

important reason being that the colors impart the correct atmosphere from the aesthetic, logical, and psychological standpoints. Second, the highly sensitized film of today picks up the true values of the colors.

The art department maintains its own research organization, the function of which is primarily to provide material for the sketch-artists to help them with their ideas and to insure the authenticity of their drawings. The researcher must be generally familiar with practically all subjects, such as the periods of interiors, exteriors, furniture, costumes, fashions, and so forth, so that when a call comes for a modern Georgian interior, for example, the research department will know immediately where to find it with the least possible delay. Such subjects as animals, paintings, costumes, details, fashions, interiors, exteriors, flowers, transportation, *etc.*, are systematically indexed, so that even the matter of finding material in current and back issues of magazines can be accomplished with comparatively little loss of time.

*During the presentation of Mr. Harkrider's paper, Mr. Jack Smith, with easel, paper, and crayon, demonstrated the manner of preparing the sketch of a set. At the same time, Mr. Addison Hare, also of the Universal art department, indicated the manner of preparing the corresponding plans of the set. A model of the set was displayed, taken apart, and put together again by Mr. Paolo Grieco.*

*Following the proceedings thus far described, the members and guests of the Society adjourned to Universal's production stage 14, where they were shown the very set from "One Hundred Men and a Girl" that has been described above. The set was completely dressed and lighted in the usual way with all the necessary equipment, and was attended by a complete personnel for shooting the scene. Miss Deanna Durbin and Mr. Mischa Auer, actors in the scene, were present and ready to go through their parts. The scene was to be photographed while Miss Durbin played her part singing the song that had already been prescored.*

MR. TASKER: We shall now go ahead with the next part of our program. Mr. Frank Graves, superintendent of the electrical department, will discuss the production part of handling the equipment and how it works.

## HANDLING LIGHTING EQUIPMENT IN PRODUCTION

FRANK GRAVES\*

The function of "setting up" a set with lighting equipment does not by any stretch of the imagination come under the heading of

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artistic endeavor. It consists mainly in placing an abundance of assorted kinds of equipment in suitable locations around and about the set, so that when the cameraman is called upon to light a series of camera set-ups, each of which is a separate problem, he has close at hand and, as nearly as it is possible for him to foretell, the kinds of lamps required in the proper places to light the particular shot.

Sets could be arranged with much less equipment than it is the general practice to use, but the saving of time accomplished by not having to move lamps about on the platforms more than compensates for the cost of using the additional equipment.

Very seldom, except when making extremely long shots on very large sets, are all the lamps on the set used for any one shot. As an example, a set that was shot a few days ago had a connected load of approximately 4000 amperes. Meter readings showed that the largest operating load was 2100 amperes and the average about 900 amperes. The difference between the connected or "paper" load, as we call it, and the operating load is allowed for in our calculations, and we have often carried, on generators having a capacity of 18,000 amperes, a "paper" load of 50,000 to 60,000 amperes, without trouble or worry.

A large part of the labor of arranging a set is in the cabling, since it is necessary, of course, that all the lamps be fed and controlled. The usual practice is to run main feeders from a spider or bus attached to the runs from the power house, bring these main feeders to conveniently located switchboards, and from there, distribute the power through extension cables and plugging boxes to various places on the set.

At this studio we have eliminated a great portion of the labor necessary to cable a set by installing a permanent remote-control switchboard and cable system. On the platform above the set are cabinets containing sixteen magnetic contactors connected to the supply feeders from the power-house and controlled by push-buttons. To each contactor are connected four box cables, sixty-four cables in all. These box cables are spread over the bridges so that they cover the entire stage. When cabling a set, it is necessary for us only to drop the boxes, which are coiled on posts on the bridges, let down the buttons that control the contactors to which these cables are attached, plug in the lamps—and we are ready to shoot. All stages at Universal are so equipped, and the problem of cabling a set is, to us, a very minor one.

