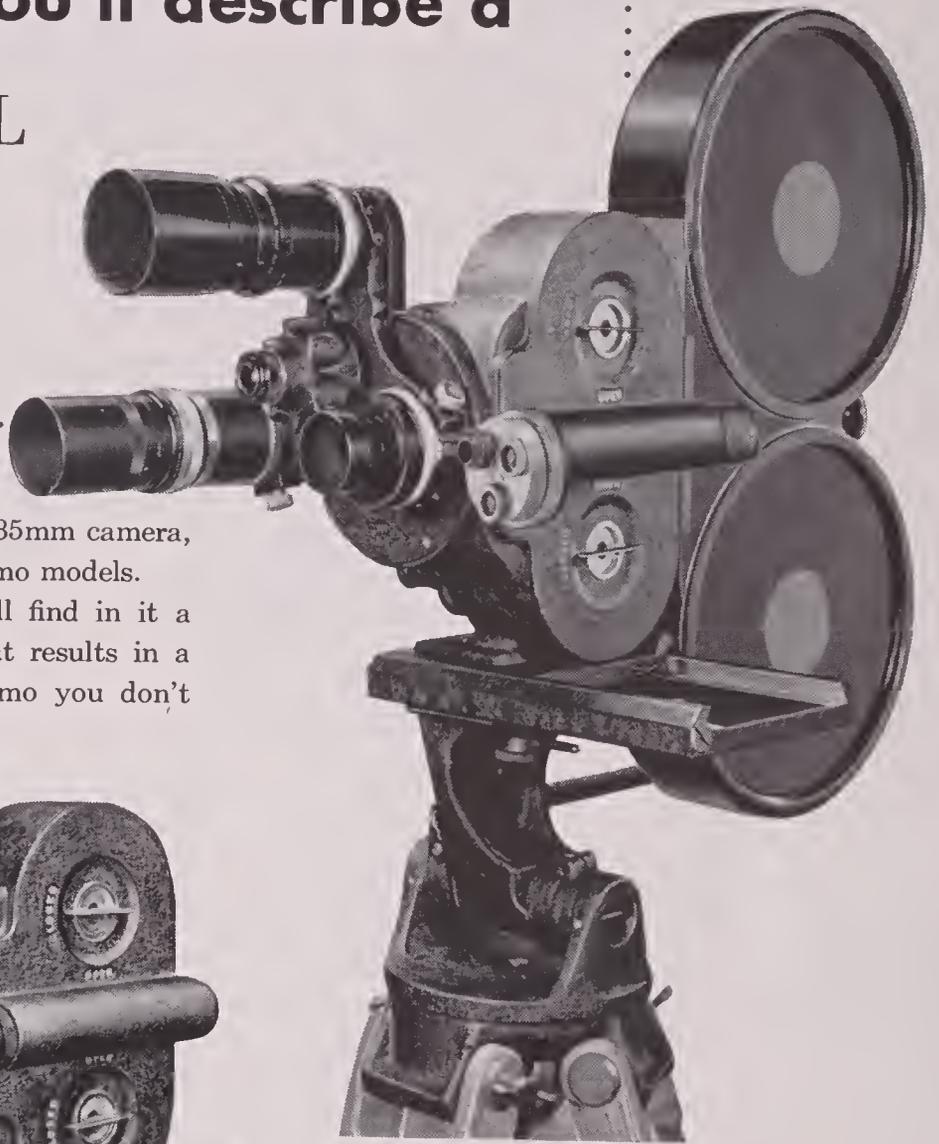
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# AMERICAN CINEMATOGRAPHER

THE MOTION PICTURE CAMERA MAGAZINE

VOL. 28

DECEMBER, 1947

NO. 12

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ON THE FRONT COVER—Betty Hutton rehearses the Madame Butterfly sequence for the Paramount production of "Dream Girl." Director of Photography Daniel Fapp, A. S. C., is in foreground beside the camera checking the action prior to shooting. Still by Jack Koffman.

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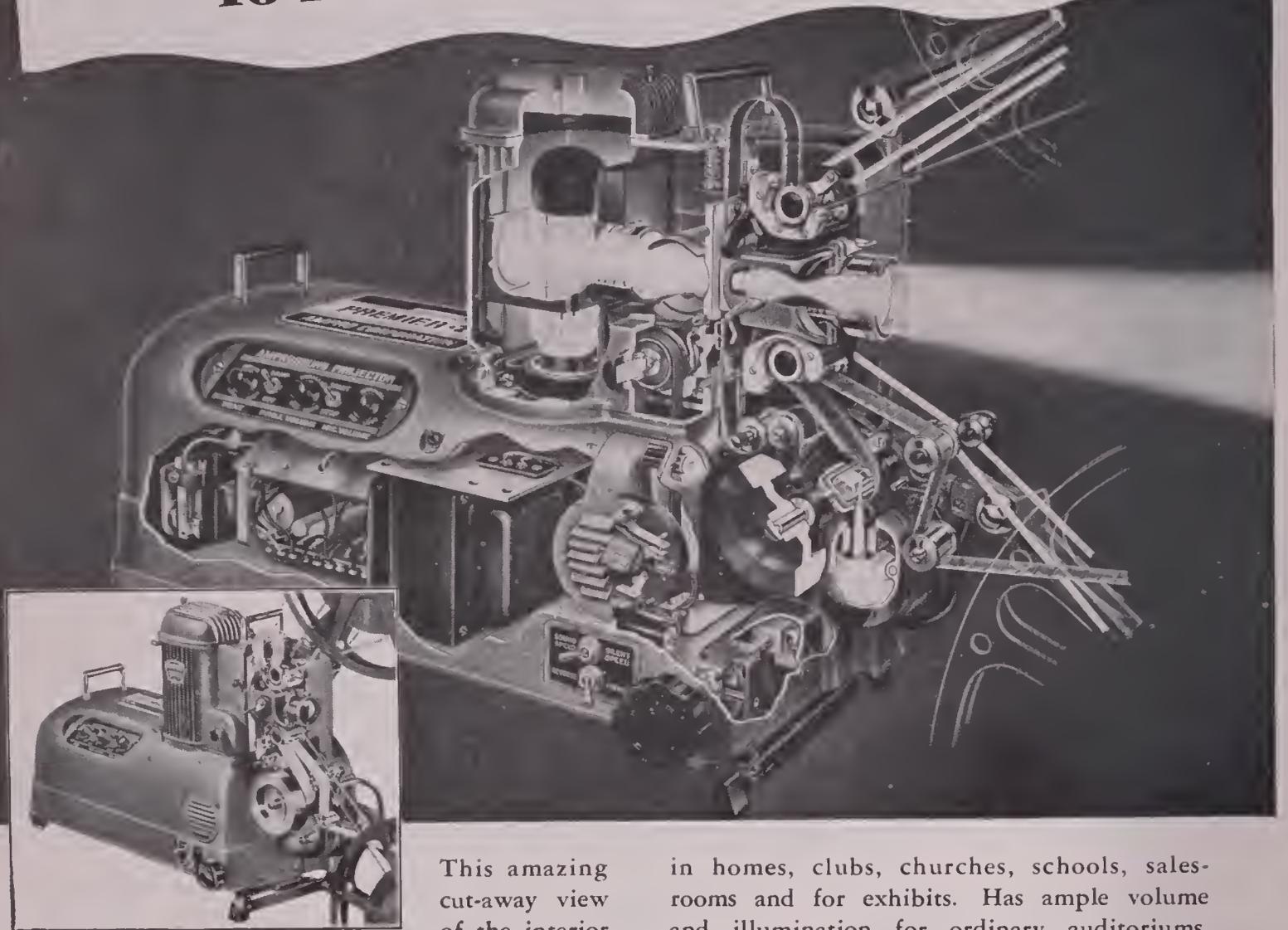
McGill's, 179 Elizabeth Street, Melbourne,  
Australian and New Zealand Agents

Published monthly by A. S. C. Agency, Inc.  
Editorial and business offices:  
1782 North Orange Drive  
Hollywood (Los Angeles, 28), California  
Telephone: GRanite 2135

Established 1920. Advertising rates on application. Subscriptions: United States and Pan-American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25c; back numbers, 30c; foreign, single copies, 35c; back numbers, 40c. Copyright 1947 by A. S. C. Agency, Inc.

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# The "Inside Story" of a remarkable 16 mm. Sound Projector...



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PRECISION CINÉ EQUIPMENT

**G**ORDON JENNINGS, A.S.C., a big, genial man with a photographic eye for detail and a talent for deceiving motion picture audiences, sat in a Hollywood studio projection room recently, grumbling, "Come on with the bubbles."

Jennings, head of Paramount studio Special Photographic Effects Department, was having run off for himself and staff the 20-year-old silent epic, "Wings," and the bubbles besought were those which floated up around Clara Bow from champagne glasses in the hands of Buddy Rogers and Roscoe Karns. He wanted to study this titillating ebullition, still suspected of comic qualities, to revive it for a sequence in the latest Crosby-Hope-Lamour picture, "Road to Rio." These exaggerated soap suds would be rhythmically blown through a trumpet which Hope plays. They would be very special bubbles—plump and durable, and their skins corseted with sugar and glycerine.

To the casual observer this looked like mighty easy work and not compatible with Jennings's reputation as one of the trickiest trick-shot artists in the trade—a man who once built and destroyed Rome in a fortnight; launched and sank entire navies in a matter of days, erupted volcanoes, devastated cities and turned to charred waste large portions of the earth. But while his underlings read the old silent subtitles aloud, Jennings said later that he had been entertaining himself with other problems. Among them were:

How to merge the Fall River in Wyoming with the Snake River in Idaho;

How to "pan" in one continuous shot up the side of a New York skyscraper and into a window, by daylight, pick up Ray Milland in a bit of business for "The Big Clock," follow Milland into some giant clock works and back down to the outside of the building where—and this is the tough part—it had grown dark; and

How to make a "dream"—complete with ethereal searchlights and stars for "Variety Girl," which, far from incidentally, also is congested with 36 thespian stars.

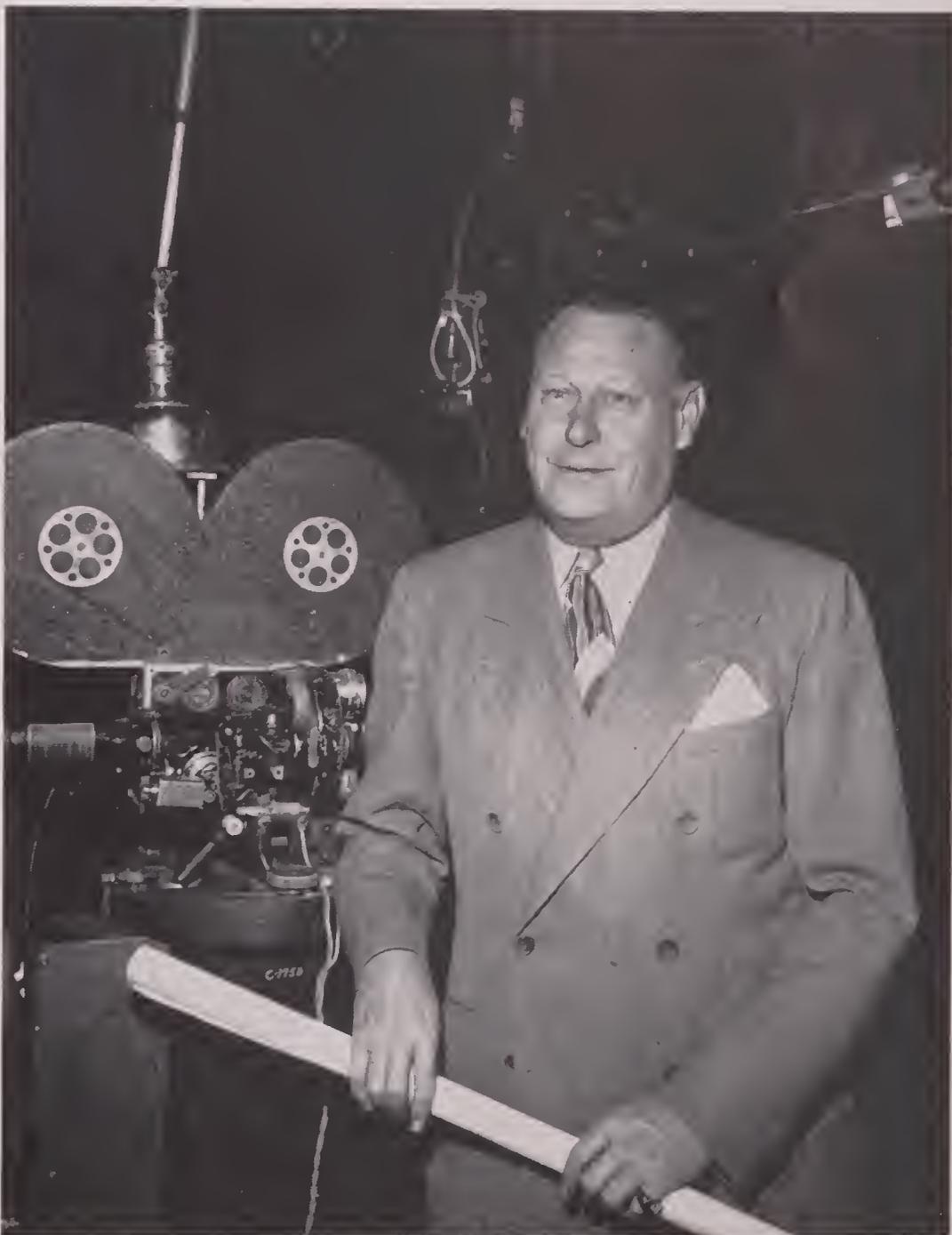
Ordinarily a man who jealously guards secrets learned from 28 years in the business, Jennings was induced to talk about his work because of two recent, important developments. One is a gadget he has wired up the better to fool you with. The other is a wanton exposition in "Variety Girl" of how you are fooled.

