The Uses of Professional Film Techniques in Medical Motion-Picture Production

By DON WALD

Medical motion pictures made in hospitals are usually record-type shots with straight-cut editing; the various methods that lead to a smooth-running, interesting film are usually not employed. Prevention of such flaws as jump cuts, confusion from crossing stage lines, and the loss of identification due to time and position changes are discussed.

THE MEDICAL APPROACH to a problem is usually direct, unpretentious and orderly. As much as possible, all procedures are standardized, be they laboratory tests, x-ray examinations or surgical operations.

Many hospital photographic departments attempt to function in the same manner. However, photography, whether still or motion, is an art as well as a science. Suppression of the artistic aspect allows only partial fulfillment of goals. In motion pictures this is especially true. The average medical motion picture made by a hospital medical photographic department lacks imagination and technical cohesiveness. While medical photography is usually excellent, particularly in surgery, the problems that pertain to making motion pictures are often ignored. Time, money, lack of cooperation, and in some cases, lack of knowledge and equipment, are all contributory factors.

There is nothing more documentary than a medical record or surgical film. However, there is no need for it to be less interesting than other types of films. One of the problems in medical film production is to get a doctor to plan ahead. Many times, particularly in surgical films, the doctor decides the day before surgery and, in some instances, the morning of surgery or even during surgery, that he wants motion pictures taken. He may or may not have a finished film in mind. His reason for the cinematography may be anything from wanting to record an interesting or unusual case, to showing a new technique or piece of equipment or instrument or a combination of all of them. Rarely does he have a story line in mind or a shooting script as a guide.

Film-making is a very haphazard affair without a script. A script sets forth the idea that the film is supposed to convey, gives the story line, shows what is wanted visually, and, if the film is to include sound, provides the words.

A medical film is most often a one-man operation, the one man being the cameraman. He usually has a combination of amateur and professional equipment and must work in a small area that was never intended for photographic use. He faces the disadvantage of having to maintain sterility and asepsis in the working area. He often has little time to set up his equipment before shooting, and his work is always subordinate to the welfare of the patient. In spite of all this, much can be done to improve the quality of the projected film, to give it more of a "professional" look.

Lighting a surgical scene is limited by space, heat on the patient, and fire regulations; the lights must not blind the surgeon; and the operative field is usually very small, permitting few lights in any case. In nonsurgical scenes, better lighting can be achieved with a little care and the use of more lights when the required electricity is available.

There is a tendency to standardize the scenes and the people in medical films as one would the technique in a laboratory test. The film-makers seem to assume that it will be obvious that, e.g., "This is the patient six months later, and that his agility has increased over what it was before." The patient looks the same except for a little extra movement, and the time lapse is not usually apparent. Costuming is important for identification. Some standardization of patient costume and scene set-up is necessary in some instances, e.g., in gait studies where the medical condition and differences must be noted rather than the costuming. On the other hand, different costumes help to distinguish cast members from one another, and costume changes for individual cast members help to make clear the passage of time.

One might think that the use of make-up in such films would be unnecessary, but in many instances it makes the person look more natural because of the large amount of white in hospital scenes, and the flattening due to the bright lights. Also, make-up is handy to reduce the heaviness of many men's beards, which often are more apparent in photographs.

In a film teaching a certain procedure or technique, or illustrating the work of a specific department of a hospital, it is important to use in the cast, pleasant people who look the part they are playing, regardless of what their real capacities may be. The viewer's receptivity and attention is improved if he can look at a pretty nurse, a good-looking doctor, or a good-looking patient.

Footage is usually closely watched in making medical films, and it is difficult to shoot much protection footage. However, whenever possible, it should be done, if only to the extent of overshooting a scene to allow for possible fades or dissolves.

The biggest improvement can be made in editing the film. In many medical films, particularly surgical ones, the scenes that are wanted are spliced together as straight cuts regardless of continuity, stage line, jump cuts or screen direction. If dissolves or fades are used at all in a film, they are used in every scene change regardless of need.

In surgical procedures, printing effects are seldom used. It has been found, however, that the use of short fades and dissolves, depending upon the surgical techniques involved, will result in a smoother presentation of the operation on the screen. The doctors like it after they have once seen it. In nonsurgical scenes, various effects can be used to advantage. Dissolves, fades, various optical effects, cut aways and inserts can be used when properly handled, and they make for a smoother running and more interesting picture.

While it adds a little to the cost, a better, dirt- and scratch-free projection film may be obtained by having a working print made of the film in either black and white or color before it is edited and then having a release print made for projection, rather than editing directly on the original and, in some cases, even projecting that original film.

Sound is a sadly neglected component of medical motion pictures. Many medical films are silent, being narrated in person by the doctors who made them. Often he will use the film to illustrate part of a lecture rather than narrate an explanation of the film. Most sound medical films are narrated, with synchronous sound dialogue being used only rarely. Sound effects are not used often enough. Part of this deficiency is because often only one person is available to make the film, most cameras used are not blimped, and no proper sound recording equipment is available, nor is anyone available to use it. Also, sound editing equipment is not always available to such places. Rental of such equipment is rarely thought of or approved financially. Judicious use of sound

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Presented on April 2, 1965, at the Society's Technical Conference in Los Angeles by Don Wald, Mount Sinai Hospital, 8720 Beverly Blvd., Los Angeles, Calif. 90048.
(This paper was received on August 23, 1965.)

effects in scenes showing events that would produce sounds other than talking will result in greater perception by the audience even when such effects are background for narration. Such effects will make the scene more lifelike and realistic and will keep it from seeming to be taking place behind a closed window.

