Color Committee Report

By HERMAN H. DUERR, Committee Chairman

Ansco, Binghamton, N.Y.

It is the practice to report to the membership from time to time about the work which is being carried on in the different technical committees. Due to the excellent support which the chairman has received from the members of the Color Committee and its subcommittees, it has been possible to make considerable progress on some of the projects the committee has undertaken. This report outlines briefly the present organization, the scope of its activities, what has been done so far, and what is being planned for the immediate future.

There is no scarcity of problems which could or should be tackled by the Color Committee. It is rather a question of doing first things first and giving priority to those problems which are of greatest concern to the industry. Any suggestions from the members will be very much appreciated.

The eighteen members of the Color Committee represent all major organizations actively engaged or involved in the production of color motion pictures.

The objectives of the Color Committee are to make recommendations and prepare specifications for the operation, maintenance and servicing of color motion picture processes, accessory equipment, studio lighting and projection light sources for color, selection of studio set colors, color cameras, color motion picture films, and general aspects of color photography. This is a big order and future chairmen will not have to be afraid of running out of projects in the next five or ten years.

It was agreed at the first meeting of the present committee that it could best serve the Society by working on a progressive program having essentially the following objectives:

1. To survey the existing information on commercially important color motion picture processes and bring that body of information up to date.
2. To analyze and correlate the technical requirements of color motion pictures and evolve recommended practices for the guidance of the industry and as forerunners of future efforts for standardization.
3. To disseminate information as soon as it can be organized and verified for the edification and assistance of the motion picture industry.

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In order to carry out that program, four subcommittees were organized. Lloyd Varden is Chairman of the color process symposium subcommittee. This subcommittee is working on a review of the literature on color motion picture processes which have attained some measure of commercial success. The chairman is arranging with authors or manufacturers to bring publications about these processes up to date. New processes not yet adequately described in technical publications are to be included in this symposium.

In view of the fact that several new processes for color motion pictures have been on the verge of commercial introduction, the work of this subcommittee has been delayed. It is felt that a thorough and accurate coverage of the processes, even if it has to be somewhat delayed, is preferable to an incomplete or superficial treatment. Your Chairman would like to add a plea here on behalf of the subcommittee chairman for full co-operation of the industry so that the information which is needed to make the report worth while will be made available in the near future.

The Color Symposium Report is not intended as a disclosure of confidential manufacturers' or consumers' techniques. Its primary purpose should be to give a condensed and factual review of the color processes available to the industry.

With a similar intent of providing basic information for the industry, a subcommittee on color film sound track characteristics has been active, with Lloyd Goldsmith as Chairman. This subcommittee has completed its assignment and the report of the committee was printed in the March JOURNAL.

Information about the general principles of color sensitometry has been very fragmentary. It has been recognized by the members of the Color Committee that there is a rapidly growing need for technical information in this field. This is especially true of matters relating to the control of new color processes which have become available to the industry and which can be processed by the motion picture laboratories.

Sensitometric methods are among the most important tools needed to control these processes; therefore, a special subcommittee on color sensitometry was organized to study this problem and provide a report for the guidance of the industry. The membership of the color sensitometry subcommittee has been organized under the chairmanship of Carl F. J. Overhage.

In outlining the scope of the sensitometry subcommittee's activities, no attempt was made to provide an immediate solution to specific problems which may confront the user of color materials. This basic information has to come from the film manufacturer and is

being supplemented daily by the well-known resourcefulness of the laboratory people in the industry. The subcommittee was asked to look beyond these immediate requirements and establish the more fundamental principles involved in color sensitometry and densitometry for future guidance.

Although our present understanding of these processes is still incomplete, it was felt that a report presenting the present knowledge in this field would be very helpful. It also would lead to the formulation of basic methods suitable for use throughout the industry, and thereby eventually prepare the ground for standardization in the field of color sensitometry.

A report entitled "The Principles of Color Sensitometry" has been completed. The report deals with most of the important aspects of color sensitometry and contains sections on:

1. Sensitometric exposure.
2. The processing of sensitometric tests.
3. Quantitative evaluation of color images, dealing with the different types of color densities, such as integral, analytical and equivalent neutral density involved in such evaluation.
4. Densitometer design principles.
5. Transformation between integral and analytical densities.
6. Interpretation of sensitometric results.
7. Statistical aspects of color sensitometry.

Those who had the opportunity to review this committee's report prior to publication unanimously agreed that the subcommittee did a very thorough and highly commendable job. The report was scheduled for publication in the June JOURNAL and reprints will also be made available in quantity because of the considerable demand that already exists for consolidated information on this subject.

Another subcommittee was established some time ago to investigate the spectral requirements of light sources and screens for color projection. Ronald Bingham is the Chairman of this subcommittee, which is working on a report which we hope will be helpful to those branches of the industry engaged in furnishing and maintaining projection equipment and screens. The main emphasis will be given to establishing the theoretically desirable energy distribution of light sources for the projection of all presently available color processes. In this connection, a study of the dye absorption characteristics of commercial two- and three-color processes is being made. At the same time, the spectral distribution of various types of light sources in use for 16- and 35-mm projection is being reviewed. It is not expected that the subcommittee will be able to make definite recommendations; however, in an area in which compromises are necessary

for practical considerations, the subcommittee will attempt to show those compromises which will have the least detrimental effect from theoretical considerations.

Another phase of this program will be a review for recommendations regarding the spectral reflectance characteristics of various types of projection screens for color.

As far as future plans of the Color Committee are concerned, there are at present two subjects on the priority agenda.

At the last meeting of the parent committee in Hollywood, it was suggested that we reopen the subject of phototubes to be used in connection with color film sound track reproduction. In 1947, the Color Committee prepared a report on the subject of blue-sensitive cells for the reproduction of dye tracks. A subcommittee on phototubes, with Lloyd Goldsmith as Chairman, made a study of the blue-sensitive cell and the report of this subcommittee stated that there are no important technical objections to the use of blue-sensitive cells for sound reproduction.

It was the consensus of the Color Committee at the time that the initiative for the conversion of the blue-sensitive cell would have to come from the film manufacturers and the report was temporarily shelved.

As indicated by the review of the subcommittee on color sound track characteristics, published in the March JOURNAL, the tendency has been toward sulfided sound tracks on multilayer color film materials, although it is generally recognized that silver tracks requiring no extra processing steps would be preferable. The advent of the lead sulfide cell, as yet confined to 16-mm projection equipment primarily, makes the whole situation a little more complicated, if not to say, slightly confused.

Little published information is available in regard to the response of lead sulfide cells to silver sulfide or dye tracks on color film. The Color Committee, in co-operation with the phototube subcommittee of the Sound Committee, is now seeking more such information.

Another subject which the Color Committee intends to take up in the near future is the question of color temperature and color temperature measuring instruments as they apply to color photography. It is intended to organize a subcommittee for a study of this subject. The objective of this subcommittee will be to review the theoretical and practical requirements of color temperature measurements in their relationship to color photography.

The Color Committee will welcome suggestions from the members of the Society regarding projects to be tackled by the Committee and which are within the scope of the activities of the Color Committee.