The latter involves the so-called "transparencies"—a method of photographing backgrounds which later are projected, from the rear, onto huge transparent screens so that actors, performing in front of them on Hollywood sound stages, can appear to be climbing the Alps or driving automobiles at breakneck speed down

(Continued on Page 459)

# Special Photographic Effects' Magic

by GRADY JOHNSON



Gordon Jennings, A.S.C., head of Special Photographic Effects Department, Paramount Studios, beside a special effects camera used in his department.

CURRENTLY appearing on our screens is a motion picture of such breath-taking visual splendor that it may well be considered a perfect amalgam of art direction, costume design, and Technicolor photography. The film is "Black Narcissus," a British production presented under the banner of J. Arthur Rank by *The Archers* (Michael Powell and Emeric Pressburger) and released in the United States by Universal-International.

The team of Powell and Pressburger is that which brought to the screen such finely wrought film-fare as: "The Invaders," "Colonel Blimp," "I Know Where I'm Going," and "Stairway to Heaven." In "Black Narcissus," they have surpassed even their own lofty standards of technical excellence by producing a visual masterpiece that definitely ranks with the best of cinematic art.

The story of "Black Narcissus" concerns a group of five Anglican sisters who are sent to take over an exotic palace high up in the Himalayan Mountains and transform its rooms (which once housed the harem of the local Indian ruler) into a convent.

The film traces the psychological effect on the nuns of the barbaric country, the winds that moan ceaselessly through the mountains, and the bitter cynicism of a worldly English agent. The combined effect of these negative elements causes the sisters to become neurotic, and they finally retire in defeat to their base in Calcutta after one of their number has renounced her vows, attempted to enamor the English agent, and plunged over the cliffside to her death.

The film tells a strangely moving story of human emotion bursting forth from cloistered restraints under the compelling influences of Nature and Oriental splendor. Through it run deep psychological undercurrents that sharply point out the effect of environment upon human behavior. It is these subtleties of emotion which the visual presentation of the film succeeds so brilliantly in revealing.

#### Triumph for the Camera

"Black Narcissus" is definitely a *camera-man's picture*. Its story, though absorbing and often dramatic, takes second place to what has been described as "the most beautiful Technicolor photography ever to appear on the screen." This extravagant compliment is borne out by the breath-taking scenic shots, the magnificent mood-lighting, and the inspired camera angles which characterize the photographic treatment of the story.

Cinematographer Jack Cardiff, A.S.C., has broken a good many of the rules in trying for effects which the experts insist cannot be achieved in Technicolor. His use of low-key lighting is especially good, and somewhat unique in that he uses little or no *fill* lighting in such sequences. His

# "BLACK NARCISSUS"

## COLOR MASTERPIECE



by HERB A. LIGHTMAN



The Palace of Mopu, sometimes known as "The House of Women" is a former habitation of an Indian potentate's harem, which a group of nuns transform into a convent, as part of the action of "Black Narcissus," spectacular J. Arthur Rank British production.



(Left) A production crew on the back-lot of the Pinewood Studios in England prepares to photograph a scene from "Black Narcissus." The set is the courtyard of the Palace of Mopu. In the background can be seen the well-tended shrubbery of the English countryside, neatly concealed in the film by beautifully colored backdrops of Himalayan scenery. Simple, forceful compositions and dramatic framing contribute to the outstanding photography of the picture.

angles are fresh and original—perfectly suited to the action of the scene.

Unusually well-lighted and composed are scenes within the convent itself. In these sequences the camera succeeds in capturing a reminiscence of the former splendor of the "House of Women" while still allowing the austere influence of the nuns to predominate. Extreme close-ups in the more dramatic sequences add greatly to the impact of the situations.

One of the most outstanding photographic features of "Black Narcissus" is the camera treatment of the majestic Himalayan scenery. These scenes become almost incredible when one considers that they were all filmed *in England* by means of *backdrops*. Even veteran film techni-

cians, long accustomed to the wizardry of trick photography and special effects, are amazed at the authenticity of these man-made backgrounds. The effect is so perfect that one would be willing to swear that the bulky Technicolor cameras had been laboriously hauled on donkey-back up the steep slopes of the Himalayas (or at least the Swiss Alps), instead of being casually set up on the back-lot of the Pinewood Studios outside London.

The elaborate backdrops used were skillfully painted in glowing colors and set up against the sky to hide the well-tended shrubbery of the English countryside. The enormous sheets of painted canvas were set at an angle of 30 degrees from the vertical in order to catch the

sunlight for a longer period of time and thus prolong the hours when shooting was possible each day.

In order to simulate the towering terrain of the Himalayas, technicians constructed on the Pinewood back-lot a man-made "mountain on stilts" complete with terraces and winding pathways that live pack-mules would climb up laden with goods. Spread out at the foot of this peak was the courtyard of the ancient Palace of Mopu, main locale of the story. Visitors "behind the scenes" of this set were surprised to see that they could look right through the base of the mountain, since the whole affair was constructed over a hollow metal scaffolding.

(Continued on Page 456)



Scenes from the Universal-International release of "Black Narcissus," an English production by the Archers. (Left) The characters in the scene stand on a man-made "mountain on stilts," constructed over a huge scaffolding of tubular steel. The mountains in the background are, in reality, painted on a backdrop. The film, notable for its excellent Technicolor photography of Himalayan scenery, was filmed entirely in England. (Left) One of the many striking interiors in the Palace of Mopu, main locale of the story. Art direction by Alfred Junge is superbly in key with the story.

# 40 YEARS FOR BELL & HOWELL

**D**URING the ten years that followed the first public showing of motion pictures in 1896, the young industry was in a turbulent mess. It was, in fact, trying very hard to become an industry. The search for methods, processes, and machinery with which to stabilize a new endeavor, was completely unorganized. Equipment and processes were devised in great secrecy. Patents were accumulated, jealously guarded, fought for, and infringed upon, with the freedom and abandon of the pioneer.

A dozen or so different film widths clamored for recognition. Each inventor had his own favorite film size, and the film made in the camera developed by one technician could not be shown in the projector developed by another. One film was  $2\frac{3}{4}$  inches wide, and the perforations were punched while the film was in the camera—as the pictures were made! Another had three rows of pictures on the same film, which was run back and forth in the projector.

It was in this state of chaos and technical turmoil that the young Bell & Howell Company found itself when, in 1907, the organization was born. And three early Bell & Howell units not only formed the foundation on which the company was built, but actually eased the motion picture furor of the day into a stabilized, standardized industry.

A satisfactory projector was first in the minds of the young Bell & Howell engineers—a projector that would not let the pictures flicker and jump all over the screen, and that would not show pictures cut in half.

However, they soon discovered that no matter how accurately a projector might be designed and built, its pictures would not be steady and flicker-free unless the film itself were handled by precision machinery from the very beginning. Accordingly, the first B&H Model standard 35 mm. camera appeared in 1907, to be followed a year later by the first small continuous 35mm. printer.

It was this Bell & Howell printer that finally standardized the industry on a film 35mm. wide. The mechanics of that printer are still amazing. As is commonly known, the negative film, which has gone through the processing solutions and has already shrunk to its final dimensions, is printed on raw positive film which has yet to be processed and which will shrink when it is developed. This shrinkage-after-printing raised Cain with picture steadiness. Stop printing—frame by frame—was being used to eliminate the jump.



J. H. McNABB, President  
Bell & Howell Company

but it was a slow and laborious process and was holding the industry back.

Bell & Howell engineers designed a continuous printer in which the two films—negative and positive, one on the other—passed over the arc of a circle at the printing point, negative on the inside, positive on the outside. This mechanism was so precisely designed that the radius of the inner circle (formed by the negative) was shorter than the radius of the outer circle (formed by the positive) by an amount which would exactly compensate for the subsequent shrinkage of the positive film. In other words, the outer positive film was longer by the exact amount that it would shrink after processing!

This printer caused a revolution in the laboratories of the period, and it proved so accurate that when sound literally entered the picture 20 years later, the B&H continuous printing principle appeared to have been developed expressly for the additional accuracy required. A sound track is, in effect, a long, narrow, continuous picture, and the B&H printer of 20 years before was so precisely designed that no basic changes were necessary.

Photographers and exhibitors of that day soon learned that pictures processed on a B&H printer were steady, did not jump. And the printer was designed for 35mm. film. They learned also that pictures made in the B&H camera did not

jump, that the film registration—that is, every frame exposed in exactly the right area on the film—was accurate beyond belief. And the camera was designed for 35 mm. film.

The gradual but inexorable shift to 35 mm. film began, for only in that size could Bell & Howell equipment be obtained. Only in that size could the most satisfactory pictures be made and exhibited. Thus it was that Bell & Howell, with superior equipment in a period of confusion and uncertainty, brought about the standardization of 35 mm. film. When the company was founded, you couldn't show in Milwaukee a film you could show in Chicago. Today, 35 mm. is the standard professional film throughout the world.

This printer was followed by a film perforator which, again, was a mechanical masterpiece. Film perforations must be evenly spaced to a microscopic degree, to prevent picture jump. The main principle upon which the B&H perforator is based is the location of new holes by the very holes that have just been punched. The film is guided into the perforation channel, and a primary set of four pairs of holes is made. From then on, four sets of pilot pins engage previously made perforations to so position the film in relation to the punches, that the next set of four perforations will be accurately punched in the film.

As previously stated, the first B&H 35 mm. camera appeared in 1907. It was followed in 1909 by the first all-metal motion picture camera ever made. Here came into prominence the famous "Unit I" intermittent movement, never excelled to this day for accuracy in registration. In all other cameras of the day, the film ran in a vertical line through the gate, with the teeth moving in and out of the film. In the B&H camera, the teeth moved up and down, and the film was moved backward and forward. Moved to the rear, the film was impaled on the teeth which pulled it down. At the bottom of the movement, the film was moved forward off the teeth, up against the aperture plate. It was engaged on a pair of pilot pins which held it in place during exposure. The only time any pressure was exerted on the film was while it was at rest. The rest of the time it was free from all drag. This principle of "pilot pin registration" assured absolute accuracy, and even today, the Bell & Howell Unit I movement is the type preferred in Hollywood when extreme accuracy is required. An example is the photography of "rear projection"—movies of movies. If the scenic or atmospheric background of a set, which actually is a movie projected

from the rear on a translucent screen, were to waver even slightly, the fake would be obvious and the principle could not be used. All such backgrounds have been made with the Unit I—none other has been equally accurate.

Present standard Bell & Howell studio cameras are substantially the same in basic design as that camera of 1909. While modifications and improvements have been added continually, the fundamental design was so carefully and accurately engineered that no basic change has ever been found necessary. As a matter of fact, Walt Disney filmed a great portion of "Snow White and the Seven Dwarfs" on B&H Standard Camera No. 50.

For 16 years B&H made only professional equipment, and it was in 1923 that the first Filmo camera and projector appeared. So popular were they that in three months Bell & Howell was back-ordered for a year's production of the famous old 70-A, and not until 1930 did the company catch up with the demand.

Just 15 years ago—in 1932—came the first Filmosound, and 11 years ago the first Filmo double-run 8 mm. camera appeared. Dozens of precision-built 8 mm., 16 mm., and 35 mm. units have been announced through the years. As the demands of the professional industry, visual education, and the home movie hobby have been made, Bell & Howell has met, and even anticipated, these needs.