If lack of professional sound equipment is a problem, good sound can be obtained with an ordinary good-quality tape recorder. A tape can be edited to the picture commercially or, by having an editing record, either magnetic or optical, depending upon the equipment available, made and then editing that for final composite printing. With a little imagination, titles in medical films can be improved. Most medical films are shown at meetings or conventions, and the audience usually sees many of them, one after another. After the third or fourth one, they all seem to look alike.

Before the main part of the picture comes on, the audience's attention can be caught with (1) brightly colored backgrounds with the titles, or (2) titles overlayed on an introductory scene. If it is a sound film, the narration can begin, or appropriate music can be used or, if there are introductory scenic backgrounds, the natural sound effects of the scene can be used.

Music can be used in various ways to convey mood as well as to serve as background and to bridge scenes lacking narration.

Use of these various techniques is limited only by imagination, ability and the permission of the person for whom the film is made.

Finally, improvements in medical films can be accomplished only by diligently impressing on the medical profession the fact that motion-picture production is a specialized profession and an art. If a picture is to be made for use by the medical profession, it should be as nearly cinematically professional in quality as possible. Such professional quality can best be achieved by application of the broad variety of production techniques which have been developed by the producers of theatrical and commercial motion pictures.

Reprint

Mirror Cinematography in the Operating Room

By RONALD F. IRVINE

A method is described whereby deep surgical repairs can be photographed as though the camera were immediately above the incision, when in fact it is to one side and out of the way. The method employs a reflex motion-picture camera equipped with a long focal length lens (90 mm) in front of which is a front surfaced mirror mounted on a lightweight frame extending approximately two feet in front of the camera lens; immediately behind and below the mirror is a quartz-iodine lamp with a colour temperature of 3200 K. To ensure correct reorientation after the film has been made, it is essential that during photography, the camera be placed north, south, east, or west of the patient and never at any point in between.

In many of today's modern hospitals, exotic facilities are made available for photographing surgical procedures. However, in less fortunate hospitals the medical photographer has to do the best he can as quickly and as unobtrusively as possible.

In the case of cinematography this is not always easy; lights, heavy cameras, power packs, and unwieldy tripods have to be placed in the best possible position without hindering the work of the operating staff.

There are a number of excellent tripods on the market which allow the camera to be positioned immediately above the operative area. Unfortunately this arrangement has its disadvantages. When the camera is in the best position problems arise with regard to focusing, framing, frame counting, zooming (if required) and optical effects (fades and mixes) — lights have to be arranged in an already very full operating room.

With these drawbacks in mind, the following attachment was designed, Fig. 1. A front surfaced mirror — to eliminate a double image — is attached to a framework extended 22 in. in front of the camera, the optical axis of the lens to be in line with the mid-point of the mirror. For a lens of focal length of 70mm or more, a mirror measuring $6\frac{1}{4}$ in. by $4\frac{1}{4}$ in. is quite large enough, and is capable of rotation through 360°. Although no provision has been made in the existing attachment, it is perfectly feasible to have this framework extendable, and still retain its essential rigidity. A single quartz-iodine lamp (650 w) was mounted behind and below the mirror. With this arrangement, full control of the camera is possible. It can be moved into and out of the operating area with great rapidity and little fuss. An almost vertical picture can be taken, with flat lighting.

The chief objection to this method is the reversed image that is obtained. This can be overcome by placing the camera over the patient's head, i.e., shooting from a north/south position; by so doing the result is as though the film was taken from a south/north position. The fact that the surgeon is on the left or the right makes little difference. If it is impossible to work from this position as happens sometimes in open heart surgery because of equipment congestion, Fig. 2, position as near to north/south is secured.

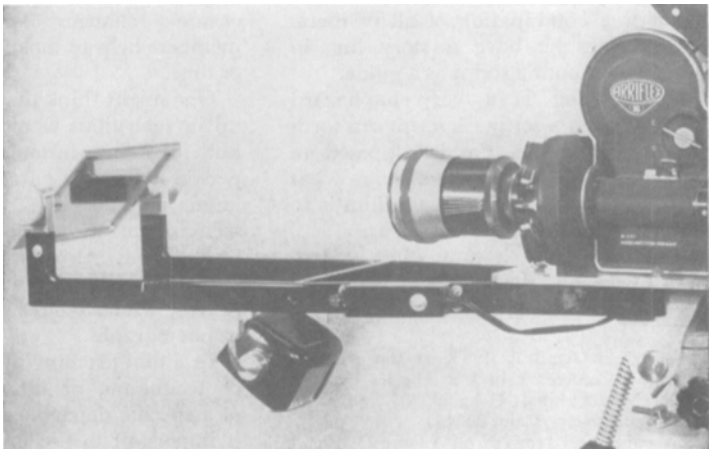

Figure 1

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