Now just a word about the "gaffer." The gaffer is the electrical department's representative on the set, and is the man in full charge of all electricians and equipment used by the unit to which he is assigned. He must be a combination of lighting expert, electrician, economist, and psychologist. He must manage his unit with a minimum number of men and in such a way that we do not exceed our budget. He must be able to keep his unit operating on locations, despite breakdowns of equipment or other unforeseen problems. He must know all the tricks and moods of his cameraman so that he can anticipate every wish. And last, he must watch the general lighting of the set and keep it right, despite the constant moving and shifting of lights, so that the cameraman may concentrate upon the finer details of his art.

MR. TASKER: According to the program there should now follow a discussion of "Lighting for Long Shots and Close-Ups" by Mr. Valentine, cinematographer; "Sound Pick-Up on a Production Basis," by Joseph Lapis, Production Mixer, and "The Director's Problem," by Henry Koster, Director. This discussion will not be in a form of a series of papers, but rather a running demonstration of the manner in which an actual scene is made. Mr. Valentine and his assistant will attend to the lighting. Mr. Lapis and his assistants will attend to the sound equipment, and Mr. Joseph Pasternak, associate producer on the picture *One Hundred Men and a Girl*, will pinch-hit for Mr. Henry Koster, who, unfortunately, is too ill to be present this evening.

In addition to these gentlemen, I am happy to present to you our cast for the scene—Miss Deanna Durbin, whom you have already seen earlier this evening, and Mr. Mischa Auer, whose amusing antics have entertained you in previous pictures. In this scene, Mischa, who is a life-long friend of Deanna's father, both of them being unemployed musicians, is seated at the piano playing an accompaniment to Deanna's song *Sunbeams*. This is the same song that you heard her prescore a few minutes ago. We shall use the disk record that was made at that time for Deanna to sing to in just the manner described by Mr. Brown.

*After Mr. Tasker's introduction, the camera, sound, and lighting crews went about the business of making a long shot of Miss Durbin singing "Sunbeams" with Mischa Auer at the piano, under the direction of Mr. Pasternak. As they went about their work they explained many points concerning the technic and the reasons for it, and*

*answered a number of questions from the audience. After the long shot a new set-up was made for a close-up of Miss Durbin, repeating a portion of the song. The difference in lighting technic, sound pick-up, etc., were explained.*

*At the conclusion of the demonstration the audience reconvened upon stage 10 where the scenes made during the foregoing demonstration were projected. They were first shown in the form of "dailies," take by take, exactly as photographed, showing the slates identifying the scene numbers and other information. The cut sequence was then projected, from which the slates had been removed and into which several takes had been intercut into a continuous scene, as would appear in the finished picture.*

*(It is hardly necessary to state, of course, that the finished scene, as projected, was not the actual one shot during this evening's session; such would have been impossible in view of the time required for processing, etc.).*

**MR. TASKER:** It must be evident by now that the mere taking of a scene on the stage does not constitute a completed picture, but that there is a tremendous amount of finishing work that must be done before the picture is ready to be shown in the theater. What happens next is the function of the editorial department. Mr. Maurice Pivar, supervising editor of Universal Pictures, will discuss the subject of film editing, followed by a demonstration of some of the work.

#### FILM EDITING

MAURICE PIVAR\*

Film editing is perhaps one of the few branches of the motion picture industry that are least appreciated by the layman. The efforts of the director, the writer, the actor, and the cameraman are clearly defined upon the screen, and the layman is at all times fully aware and, in fact, appreciative of their contributions toward the success or failure of the picture. True, the film editor's name always appears upon the screen, but very few persons know of the intricacies involved in his share of the work in making the picture. To them he is, perhaps, just another cog in the wheel. On the other hand, those who have had occasion to contact with the editorial department of any studio will admit that the film editor is more than merely a cog in the wheel.

Unlike most of the technical branches of the business, film editing does not follow any particular routine. Each picture and each sequence of a picture present a different problem to the film editor,

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