A brief review of company expansion will give an excellent idea of Bell & Howell growth and solidity. In 1907 the company occupied space on the third floor of a building on Illinois Street, now Austin Avenue—space 30 feet by 60 feet, including offices! In 1914, a small building on Larchmont Avenue was built. It was here, under President J. H. McNabb, that the first spring-driven 16 mm. camera was given to the world, and that real expansion, in both outlook and facilities, began. The old 70-A clicked—the straw was in the wind—and Mr. McNabb saw that a new hobby, a new educational force, was about to become a part of American life. In fact, a new business, lusty and flourishing, was emerging from the old. A new building went upon Larchmont Avenue in 1926, more than doubling the space of the first building. Then, in 1929, a far-sighted management built the B&H Rockwell Engineering Laboratory and staffed it with the world's most highly skilled engineers—optical, mechanical, electrical.

Again the quarters were outgrown, and an addition to Rockwell was built.

Expansion continued, and as the dogs of war strained at their leashes in 1941, B&H was bulging out of six different buildings.

The magnificent Lincolnwood Laboratories were built in 1942, followed by an addition in 1946. Here is the ultimate in

modern manufacturing plant design and construction. Here, during the war, men and women worked the clock around building the precision optical and electronic equipment that scientific warfare demands—lenses; gun sights; top-secret radar devices; the see-in-the-dark sniper-scope; the gun cameras that got what they saw the pilot get, the type that made the famous Navy documentary, "Fighting

Lady"; Filmosounds, to train men for war and to give them brief respite from war; bomb-spotting cameras; combat cameras; and other precision equipment.

Here, now, Bell & Howell is building Filmosounds, cameras, projectors, and other equipment—building them according to precision standards that are equalled only by manufacturers of instruments and gauges, and by watchmakers.



(At top) Early plant of Bell & Howell on Larchmont Avenue, Chicago. (Center) The new Lincolnwood Laboratories, latest of the three plants in the Chicago area. (Bottom) Company's Hollywood Laboratories which service the motion picture studios.

# Television Recording Camera Developed By Eastman Kodak

Eastman Kodak Company announces a 16 mm. motion picture camera for recording television programs on film.

The new camera, first of its kind, produces movies directly from the face of the monitoring "picture tube" in a television broadcasting station.

The camera takes pictures at the rate of 24 frames a second. Sound is recorded separately by standard methods. Kodak put the camera on display at the 62nd semi-annual convention of the Society of Motion Picture Engineers in the Hotel Pennsylvania, New York City, last month.

The company said the camera was developed in cooperation with the National Broadcasting Company studio at station WBNT and the Allen B. DuMont studio at station WABD.

Three Kodak engineers, Joseph L. Boon, William Feldman and Joseph Stoiber, described the technical details of the camera in a paper presented by Feldman at an SMPE meeting Thursday, October 23.

Main uses of the new camera in television broadcasting will be:

1. To enable the recorded programs to be reused by the sponsor for institutional public relations and advertising.
2. To record transmitted shows for billing requirements.
3. To record all "live" programs that go out on the air. This use, for example, will be important for legal purposes.

Another possible major use, still in the experimental stage, is in a television "film network." The new camera photographs the "monitor tube" in the broadcasting studio. This tube shows everything that is transmitted and is used by the station to keep constant supervision of the program.

If a film network proves feasible, the camera would photograph television programs by recording them as shown on the monitor tube. These film records of "live" programs then could be rebroadcast by stations in other cities. This would supplement the present limited and expensive television networks using coaxial cables and radio relays.

Directly televised programs are now limited in range to "line of sight" transmissions, or about 25-50 miles.

Basic camera design features of the camera include:

A 1,200-foot film magazine that permits continuous recording of a half-hour program.

Separate, synchronous motor drives for the shutter and film-moving mechanisms.

A coated (Lumenized)  $f/1.6$  lens of 2-inch focal length (Kodak Ektar).

An 8-tooth sprocket pulldown actuated by an accelerated Geneva star; a 72-degree shutter; a "bloop" light to provide registration with the sound film recorder; a film loop-loss indicator, and appropriate

footage indicators.

The double-chamber magazine is a self-contained unit housing both the unexposed and the exposed film. It may be readily removed from the camera. Lightlocks allow changing of loaded magazines in a lighted room.



# PARIS LETTER

by W. IRVIN BRENNAN

*(The author recently returned from a four months trip to England, Denmark, Norway, Sweden, France and other European countries, where he made a survey of business conditions and possible future markets for products of Bardwell & McAlister, Inc., Hollywood, designers and manufacturers of photographic lighting equipment and accessories. This article describes the present lack of modern production apparatus and equipment in Paris studios, and necessity of getting along with antiquated equipment.)*

“ALLO, ALLO! Ah, oui, mademoiselle. Je veux Louvre 47-86, s'il vous plait.”

There is then an interminable waiting period, and finally a faint whisper comes over the wire. Someone has answered . . . maybe.

“Allo, allo! Is this Louvre 47-86? I would like to speak to . . .” The line goes dead. You try again, and again, always with the same result. To break the monotony, the hotel operator occasionally cuts in with sympathetic noises. She is desolated, monsieur, but there is not enough current to reach the other side of Paris, or someone has cut the line, or the party has laid down the receiver and gone to luncheon. Finally you say, “The hell with it,” and take a taxi.

An American, trying to do business in Paris, finds that a good many things seem to be done the hard way. There even seems to be some doubt about the telephone being here to stay. Your French friends blandly advise you never to struggle with it. They always take a taxi, they say.

But Bardwell & McAlister wanted information on the use of photographic lighting equipment in the French motion picture industry, so that they might determine the extent of the market, if any, for their Baby Keg-Lites, Dinky Inkies and other products. I was elected to get the information . . . or try to. This is what I found out:

The French Government realizes that the motion picture is as essential to modern living as soap, and currently, France is practically soapless. It has therefore set up a governmental department (known

as the Commission Supérieure Technique) which is to promote the interests of the industry, and give it every opportunity to develop in the postwar picture. One of the first things that they have to do, is to find out what to use for money . . . American money, of course . . . since they have very little means at present for manufacturing their own equipment; even if they had the know-how to duplicate the fine American products which are now essential to enter the field of color work.

I talked with one of the members of the Commission, who was also an executive of the industry. He stated that although there had been no color films made in France, they were working on a process which they were sure would fill their needs.

I then asked what they were going to do to light their sets for color shooting. The reply was that they had no lights for that purpose, and no dollars to pur-

chase any; but, he felt sure that the Government could be induced to release enough dollars to purchase ONE of each type which Bardwell & McAlister made.

He must have noticed my astonishment when he said, “one of each,” because he quickly added, “Of course you understand that within a year, we will be making these lights ourselves, in French factories.”

In answer, “I’m afraid you will have to pass up making these particular lights, because they are protected by patents.”

He smiled and waved that one aside with the remark that they would design around them . . . naturellement.

Through the Gaumont offices, I finally obtained permission to visit the St. Maurice Studios at the village of St. Jean le Pont, outside Paris. Here, the staff was most helpful in showing me what they were doing, and what equipment they had. Assistant Director Jean Dieutegard, took special pains to get the information I requested.

They were shooting a picture entitled, “La Dernière Vacance.” M. Prevost directing, and the wonder of it all was that they are able to make such good pictures with such limited equipment. They showed me a collection of antiquated arcs, which included those made by Barbier, Bresnard and Turenne, as well as some by Breguet. Although this was a representative studio, the whole layout was on a very small scale, and there was practically no activity. Inquiry revealed that

(Continued on Page 455)



Director Prevost at the St. Maurice Studios, France (second from the right) gives directions to the cast during the filming of “La Dernière Vacance.”

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# The Cinema Workshop

(For Semi-Professional and Amateur Production)

## 18. Titling Your Films

By CHARLES LORING

**A**FTER a motion picture has been finally edited, it should be titled—because titles that are well-designed and photographed will add a finishing touch and give the film the polish it should have before being shown in any form to an audience.

Many producers (including some of the larger professional studios) frequently spend a great deal of money on a production, only to economize later by adding to it a set of makeshift or inappropriate titles. The importance of good titling should not be underestimated, because, after all, titles are the first and last images which flash onto the screen. The main title is the first impression an audience gets—and the producer should strive to make that impression a good one, since it is likely to remain in the audience's mind and influence its reaction to the remainder of the film.

A shabby set of titles is the sure sign of the amateur, whereas a set of well-presented titles will do much to lend a professional touch to the film. It is not necessary to have involved and costly equipment in order to produce attractive titles. Precision and ingenuity are the real requisites. A titler is desirable, but not absolutely necessary—and a good steady camera stand or tripod is a definite asset.

### The Function of Titles

The function of *main titles* is, of course, to introduce and conclude the film. A motion picture without main titles is an unfinished product and will appear so on the screen. But main titles should do something more than provide a beginning and ending for the screen presentation—they should definitely add to the total effect of the film.

For example, a title that is in key with the subject matter of the story will help set the desired mood, so that the audience will be well-steeped in the atmosphere of the theme by the time the action begins. In so doing, it becomes an integral part of the presentation, and not just something that is tacked onto it.

Sub-titles, especially in a sound film, should be held to a minimum, since they tend to intrude into the subject matter and often detract more than they add. A film that has been skillfully written, directed and photographed will usually tell

a fairly complete story without requiring printed explanations; but it is admitted that there are times when sub-titles are desirable and even necessary.

When sub-titles are used, they should be kept short, simple and appropriate to the subject matter. Also, they should tie in as closely as possible with the theme of the story and the general style of the photography.

The primary function of the sub-title is to provide information not conveyed by the visual action or the sound track. Thus, when establishing a new locale it is often convenient to show a place-name superimposed on a characteristic and easily recognized scene of the place. If the period of the film is historical, a short printed background to the action usually helps to clarify matters.

A second function of sub-titles is to bridge gaps in time, place or action, so that the audience will not "get lost" during a transition between sequences. Actually, while titles are the easiest device to use in gaining this effect, it is much better from the cinematic standpoint if the idea can be conveyed by transitional scenes within the action itself.

### Conventional Titles

One of the most important requirements of a really good set of titles is that they blend in smoothly with the subject matter of the story. Any sort of title is an intrusion into the action, since, for the moment, the audience must forget the story and read the words that flash onto the screen—but the more elements the title format has in common with the story itself, the less jolting will be the intrusion.

For example, if you have filmed a rustic story of a mountain camping trip, it would be quite appropriate to have your titles lettered on one of those typical wayside signboards with the jagged edges. If yours is a story with a seaside locale, what could be more fitting than titles spelled out with driftwood or brightly colored shells arranged on the sand? This sort of titling gets your audience into the mood of the story right from the start and keeps them there. Also, titles of this sort are easily arranged, because the necessary materials are usually right at hand in the locale.

An old standby for titling a film of a vacation trip is the device of using signs and markers along the way. Actually, this is the best sort of titling for such a subject, because it keeps your audience right in the atmosphere of the story at all times. An alternate titling plan for such films is to intercut your live action with shots of a hand tracing the route on the map.

Where your story calls for a number of sub-titles to explain a progressive plot, it is sometimes a good idea to use a diary as your means of exposition. Such titles should be filmed in extreme close-up with black ink on white paper. Needless to say, they should be written in very legible script.

The simplest and most common type of title is the *hand-lettered* variety which involves poster board, show-card paint and a talent for lettering. The style of the letters should tie in with the atmosphere of the story. A streamlined modern style, for example, would be fine for a sophisticated modern comedy; an ornate type of letter would go well with a story of the Victorian period; whereas, heavy Gothic script would appropriately complement a film set in the Medieval period.

The lettering can be painted either on a smooth or textured paper, with or without a border around it. For a comedy theme it is sometimes effective to illustrate the title background with clever little cartoons—although these should not be so intricate and startling that they distract the audience's attention from the words.

An alternate to the *hand-lettered* title is the *printed* title which, when well-executed, has a very professional appearance. Type faces appropriate to the story should be selected and a layout made that will present the credits in the most effective manner. Such type-set titles may also be printed on thin sheets of celluloid which can then be superimposed on a still photograph, a painting, a piece of figured paper, or a rough-textured fabric. Titles painted on glass can be used in the same manner.

One of the most attractive kinds of titles is that in which the letters are painted on a sheet of glass which is then photographed against a running waterfall, a scenic view, or any subject for which it is not necessary to move the camera. This method requires a certain amount of preparation and precision in filming, but the striking effect is well worth the effort involved.

For best results, the title is painted (in opaque poster-color) on the reverse side of a plate of glass measuring about 3 x 4 feet. The glass is then set up on a supporting wooden framework in front of the desired background scene. Such titles

(Continued on Page 448)



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# AMONG THE MOVIE CLUBS

## New York Metropolitan

Extensive film program was presented at the October 16th meeting of Metropolitan Motion Picture Club of New York City, held at the Pennsylvania hotel. Subjects screened included: "The Midnight Guest," by George Valentine; "Magic Mush," by Eric Unmack of San Francisco; "My Day Off," by Owen Campbell of Roanoke; "Dummy Walks Out," by the late Walter Mills; "Terry's Adventures," by Terry Manos; and "The Will and the Way," by Chester Glassley of Dallas.

Annual club contest closed on November 1st, with first three prizes being \$75, \$50, and \$25, respectively.

## Los Angeles Eight

Paul W. Cramer was elected president of Los Angeles Eight MM. Club for the coming year, at meeting held at Bell & Howell auditorium on November 11th. Other officers include: L. F. Larsen, vice-president; Mrs. Florence Beazell, secretary; and Willis Fackler, treasurer. Film program included group of past-president and member films. Club's annual banquet and contest will be held on December 6th at Scully's.

## Minneapolis Octo Cine

Minneapolis Octo Cine Guild held joint meeting with the Suburban Cine Club on October 28th at Hasty-Tasty Tea Room, with dinner preceding the session. "The Family Album," General Electric film on lighting was screened, while Mike Fleming gave a demonstration and talk on wire recording for home movies.

Club's initial class on titling was held at Bryant Junior High School on evening of October 21st, and members were enabled to make their own titles with selected backgrounds.

## Seattle Amateur

Members of the Tacoma Movie Club were guests of Seattle Amateur Movie Club at meeting of November 11th, held at Epiphany Hall. In addition to runoff and judging of members' vacation films for contest, the ACL subject in 8 mm. color, "Pinocchio's Jack-O-Lantern" was shown.

## Milwaukee Amateur

Entries of 8 mm. subjects in the annual contest of Amateur Movie Society of Milwaukee were exhibited at the November 12th meeting, with the 16 mm. entries projected for members at the meeting of November 26th.

## Los Angeles Cinema

James H. Mitchell was elected president of the Los Angeles Cinema Club for 1948 at meeting of the organization held on November 3rd at the Ebell Club. Herbert F. Sturdy was elected vice-president; Charles J. Ross, secretary; and Jack Shandler, treasurer. Officers will be formally installed at December 1st dinner meeting to be held at the Breakfast Club.

Film program for the November 3rd meeting comprised: "Fisherman's Gold," by Jack Helstowski; a novelty reel taken by Amateur Motion Picture Section of University of Southern California of the band and glee club; and a program of 35 mm. color slides of Yosemite presented by Judge William J. Palmer.

## San Francisco Cinema

Nominating committee to select slate of officers for the coming year was elected at the November 18th meeting of Cinema Club of San Francisco, held at the Women's City Club. Film program for the evening included: "South of the Border," by J. W. Holmes; "Canada's Tacklebusters," loaned by Canadian Pacific Railway; "Fiesta at Fishermen's Wharf," by G. M. Tibet; "The Airline Passenger Agent," loaned by United Air Lines; "Scenery Unsurpassed," 100 kodachrome slides by Louis Franovich; and "Autumn Colors," also by Franovich.

## San Francisco Westwood

B. Pasqualetti of San Francisco Junior College featured the October 31st meeting of Westwood Movie Club of San Francisco with an informative talk on "Giving Amateur Movies a Professional Touch." Film program included movies of the summer club picnic by Ed Brennan; and "Canadian Rockies," by Dr. J. Allyn Thatcher. At the same meeting, members voted on several proposed changes to the club constitution. Film entries for the annual contest closed on November 9th, and winners will be announced at an early meeting.

## ANFA Year Book Ready

Allied Non-Theatrical Film Association annual Year Book and Audio-Visual Directory for 1947-48 will be issued this month. Publication, in addition to listing names and addresses of 16 mm. film libraries, producers, and sponsors, contains data of permanent reference value to persons associated with the narrow-gauge film field.

## Brooklyn Amateur

Tape vs. disc recording for home movies featured the November 19th meeting of Brooklyn Amateur Cine Club, held at the Neighborhood club auditorium. Francis Sinclair presented facts and information on disc recording, while Irving Gittell expounded the advantages of tape method, with demonstrations. Meeting was climaxed by a film program, with constructive criticism by the club's expert clinic committee.

At the November 5th meeting, Harry Groedel was guest of honor and screened: "Glacier National Park," "Canadian Rockies," and "Spring Is Here." Also shown was "Motion," by Henry E. Hird.

## Philadelphia Cinema

Annual fall picnic of Philadelphia Cinema Club was held on Sunday, October 26th, at Harper's Meadow, with members attending with picnic lunches and cameras for an eventful day.

Film program for the November 11th meeting, held at Franklin Institute, included: "How Lenses Are Coated," courtesy of Acra Instrument Co.; "Amateuri-ana," and "Hubby's Revenge," by G. A. Del Valle; and "Saddle Trips Around Mt. Robson and Jasper Park," by S. L. Howell.

## Alhambra La Casa

Film program for the November 17th meeting of La Casa Movie Club of Alhambra, Calif., comprised: "Natchez—Pilgrimage of the Garden Clubs to Old Plantations—New Orleans," by Hugh S. Wallace; "Second Honeymoon in Rainy Colorado," by William A. Ware; and "Bumming Around California," by John Cook.

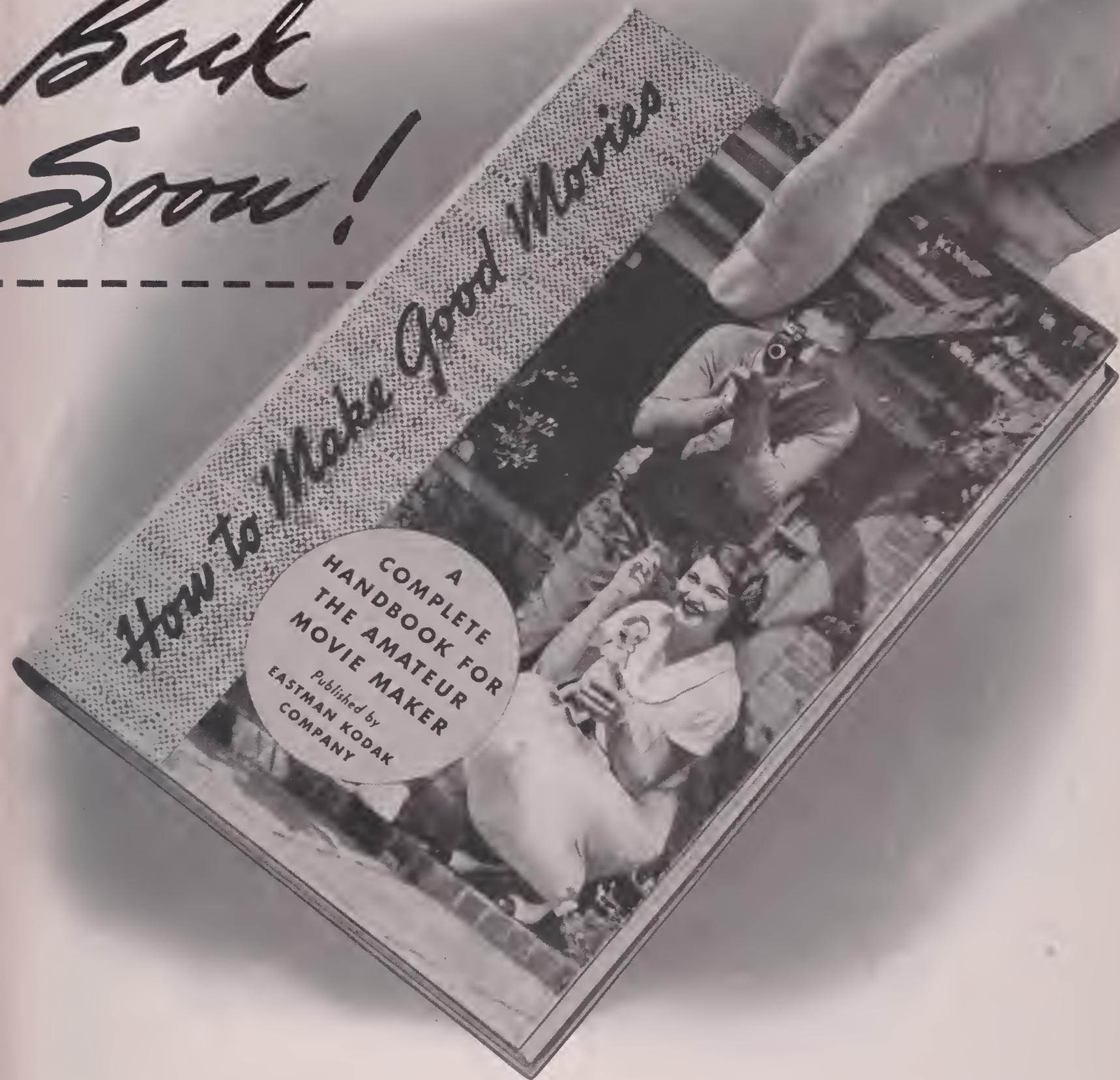
## Utah Cine Arts

Combination film program and gadget night held the stage at the November 19th meeting of Utah Cine Arts Club, held at Newhouse hotel. The gadget portion of the program was under direction of co-chairman Al Morton. Films presented included: "Travels in Mexico," by Mr. and Mrs. Vern Lunt; and "Paracutin," prize-winning kodachrome film by Carl Gray.

## New York Eight

Judging of entries in the annual club contest highlighted the November 17th meeting of New York Eight MM. Motion Picture Club, held at the Pennsylvania hotel. Entries were limited in footage up to 100 feet.

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# Start With Triangle Lighting

by DON MOHLER

"Well begun is half done" never applied with more force than to lighting home movies.

Begin every one of your indoor shots by setting two or three lamps according to the "Triangle Lighting" formula.

You will get the essentials of sound lighting technique almost automatically on every shot. Look at the still pictures accompanying this article and notice what these essentials are:

1. Plenty of light through all parts of the scene.
2. All shadows—especially across faces—are clear, not black.
3. Extra light—from an angle—on faces.
4. Light from the rear, or top, striking hair and faces.

To get plenty of light, especially when filming indoors in color, the use of Photoflood No. 2 lamps is recommended. Three of these are the maximum that can be used on most home lighting circuits. Good metal reflectors can increase the light from a bare photoflood lamp from four to six times, or Reflector Photofloods No. 2 may be used.

Better yet, for home movies, are the newer Reflector Photospots. The light from these is concentrated in a zone just about equal to that covered by the standard movie camera lens. They are the nearest approach in amateur equipment to the powerful spotlights used in professional motion picture production. They can therefore be used much farther back from the subject for an equal level of illumination resulting in a better distribution of light throughout the scene.

Whatever lamps are used, however, they must all be alike.

How these lamps are placed is shown in the diagram. Camera and subject are set up (that's what stand-ins are for). The camera light is placed right at the camera as near the lens as possible. The distance from this lamp to the subject is measured. A tape is suggested, especially on closeups, but any measure, such as pacing off the distance, is workable. An equal distance is measured off from the subject at right angles from the camera-to-subject line to locate a marker spot. The side light is placed half way along a line from this spot to the camera light. This is basic lighting. A variation is to use the camera light in combination with a back light. The back light is placed diagonally opposite the side light position and an equal distance from the subject. It is usually used quite high and shining downward on the subject.

A third variation is to use all three lamps, the camera light, the side light and the back light.

In those instances where the background is important to the scene, the subject should be placed well in front of the background and a background light immediately behind the subject shining full on that background can be

used. However, when a background light is used, it must be plugged into a separate circuit in most homes if it is the fourth light in the setup, or else either the back light or the side light must be eliminated so as to confine the lighting to three lamps.

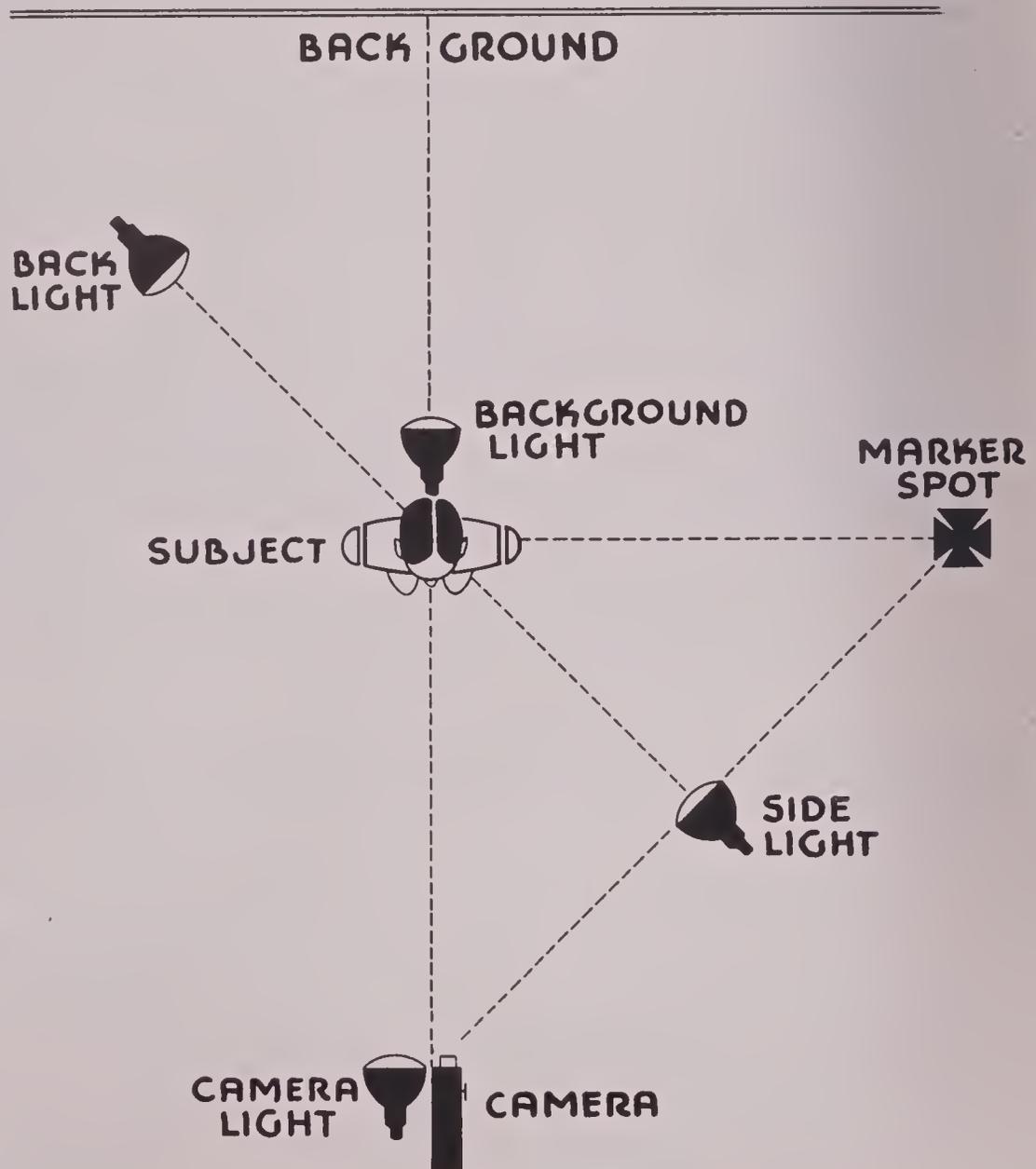
It is essential that the camera lamp never be moved very far from the camera. Get it a few feet away and it fails to fill the scene with light. It creates short shadows when moved that look bad in the finished picture unless placed with intent. It is usually used a bit above the level of the camera lens and on the opposite side from the side light. The side light incidentally is usually used somewhat higher than the camera light and directed down full on the subject.

Direct light from the back light should be screened from striking the camera lens and if either the back light or the side light is raised

to a considerable height it should be moved in toward the subject enough to regain the distance "lamp to subject" lost in raising it.

Whether one, two or three lamps are used as shown here, exposure can be based from the light from the lamp at the camera alone in black and white photography. In color filming when a side light is used it is perhaps better to close the camera diaphragm about one half stop more than if the side light is not used. Whereas printed exposure tables can be used if carefully followed, the use of an exposure meter for photography by artificial light is strongly recommended.

The still pictures from professional movie productions shown here were not lighted according to anything so simple as "Triangle Lighting" but the essentials are there and by careful analysis of good movie stills you can





“Carbon arcs are  
first on my list of  
requirements for  
color photography.”

*Fred H. Jackman*  
A.S.C.

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learn how to make variations on basic "Triangle Lighting" to get similar effects.

What each of the four lamps in the positions of "Triangle Lighting" can do is shown in picture No. 1. The camera light right at



PICTURE 1

the camera lens has filled all parts of the scene with light, especially putting some light in the shadows beneath the chin and nose and in the darker hair areas. The evidence of the side light which was used on the left (incidentally, the "Triangle Lighting" formula can be used in either a right or left hand arrangement) is seen in the extra brightness on the faces of the subjects and the short shadows beneath the nose and chin of Joan Caulfield as well as the extra roundness and modeling evident in her face.

The back light high on the left has been aimed directly at Joan's hair and serves to bring out its texture, color and quality as well as to separate her from the background.

The background light has been aimed directly behind the subjects and serves to keep attention in the center of the screen because it falls off gradually towards the corners. The human eye naturally goes to the brightest part of any scene.

In picture No. 2 a camera light, side light and back light have been used. Again the cam-



PICTURE 2

era light has filled the whole scene with general illumination. In a full length shot such as this it is important that all lights be pulled back as far from the subject as possible. The camera can remain in its best position and the lights moved back to occupy a bigger triangle. The reason for this is that if the side light is used too close on a full length picture the head will be over-lighted and the lower part of the figure under-lighted. To get coverage lights must always be used far back. That's why spot type lights are recommended for movie work.

From the direction of the shadows under the chin and beneath the hands and under the figure in the background it can be seen that the side light was used only slightly higher than the subject's head, was pulled closer to the camera so that it was but slightly to the side, and that to emphasize the height of the figure the camera angle was low. These are typical variations on a basic triangle (increas-

ing distances of lamps, changing angle of side light and changing camera position) in an effort to get the best possible effect. It is notable too that the contrast between high lights and shadow is greater than in picture No. 1. This is achieved by moving the side light in just a little bit closer to the subject.

The back light was used on the same side as the side light in this instance, quite high and out of the picture to the right and aimed at the subject's head. Because the subject is close to the background no supplementary illumination is needed from a background light as a combination of camera light and side light has served to fill the scene.

Picture No. 3 is essentially made with only two lights, the camera light and a back light. In this instance the camera light has been used slightly to the right of the camera lens



PICTURE 3

and a little above it, in order to fully light the face of the girl while throwing shadows across the face of the man. The back light has been used quite high and brought around to more nearly the center of the two faces, outlining both profiles with light, separating them from the background and illuminating the hair.

This arrangement of camera light and back light is especially good where confused and distracting backgrounds needs to be minimized or where, with older subjects, too much modeling across the face might bring out blemishes or flaws in skin quality.

Another simple two lamp arrangement can be seen in picture No. 4. Essentially there are only a camera light and a side light on the subjects. The interesting variation in the placement of the side light evident here by the short shadow directly under the nose of the

(Continued on Page 450)



PICTURE 4

## "PROFESSIONAL JUNIOR"

### 16mm BLIMP

for E-K Cine Special Camera

This Blimp, constructed of Dow Metal (magnesium) is thoroughly insulated for absolutely silent operation. The Blimp has these exclusive features: • follow focus attachment for changing lens calibrations while the camera is in operation • viewing magnifier mounted on top of blimp for focusing while camera is mounted in blimp • arrangement for opening camera viewing aperture trap for focusing from the outside of the blimp • pilot lights to illuminate lens calibrations and film footage indicator.



Blimp takes synchronous motor drive which couples to camera. It has a leather carrying handle mounted at the top. A dovetail bracket is provided to mount an erect image viewfinder for following action.

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Technicolor Motion Picture Corporation

Herbert T. Kalmus, President  
and General Manager

# CINEMA WORKSHOP

(Continued from Page 440)

should be photographed with a *wide-angle lens* focussed sharply on the lettering and stopped down sufficiently to keep the background acceptably sharp. It is important to make sure that both the camera tripod and the framework supporting the glass are absolutely level. Also, be careful to place the glass at such an angle that it will not reflect either the sun's rays or the image of the cameraman.

## Superimposed Titles

There are two standard mechanical methods in which title lettering can be superimposed on a background scene: *double printing* and *double exposure*.

In *double printing*, two separate negatives are printed, one after the other, onto a single piece of raw stock. One negative contains the lettering (which was photographed white on black), and the other negative is that of the particular scene that is to serve as the title's background. The main advantage of this method is that the relative densities of the two negatives can be carefully controlled in the laboratory during printing.

The other method, *double exposure*, is simpler and requires no special printing, but calls for greater precision in exposure to assure a good result. A strip of film is

first run through the camera to record whatever scene has been chosen for the background. Then the same film is re-wound (either in the camera or in the darkroom), and run through the camera again, this time recording just the white letters (on a black background) of the title. The white letters "burn through" the background image to form the superimposure. To achieve the proper exposure balance, the background scene should be *under-exposed* by about half a stop, and the letters should be *over-exposed* by half a stop.

A neat variation of straight superimposure is the device in which the titles appear over an action background scene, with the letters of the last credit fading out and the background remaining to become the first scene of the action of the picture. This effect is not difficult to achieve, but it requires precise measuring and timing.

Let us say, by way of illustration, that we are going to introduce a travel film with a *moving shot* along a mountain road, our camera eventually stopping in front of the resort hotel which is to be the main locale of the action. We find, by means of a simple timing test, that our titles and credits will require 20 feet of footage. With this in mind, we rehearse our travel shot a couple of times until we

know that we will have exposed at least 20 feet of scenery before the camera stops in front of the hotel.

We proceed to film the scene as rehearsed and let the camera continue to run after we have stopped in front of the hotel, so that the action of the first scene of our picture will be recorded. Next, we rewind our film and double-expose our titles onto the first 20 feet of the scene. On the screen we will get the effect of a travel shot along the road while the credits are being read. As soon as the lettering is read it fades out and the car drives up to the hotel, where the action of the screen story itself will begin to unfold.

In order to make sure that you have a common point from which to accurately measure the two scenes, always shoot such titles at the beginning of a roll. Remove the lens and run off your leader until the perforations at the head of the roll can be seen in the aperture opening. Use these perforations as your guide and set your footage counter at 0. When you are ready to make your second exposure on the rewind roll, begin once more at the perforations.

Superimposed titles need not always be made over an action background, however. They are also effective when superimposed on a close-up of an emblem or insignia, or any other subject that ties in

FONDA BASIC MODELS											
Speeds and developer times given are normal standards. Variations may be obtained by adjusting variable speed drive or altering developer loop lengths by the Fonda built-in adjustment mechanism.											
FILM TYPE	FILM SIZE	MODEL NO.	APPROXIMATE OPERATING SPEEDS			APPROXIMATE MACHINE SIZES Includes Feed Elev. & Work Tables Both Ends					
			Positive 4 Min. Dev.	Negative 9 Min. Dev.	Reversal 6 Min. 1st. Dev. 6 Min. 2nd Dev.	WET END		DRY END			
						Length	Width	Reqd. Ceiling	Length	Width	Height
Negative	16 mm.	F-1012 F-1021		29 fpm 58		6½ ft. 9	3 ft. 3	12 ft. 12	5 ft. 7	3 ft. 3	7 ft. 7
	16/35 mm.	F-3008 F-3018		17 34		6½ ft. 9	3 ft. 3	12 ft. 12	5 ft. 7	3 ft. 3	7 ft. 7
Positive and Negative	16 mm.	F-1011 F-1014	65 fpm 131	29 58		9 13	3 ft. 3	12 ft. 12	7 ft. 9	3 ft. 3	7 ft. 7
	16/35 mm.	F-3017 F-3002	39 78	17 34		9 13	3 ft. 3	12 ft. 12	7 ft. 9	3 ft. 3	7 ft. 7
Reversal	16 mm.	F-1008	44	29	44 fpm	13	3	12	5	3	7
	16/35 mm.	F-3016	26	17	26	13	3	12	5	3	7
			Microfilm 3½ Min. Dev.		Anso Color 12 Min. 1st. Dev. 15 Min. Color Dev.						
Microfilm	16 mm.	F-1020	75 fpm			9½	3	12	7	3	7
	16/35 mm.	F-3015	44			9½	3	12	7	3	7
Anso Color	16 mm.	F-1009 F-1002			43 fpm 87	16 26	3	12 12	5 7	3 3	7 7
	16/35 mm.	F-3013 F-3004			26 52	16 26	3	12 12	5 7	3 3	7 7



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directly with the theme of the picture. They are especially attractive when shot in color.

### Special Effect Titles

Certain subjects, especially comedies, require unusual titles. In making such titles it is important that they be smoothly executed, since tricks that show the "wires behind the scenes" succeed only in looking amateurish.

*Animated titles* are perhaps the trickiest and most effective type of special effects titles. They require a great deal of patience and precision on the part of the cameraman. From the mechanical standpoint it is necessary to have a good solid camera base (preferably of the type that allows the camera to be mounted vertically) or an animating stand—plus a camera that has a single frame lever.

With this sort of set-up it is possible to film titles that materialize out of a mess of scattered blocks or cut-out letters. To get this effect, it is best to mount your camera *upside-down*, and arrange your letters carefully to form the title as it will look when assembled on the screen. Single frame enough footage for the title to be read and then, for each frame exposed, begin to disarrange your letters little by little until you have a chaotic jumble of alphabet. When the films have been returned from processing, cut out this upside-down segment and splice it right side up into the body of the film. The effect will be that of scattered blocks or letters moving precisely into position.

By using painted sheets of celluloid carefully registered on pins, you can make letters materialize out of almost any kind of painted composition. Here, again, the effect is achieved by single-framing, and a great many separately painted cells must be made so that the appearance of the letters will be smooth.

You can make animated titles by making each letter appear to pop into place—or you can make the titles seem to spell themselves out in shells, beads, etc., by mounting your camera upside-down, carefully arranging your units to spell out the title, then removing one bead or shell for each frame exposed.

Simple devices can be purchased or constructed for making *flip-flop* and

*scroll* titles. The flip-flop device consists of a title board mounted on a pivot so that it can be flipped over while the camera is running to show another title on the back of the board. The scroll device consists of a drum onto which the title is mounted, and a small motor to move the drum around at a uniform rate of speed in front of the lens.

*Fades, dissolves* and *wipes* add a great deal to the effectiveness and professional appearance of the titles, and can easily be made with a camera having a wind-back device and a dissolving shutter—or they can be optically printed by a laboratory.

Titles should be lighted by means of two No. 2 photoflood lamps placed on either side of the title at a uniform distance from its center. Special lighting can be had by projecting shadows onto the title board or by shining a concentrated spot of light onto the center of the lettering. In timing your titles, read them over rapidly *twice* while the camera is running. This will allow your slower readers in the audience sufficient time to read the lettering.

*NEXT ISSUE: Part 19, Presenting Your Film.*

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## Continuous Conveyer Speeds Camera Production

A "merry-go-round" is helping to speed the production of cameras at the Eastman Kodak plant. The continuous conveyor system really serves as a moving storeroom as well as a most efficient transportation device for camera parts on the assembly line; greatly aiding production. Company states this is the first time that conveyors have been utilized for relatively small products, such as cameras.

## Monroe With Bell & Howell

H. S. Monroe has been appointed industrial sales manager of the Bell & Howell Company, according to announcement by president J. H. McNabb. Monroe, active in the photographic field since 1926, was previously a producer of commercial films, and was with the U. S. Navy for four years in the training film branch during the war.

To provide the 20,000,000 gallons of water required daily by Kodak Park, the Eastman Kodak Company maintains its own water plant and special purification unit on the shore of Lake Ontario. A new suction pipe more than a mile in length and 58 inches in diameter was recently installed to meet even greater demands for fresh water.

## TRIANGLE LIGHTING

(Continued from Page 446)

girl is that the side light has been pulled in so that it is almost exactly at the camera to subject line and has been used just a little above the level of the camera lens. When a side light is brought in this close to the camera light some further decrease in exposure is called for.

Incidentally, whereas the position of the side light shown in the diagram is a "safe" one for almost all picture purposes, that light so frequently used for emphasis is often used to strike the principal subject full in the face. If, as in this scene, the subject is facing the camera the side light will be used above the camera. If the subject is facing forty-five degrees right or left, the side light might be used forty-five degrees right or left. By directing the side light full into the front of the face the prominent planes of the face are high lighted, the bone structure is brought out, modeling is good and the contours of the face are brought out to advantage.

In picture No. 5 all lights have been used well back. Essentially this is a three light arrangement of camera light, side light and back light. The open shadows reveal the presence of the camera light. The side light which has been used to the right and slightly above the head level of the central figure is evidenced by



PICTURE 5

the shadow beside his nose and under his chin, and the effect of the back light can be seen on the girl's hair, the hair of the man in the center and on the face of the man at the right who, because of his position, is almost side lighted by the back light.

While it is true that professional movie sets will be literally a constellation of lights, insofar as the central subjects are concerned, the camera light, side light and back light are evident in almost all movie scenes and are arranged on some variation of the "Triangle Lighting" formula. To this small constellation of lights, experienced workers add other lights from myriad directions and for multiple purposes, but it does remain an almost fixed constellation to which all lesser lights are related.

And it is a basic arrangement on which the movie maker can rely for good, consistent results, simply achieved.

And if he prefers to use the jargon of the movie maker he can call his side light the "Key," his camera light the "Fill," and appear quite profound in working with something essentially simple.

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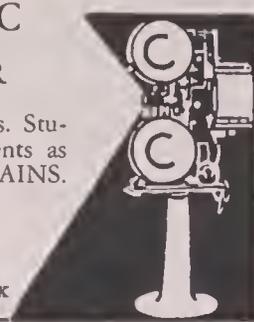
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Radiant Manufacturing Corp., manufacturers of projection screens, announces an addition to the Radiant product family. The newcomer is their new Baby Boom Utility Light, a device specifically designed to fulfill a long-felt need among home photographers for a flexible, mobile light unit.

Flexible as a ballerina, versatile as a magician, this neat performer provides the amateur with "studio calibre" lighting at extremely low cost.

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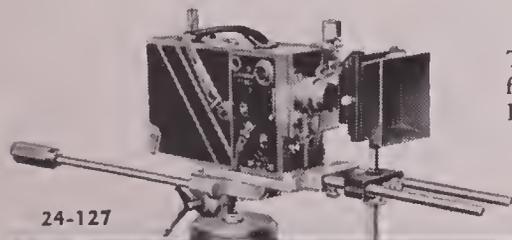
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Bausch & Lomb Optical Company, of Rochester, N. Y., manufacturers of precision optical lenses, celebrated 94th anniversary of company's founding last month. Firm was originally founded by John J. Bausch in a small optical shop, with capital of \$60 loaned by Captain Henry Lomb. Today, the company is recognized as a leading manufacturer of scientific optical instruments, and has been prominent in the development of lenses for motion picture photography.

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# HANDI-BAR MOVIE LIGHT STAND



Pictured above is the handi-bar movie light, recently added by the Bell & Howell Company, Chicago, to its line of movie accessories. Whether the handi-bar is used with or without a tripod, individually-controlled light sockets mounted in swivels at either end may be swung with the camera or pointed in any direction that suits the operator. Either photoflood reflector bulbs or spotlight bulbs may be used to furnish illumination.

## Twin Speaker Unit For Kodoscope FS-10-N

A twin-speaker unit, offering greater sound volume and definite gains in tonal quality, is available now—in strictly limited quantities—as standard equipment with Sound Kodoscope FS-10-N Projectors.

The unit consists of two twelve-inch speakers built into the halves of a convenient carrying case that can be set up in several ways—joined or separated—to make possible optimum sound coverage in any auditorium. Set side by side, placed at an angle to cover the audience, or located at opposite sides of the auditorium stage or platform and connected by an accessory cord, the twin speakers offer a flexible means of adjusting sound to the arrangement of the seats and the size and shape of the auditorium.

Since the speakers can utilize the full output of the amplifier, there's greater sound volume when it's needed. And, because these larger speakers handle the power with capacity to spare, there are marked tonal advantages at high sound levels over single speakers. The sound is always clear, distinct and undistorted.

To control production and processing conditions and to air-condition the many buildings where Kodak Films and Papers are made, a refrigeration unit with an average daily production equivalent to 15,000 tons of ice is operated at Kodak Park.

## International Federation Of Cine Clubs Formed

An International Federation of Cine Clubs was launched at the recent Cannes International Film Festival, with founders including representatives mainly from European and South American countries. Headquarters of the Federation will be in Paris.

The Kodak Research Laboratories at Kodak Park, Rochester, N. Y., are the largest laboratories in the world devoted exclusively to research on problems pertaining to photography. More than 500 people are continually searching for additional information on the "why" and the "how" of picture taking.

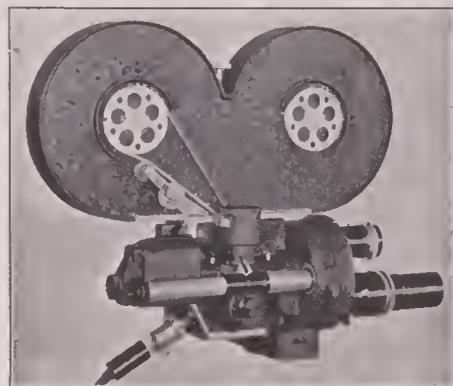
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## NEW FILMO 8 MODEL INTRODUCED

**O**FFERING many features never before built into any 8 mm. camera, the Filmo Auto-8 magazine loading 8 mm. movie camera is announced by Bell & Howell Company, Chicago.

Some of the outstanding innovations incorporated in B&H's newest Filmo are:

**Two-Lens Turret**—The two-lens turret introduces a unique lens-switching system that makes possible instantaneous interchange of lenses while the camera is in photographing position. The second lens is always ready for instant use and the matching positive viewfinder rides around with the lens and is automatically positioned. The Filmocoted  $\frac{1}{2}$ " f/1.9 and  $\frac{1}{2}$ " f/3.5 focusing mount lenses are interchangeable with other special purpose lenses.

**Lens-Seating Arrangement** — B & H points out that the lens-seating arrangement is of entirely new design, too; a feature which permits the operator to screw the lens firmly into the turret and then adjust the graduation marks to most convenient position for individual reading.

**Magazine Loading and Ejector System**—Loading and unloading the Auto-8 is said to be fast and exact, since there are no sliding drawers or cumbersome ejector devices, and B&H claims that the fingertip ejector can be operated even with



gloved hands. B&H states further that in the interlock between ejector and film footage dial lies a new "mistake proof" feature. For convenience of Auto-8 users, the ejector button will not dislodge the magazine unless and until the footage dial is reset. The operator can't forget to reset the dial.

**Audible and Visible Footage Indicators**—The Filmo Auto-8 has a nine-foot film run per winding, enough for three longer-than-average scenes. And, so that the movie maker will not be cut off in the middle of a scene, a warning click sounds at a point two film feet before the end of the governor-controlled, constant-speed run. In addition, B&H explains, there is a pointer which appears in the viewfinder at three-inch intervals throughout the film run. A film-end indicator drops into view at the end of the full 25-foot run.

**Operating Speeds**—There are five operating speeds (16, 24, 32, 48, and 64 frames per second), a single-picture release, and a continuous operation lock that allows the movie maker to get into the picture himself. The Auto-8 was designed so that different positions of the same control button are responsible for the three types of performance.

Dressed in a rich brown, wear-resistant finish with gleaming chromium trim, the Filmo Auto-8 is described by Bell & Howell as "sleek, but business-like" in its freedom from functional contours. The 2" x  $3\frac{1}{2}$ " x 5" Auto-8 is small enough to fit a coat pocket, and with the handy carrying cord that is attached, movie making can be a matter of a moment's notice.

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## PARIS LETTER

(Continued from Page 437)

this condition was common with the other lots.

In discussing the French lighting technique with these men, I asked several of them separately why they invariably employed the flat lighting which was discarded here twenty years ago. I spoke of the American practice of modeling for three-dimensional effects by using multiple light sources. The answer may have been given in good faith, but it still sounded like double-talk to me. They all replied that the majority of their films were serious drama; they seldom made comedies. "In the drama," they said, "there is no occasion for modeling and complicated lighting techniques. That stuff is only for comedies."

Since they seemed to be serious about it, I went away mumbling that answer over and over again. They tell me I still have a haunted look in my eyes. It's only that I don't understa-a-and . . . !

The fact remains, however, that the French make some excellent pictures from the story treatment angle . . . at least the ones we see . . . and there is little wrong with their industry which cannot be cured by enough money and equipment, but at present they are short of both. The financial situation has become so acute that Gaumont and Pathé have just consolidated, so that they "might have more adequate means of production." As of this month, the report comes from Paris that the industry is at a new low and there seems to be little prospect for any great activity in the near future.

### Victor's New Plant

New factory and office building costing in excess of \$1,500,000 will be constructed as soon as materials become available by Victor Animatograph Corporation of Davenport, Iowa, according to announcement by president Samuel G. Rose. Floor space of 150,000 square feet will allow for centralization of manufacturing facilities, and will greatly increase capacity for the various types of 16 mm. motion picture equipment marketed under the Victor name.

### AnSCO Expands Processing

Processing of AnSCO color amateur motion picture film will be accentuated to double of present capacity with the opening of a new processing laboratory in Chicago last month, according to general sales manager C. W. Priesing.

Laboratory, equipped with latest types of processing machinery, is designed to handle both AnSCO color and black-and-white amateur film, and will provide rapid processing service for users of AnSCO amateur film in the mid-west area.

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## "BLACK NARCISSUS"

(Continued from Page 433)

Some 120,000 feet of tubular steel formed the framework for this monumental bit of landscaping. Timber formers were fixed to the scaffolding, and they in turn were covered with pre-fabricated plaster or cement sheets, painted to resemble the natural rock. In constructing the framework, abnormal stress beyond usual wind and weight considerations was allowed for.

Thirty tons of gravel and soil were hauled by rope and pulley to the top of the "mountain" in order to make paths and terraces. Trees and plants from the studio grounds were "tubbed" into the mountainside to provide foliage, and the terraces were planted with a special quick-growing variety of seeds to simulate the cultivated areas. The pathways up the mountainside were strong enough for horse traffic, but narrow and winding to give a true impression of height and grade. Large boulders, faithful in color and shape to the rock strata of the locale, were placed here and there to satisfy the demands of the story and the general decorative effect.

### Art Direction at Its Best

Alfred Junge, who created the spectacular settings for "Stairway to Heaven" is also responsible for the colorful sets in "Black Narcissus." For this picture he was called upon to design settings which,

though located in one of the Northern provinces of India, were creations of the author of the book. Thus, while the customs and traditional costumes of the Nepalese, Bhutanese and Tibetan peoples who mingle in this province were carefully duplicated, the color and structure of the architecture had to be "what might have been."

The action of the story takes place mainly in the former "House of Women," which the nuns transform into their convent school and hospital. Before deciding on the individual sets, Mr. Junge made clay models of the entire palace in order to establish a geography for the structure that would suit the action described in the book. In designing the sets, he had to look at each room from three separate points-of-views: first, the room as it was when purely "native"; second, the innovations which the nuns made in trying to obliterate the highly-colored past of the buildings; and thirdly, the atmospheric struggle between the "old" and the "new," with the *old* gradually winning out as the jungle creeps in on the cultivated patch.

In the story, the nuns transform the old palace bathroom (a luxurious chamber with a sunken alabaster pool and semi-nude Indian figures painted on the walls) into their dispensary. They place cabinets full of medicine bottles at strategic points to hide some of the more blatant nudes,

and the pool is covered with thick plain wooden planks. When the nuns try to whitewash some of the murals on the walls, they find that the figures reappear through the paint.

With these events in mind, Alfred Junge had to imagine what the rooms would have looked like before and after the change-over. When he came to design the tiny chapel for the nuns he had to think: "Now what could this room have been before? . . . ah! . . . perhaps a stable . . ." So we see the old disused stable, with its cobwebs and dust and ornate stalls, transformed into an austere and lovely little chapel with brass altar ornaments and greenery decorations for the Christmas service.

Another ingenious change-over was that of the Sister Superior's office. While examining old Indian prints and paintings, Art Director Junge noticed that birds, both in and out of cages, were often featured—so he decided that the room might originally have been an aviary. We first see it filled with grimy cages of birds long since set free. Later, after the nuns have cleaned it up, the room appears very plain except for a few remaining cages to which birds have returned through the windows. Their gay plumage and flutterings about the room add a brilliant touch to these scenes.

The most beautiful interior set in the film is the Blue Room of the palace, with its long blue walls, red framed mirrors, and delicately latticed windows. The flam-

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boyant color scheme is typically Indian, and it serves as a most appropriate background for one of the more dramatic sequences. On the wall of this room hangs a picture which, in Indian characters, tells the story of the palace. It was designed and executed in the Art Department at Pinewood, but has such an appearance of age and authenticity that it fooled even experts on Indian art.

The brilliantly colored costumes in "Black Narcissus" add much to the tapestry-like pageantry of the film, and help to bring out many important subtleties of the story. The sharp difference in psychology between the natives and nuns is symbolized in the contrast between their respective habits. The brightly colored costumes of the natives blend naturally with the flamboyant chambers of the palace, but contrast sharply with the austere white vestments of the nuns. The local Indian ruler and his son appear in lavishly bejeweled costumes of gold brocade and sequins—creating a private blaze of color wherever they go.

### The Brain Behind the Lens

Cinematographer Jack Cardiff, A.S.C., whose brilliant direction of photography does much to make "Black Narcissus" a visual treat, is known as Britain's leading Technicolor cameraman.

Born in 1914, the son of a music hall comedian, he became a child actor in films

at the age of four, and by the time he was fourteen he was working in the silent version of "The Informer." His interests later shifted from acting to the technical side of film production, and he became an assistant cameraman at the Elstree Studios near London.

While at Elstree, he worked with such notable directors as Rene Clair, Jacques Feyder, Alfred Hitchcock and Fred ("Ben Hur") Niblo. During his apprenticeship he learned a great deal about technique from Hollywood's guest cinematographers who came over to film special pictures.

In 1936 Cardiff was offered a job in the camera crew on "Wings of the Morning," the first Technicolor film made in England. Becoming highly enthusiastic about the new color process, he joined Technicolor Ltd. as a staff cameraman, and was sent around the world photographing "World Window" travelogues.

His next assignment took him to the Sudan for location work on Alexander Korda's "Four Feathers," and in the summer of 1939 he was sent to France to make the first French Technicolor film, "Main Streets of Paris." Production was suspended when war was declared.

After shooting "The Great Mr. Handel," he sailed to America in convoy shooting "Western Approaches," the story of the perilous life of the merchant seamen bringing food and munitions to be-

sieged Britain. His inspired Technicolor photography of the crew of a torpedoed merchantman adrift for days in the Atlantic established a new high for harsh realism in color documentaries.

He next went to Egypt for location shooting on Shaw's "Caesar and Cleopatra," and in 1945 teamed up for the first time with Michael Powell and Emeric Pressburger of *The Archers* to film the magnificent "Stairway to Heaven." This technically brilliant film set a new standard of photographic excellence and established Jack Cardiff as Britain's outstanding color camera artist. His work in "Black Narcissus" not only assures his reputation, but goes even farther in illustrating hitherto unrealized possibilities for the kinetic use of color on the screen.

Cardiff's style in color cinematography is based on a solid understanding of the complex Technicolor process, its chemistry and limitations.

His lighting has a crisp clean quality, softened by enough contrast to give it depth and modelling. His use of colored light stems from an accurate emotional interpretation of the drama of the scene. He is a daring but sure experimentalist, adapting original subjective angles and effective low-key lighting patterns to bring out a good deal more of the subtle meaning of the story than is indicated in the script.

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city streets. These background "movies" have been the subject of serious studio censorship, with magazine writers either refused a view of them or permitted to see them only after crossing their hearts not to tell.

So what happens? The picture makers themselves show you how it's all done in "Variety Girl," a story of a movie-struck girl's adventures behind the scenes in Hollywood. Seventeen-year-old Mary Hatcher, a singing star of "Oklahoma," accidentally walks behind a transparency screen. Her shadow goes bobbing across a Pennsylvania forest where, for story purposes, Cecil B. DeMille is directing his indispensable Indians.

### Electric Repeater Devised

The other development is a gadget which Jennings and a former Navy radar engineer, young Gil Stancliff, invented. It is an electronic "repeater" which will record on a separate film every move made by the camera to which it is wired. With this operating, the camera, heretofore required to remain stationary, can photograph the background in daylight and repeat, move for move, the same scene to .0001 of an inch accuracy at night. Thus, stars and lights photographed with longer exposures, for "The Big Clock" were superimposed over the vivid daylight shot.

The repeater, coupled with a highly technical "nodal point camera mount" and activating a "constant focus photographing channel" contrivance, also will make it easier for trick experts to mat (or block out) unwanted backgrounds from each frame of film and permit other backgrounds to be substituted. For instance, a miniature fort can be photographed, thousands of persons can be put through their paces in any old field and then dropped into the fort with greater ease.

Similarly, it will simplify fantastic shots like that of nine Fred Astaires dancing with themselves in a recent picture. This trickery, incidentally, was accomplished by having Astair perform his dance three times—the first, close up, in the center of the film, the second and third times to the right and left sides of the film. The right and left shots were duplicated with prisms, and then the three dances were "matted" onto one film.

### Special Effects Accomplishments

Jennings' "engineering" feat in merging the two remote rivers was movie trickery of a high order. The "Unconquered" script called for Gary Cooper and Paulette Goddard, pursued by Indians, to paddle down a river's rapids and go over some waterfalls. One of the rivers had rapids but no falls; the other had falls but no rapids. Each river was photographed separately, and the two films were matted together to look like one stream.

Using this matted film for a transpar-

ency background, Jennings had Cooper and Goddard photographed while being dropped five feet over a studio-made torrent that blended with the background. At the bottom of this drop, the stars were supposed to grasp an overhanging tree limb and swing themselves under the falls to the safety of a hidden ledge. But there was no tree growing near the originally photographed falls! So . . . artists painted a tree limb over each frame of the matted film. Then a live "double" for the limb was installed on the studio tank stage, and stunt men and women, doubling for Cooper and Goddard in a canoe, slid down an invisible piano wire track through a man-made waterfall and grabbed, as it were, the little-tree-that-wasn't there. By quick shifting of scenes, the trick artists will show Goddard and Cooper, themselves, falling through space (for five feet); doubles falling the hazardous part of the drop and grasping the limb; then the real principals climbing off the ledge.

"We didn't do this to hoax anyone," Jennings explained. "It was the only way it could be done. And it adds entertainment to pictures."

In spite of a new problem every day, Jennings whistles while he works, walks with slow heavy movements, has had time to become a 32nd degree Mason, plays a hot game of golf, and can look

back on almost three decades of motion picture photographic achievements with considerable satisfaction. Shortly after he came from his home in Salt Lake City to take a job as assistant cameraman in 1919 with Lois Weber's one-woman producing company he was doing the first tricky, moving titles for Thomas Ince. These, simple by present standards, consisted of pasting titles on glass and sliding them over painted scenes. "They kept the other fellows in the business fooled for a long time," he recalls.

The work attracted DeMille, and Jennings has worked with him off and on, at Paramount, ever since. He created the odd perspective for "Alice in Wonderland," painted the bridge for "For Whom The Bell Tolls," and once was bawled out for "building" a "castle" in Oregon which an executive seeing it for the first time thought cost thousands of dollars. "It was seven feet high and cost fifty dollars," he laughs.

Jennings says he will put one of his many inventions up for an Academy Award this year and the complete assembly next year. Amazing as they seem, they will not, Jennings thinks, provide Paramount permanent advantage over other companies.

"They'll probably trade the junk for an actor or a can of raw film," he says, fatalistically.

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# Current Assignments of A.S.C. Members

**M**EMBERS of the American Society of Cinematographers were engaged as Directors of Photography in the Hollywood studios during November as follows:

## Allied Artists

- Stanley Cortez, "Smart Woman," with Constance Bennett, Brian Aherne, Barry Sullivan, Michael O'Shea.

## Columbia

- Les White, "The Fuller Brush Man," (Edward Small Prod.) with Red Skelton, Janet Blair, Don McGuire, Hillary Brooke, Ross Ford.
- Ernest Laszlo, "Lulu Belle," (Benedict Bogeaus Prod.) with Dorothy Lamour, George Montgomery, Glenda Farrell, Otto Kruger, Greg McClure.
- Henry Freulich, "Adventures of Silverado," with William Bishop, Gloria Henry, Forrest Tucker.
- Vincent Farrar, "My Dog Rusty," with Ted Donaldson, Ann Doran, John Litel, Mona Barrie.
- William Snyder, "The Loves of Carmen," with Rita Hayworth, Glenn Ford.

## Eagle-Lion

- John Boyle, "Mickey," (Cinecolor) with Irene Hervey, Bill Goodwin, Lois Butler, Hattie McDaniel, Skip Homeier.
- Charles Van Enger, "The Moose Hangs High," with Bud Abbott, Lou Costello, Kathy Downs, Mike Mazurki.
- John Alton, "Corkscrew Alley," with Dennis O'Keefe, Claire Trevor.

## Independent

- Ben Kline, "Half Past Midnight," (Sol Wurtzel Prod.) with Kent Taylor, Peggy Knudsen, Joe Sawyer, Walter Sande.
- George Robinson, "The Challenge," (Reliance) with Tom Conway, June Vincent, Richard Stapley.
- Mack Stengler, "Let's Live Again," (Frank Seltzer Prod.) with John Emery, Hillary Brooke, Taylor Holmes, Diane Douglas.

## Metro-Goldwyn-Mayer

- Hal Rosson, "Homecoming," with Clark Gable, Lana Turner, John Hodiak, Anne Baxter, Cameron Mitchell.
- Charles Schoenbaum, "Hills of Home," (Technicolor) with Edmund Gwenn,

Janet Leigh, Tom Drake, Donald Crisp, Reginald Owen, Rhys Williams, Lassie.

- George Folsey, "State of the Union," (Liberty Films) with Spencer Tracy, Katharine Hepburn, Van Johnson, Angela Lansbury, Adolphe Menjou.

- Robert Surtees, "The Big City," with Margaret O'Brien, George Murphy, Robert Preston, Danny Thomas, Karin Booth, Betty Garrett, Lotte Lehman.

## Monogram

- Harry Neumann, "Song of the Drifter," with Jimmy Wakely, Cannonball Taylor, Mildred Coles.

- Marcel LePicard, "Angels' Alley," with Leo Gorcey, Huntz Hall, Geneva Gray, Frankie Darro, Dewey Robinson, Wade Crosby.

- William Sickner, "Charlie Chan in New Orleans," with Roland Winters, Victor Sen Young, Mantan Moreland, Douglas Fowley.

## Paramount

- John Seitz, "The Long Gray Line," with Alan Ladd, Donna Reed, Tom Neal, Audie Murphy, Dick Hogan, Russell Wade.

- Lionel Lindon, "Sainted Sisters," with Veronica Lake, Joan Caulfield, Barry Fitzgerald, George Reeves, William Demarest, Beulah Bondi.

- Ray Rennahan, "A Connecticut Yankee," (Technicolor) with Bing Crosby, Rhonda Fleming, Sir Cedric Hardwicke, Murvyn Vye, Virginia Field, William Bendix.

- Daniel Fapp, "Hazard," with Paulette Goddard, Macdonald Carey, Stanley Clements.

## RKO

- Lucien Ballard, "Berlin Express," with Merle Oberon, Robert Ryan, Charles Korvin, Paul Lukas, Roman Toporow, Robert Coote, Peter Von Zerneck.

- Joe Valentine, "Joan," (Sierra Pictures) (Technicolor) with Ingrid Bergman, Jose Ferrer, John Emery, George Coulouris, Richard Ney, Hurd Hatfield, Robert Barrat, Selena Royle, Gene Lockhart, Roman Bohnen.

- Joseph Walker, "The Velvet Touch," (Independent Artists) with Rosalind Russell, Leo Genn, Claire Trevor, Sydney Greenstreet, Leon Ames, Frank McHugh.

- Roy Hunt, "The Arizona Ranger," with Tim Holt, Jack Holt, Steve Brodie, Nan Leslie.

## Selznick

- James Wong Howe, "Mr. Blanding Builds His Dream House," with Cary

Grant, Myrna Loy, Melvin Douglas, Dan Tobin, Louise Beavers, Cliff Clark.

## Twentieth Century-Fox

- Harold Jackson, "Ballad of Furnace Creek," with Victor Mature, Coleen Gray, Glenn Langan, Reginald Gardiner, Charles Kemper.

- Joseph MacDonald, "Call Northside 777," with James Stewart, Richard Conte, Helen Walker, Lee J. Cobb, George Tyne.

- Joe LaSelle, "Deep Water," with Dana Andrews, Joan Peters, Cesar Romero, Anne Revere, Dean Stockwell, Mae Marsh.

- Leon Shamroy, "This Is the Moment," (Technicolor) with Betty Grable, Douglas Fairbanks, Jr., Cesar Romero, Walter Abel, Reginald Gardiner, Harry Davenport.

- Norbert Brodine, "Sitting Pretty," with Robert Young, Maureen O'Hara, Clifton Webb, Richard Haydn, Celeste Holm.

- Arthur Miller, "Walls of Jericho," with Linda Darnell, Cornel Wilde, Anne Baxter, Kirk Douglas, Ann Dvorak, Marjorie Rambeau, Coleen Townsend, Barton McLane.

## Universal-International

- Russell Metty, "All My Sons," with Edward G. Robinson, Burt Lancaster, Mady Christians, Howard Duff, Louisa Horton, Frank Conroy.

- Milton Krasner, "Up In Central Park," with Deanna Durbin, Dick Haymes, Vincent Price, Albert Sharpe, Thurston Hall, Tom Powers, Hobart Cavanaugh, Moroni Olsen, Nelle Fisher.

- Irving Glassberg, "Casbah," (Marston Prod.) with Yvonne De Carlo, Tony Martin, Marta Toren, Peter Lorre, Thomas Gomez, Hugo Haas, Katherine Dunham.

- Hal Mohr, "Another Part of the Forest," with Frederic March, Ann Blyth, Dan Duryea, Edmond O'Brien, Florence Eldridge, John Dall, Fritz Leiber.

- Maury Gertsman, "Are You With It?," with Donald O'Connor, Olga San Juan, Martha Stewart, Lew Parker, Pat Dane, Walter Catlett, Louis Da Pron.

## Warners

- Carl Guthrie, "April Showers," with Jack Carson, Ann Sothorn, Robert Alda, S. Z. Sakall.

- Robert Burks, "To the Victor," with Dennis Morgan, Viveca Lindfors, Victor Francen, Bruce Bennett, Dorothy Malone, Tom D'Andrea, Eduardo Ciannelli, Richard Walsh.

- Ted McCord, "Johnny Belinda," with Jane Wyman, Lew Ayres, Charles Bickford, Agnes Moorehead, Stephen McNally, Jan Sterling.

- Ernest Haller, "Winter Meeting," with Bette Davis, James Davis, Janis Paige, John Hoyt, Florence Bates, Walter Baldwin.

- Woody Bredell, "Adventures of Don Juan," with Errol Flynn, Viveca Lindfors, Robert Douglas, Romney Brent, Alan Hale, Robert Warwick.

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## 25 YEARS AGO

### With A.S.C. and Members

• Phil Rosen, A.S.C., was directing Rudolph Valentino and Wanda Hawley in "The Young Rajah" for Paramount, with James Van Trees, A.S.C. handling the photography.

• Reginald Lyons, A.S.C., was enroute to Texas to photograph a western feature.

• Ben Kline, A.S.C., had completed photography on a Frank Mayo starrer, which Stuart Paton directed for Universal.

• E. B. Du Par, A.S.C., and Floyd Jackman, A.S.C., were filming "Little Heroes of the Street," Warner Brothers feature with Wesley Barry and Mary Prevost.

• Bob Kurrle, A.S.C., joined the Metro camera staff to film "Country Love," featuring Billie Dove.

• Karl Brown, A.S.C., was Director of Photography on "The Old Homestead," directed by James Cruze for Paramount with Theodore Roberts starred.

• Also at Paramount, Paul Perry, A.S.C., had finished shooting "Pink Gods" for director Penrhyn Stanlaws, and Faxon Dean, A.S.C., was assigned to the Mary Miles Minter starrer, "Cowboy and the Lady."

• Harold Lloyd had Walter Lundin, A.S.C., in charge of the cameras for his starring comedy, "Doctor's Orders."

• Arthur Edeson, A.S.C., had a dozen cameras under his charge for shooting of spectacular scenes for Douglas Fairbanks' "Robin Hood."

• Walter L. Griffin, A.S.C., was enroute to Alaska to function as chief cinematographer for David Hartford productions.

• Herford Tynes Cowling, A.S.C., globe trotter, goes to Africa to photograph the Theodore Roosevelt trail country.

• Charles Rosher, A.S.C., returned from Italy where he was Director of Photography on "Sant' Ilario" for Ultra, and reported that lack of unity and organization hampered Italian production efforts.

• Sol Polito, A.S.C., left for New York to head the cinematographic department for Edwin Carewe Productions, in addition to handling photographic direction.

• Mitchell Camera Company was re-organized and incorporated under the firm name of Mitchell Camera Corporation, with capitalization of \$500,000. At a meeting of the concern, H. F. Boeger was re-elected president and general manager; M. J. Boeger, vice-president, and George Mitchell, designer and perfecter of the Mitchell camera, secretary-treasurer. A new factory was to be erected at cost of \$40,000.

• Paul Iribe, art director for Cecile De Mille, addressed an A.S.C. open meeting on "The Art Director and the Cinematographer."

• John Seitz, A.S.C., was in New York to continue as head cinematographer for Rex Ingram productions to be produced in the east.

• Edward Kull, A.S.C., was directing Universal's series of productions based on Jack London's "Tales of the Fish Patrol," starring Jack Mulhall.

• Al Gilks, A.S.C., was Director of Photography on the Gloria Swanson starrer at Paramount, "His American Wife."

• Glenn R. Kershner, A.S.C., just back from Tahiti and Papeete, described adventures while making "Passions of the Sea" for Metro. Kershner handled the second camera on the expedition under Clyde De Vinna, A.S.C., who was in charge of photography.

• Total of 20 cameras were used to film the forest fire scenes for Reginald Barker's production of "Hearts Aflame." Asbestos-lined camera booths were used to protect cameras and cinematographers from the fire, as many set-ups were directly in the path of the flames.

• James Van Trees, A.S.C., was in Hawaii photographing the Betty Compson starrer, "The White Flower," with many of the locations in the vicinity of Kileaua volcano.

• A.S.C. members were selling their DeBrie and Pathe cameras in favor of the new Mitchells.

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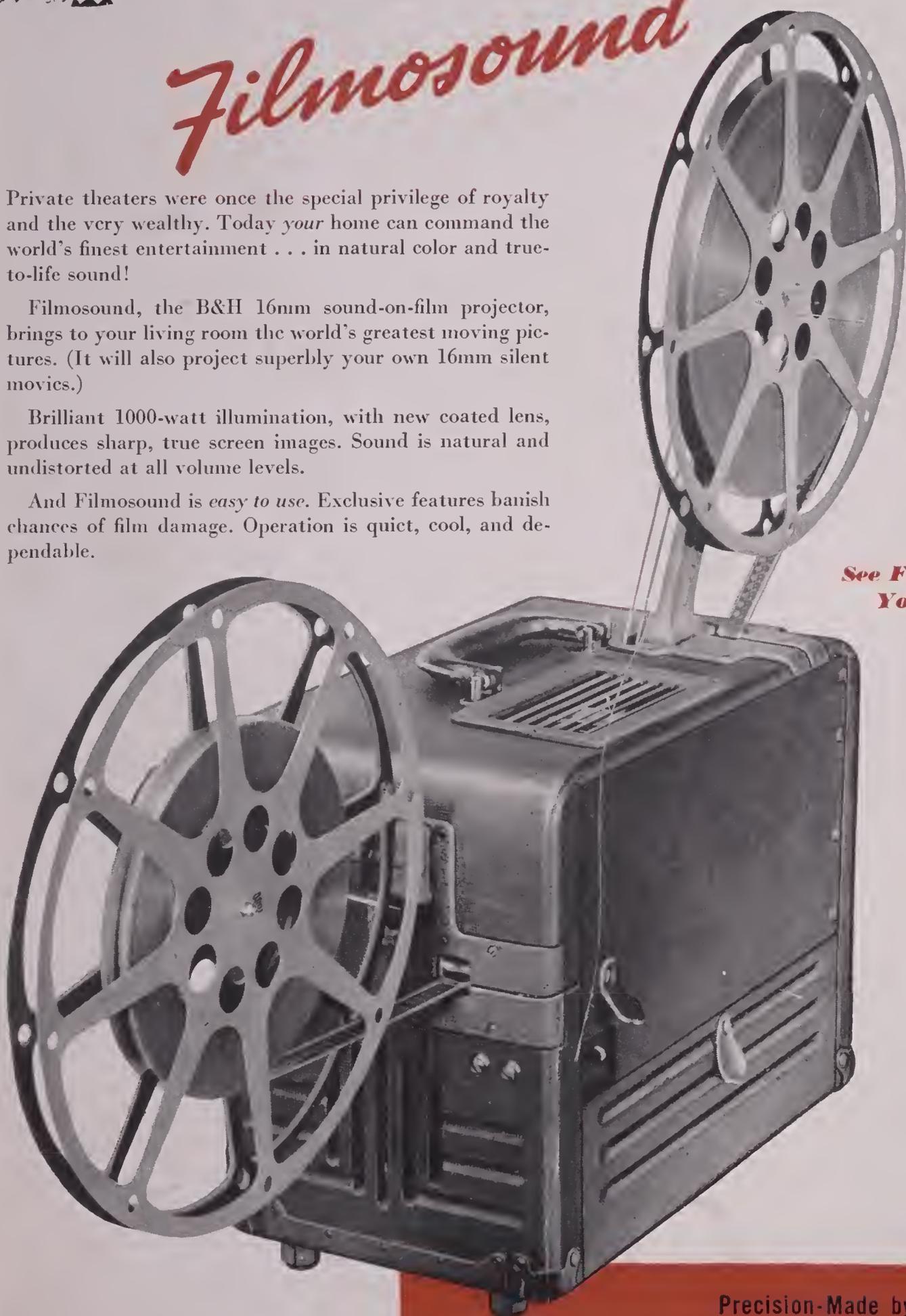
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