REPORT OF THEATER LIGHTING COMMITTEE

THE Theater Lighting Committee was appointed to study existing lighting conditions in theaters and if possible to formulate the basis for a code or other form of recommendations to improve the lighting conditions if it should be felt that practical methods for general application could be evolved. It was the plan to work jointly with the Illuminating Engineering Society whose membership is especially qualified to work on a problem such as this, at some later date when the time would be ripe for joint action. It is a far more complicated subject for study than the ordinary illumination problem, such as, for example, the effect of illumination intensities on production in industry.

There are a number of factors which should be studied in the solution of this problem, among which may be mentioned (1) the projection of a satisfactory picture with which should be considered the minimum brightness for dark pictures, maximum brightness for light pictures, effect of brightness of immediate surroundings, and the general illumination, brightness of other sources, *etc.*; (2) the brightness of light sources in the field of vision; (3) the illumination necessary for safe traffic; (4) the light required for health and good behavior, with which is associated the effect on the eyesight of the theater patrons; (5) the effect of colored light on the illumination employed.

The problem involves physical, physiological, and psychological aspects. The effect on eye strain over quick changes from light to dark scenes of the picture and high to low levels of illumination in the theater and *vice versa*, prolonged observation of brightly illuminated area, and similar considerations will be studied. Other phases to be given consideration include an approach to the problem from the standpoint of the retinal sensibility and other similar ocular factors.

As a first step, a survey of some dozen theaters has been made preliminary to a comprehensive study of existing lighting conditions. This preliminary survey was made in several cities to formulate a basis for the more extended survey which will embrace theaters both in the East and on the west coast. It included, for example, illumination intensities existing in the theater auditor-

iums and entrances, both when the picture is being projected and during the intermissions, the screen intensities, the screen brightness, and the brightnesses of the pictures' surroundings, effect of general illumination on the picture brightness, *etc., etc.*

Just to give an idea of the range of data obtained, the screen illumination intensities varied from an average of 5 to about 14 foot-candles. Individual readings ranged from about 3 to 22. The stray light on the screen was of a low order, averaging about only 0.1 foot-candle, which is the approximate intensity of moonlight on a clear night. The average intensity in the auditorium with the pictures running was about 0.05 foot-candle, and during the intermission, it was about 0.5 foot-candle, a relatively low value, considering the intensities used in other locations for commercial and industrial purposes.

From a study of these data the Committee is drawing up an outline and form for the more extensive tests which will be started this spring.

It is realized that this problem has a variety of features. It is planned, however, to make the investigation so thorough that the principal phases of illumination which affect the comfort and health of the patrons and the artistic showing of motion pictures in theaters will be covered in such a way that future lighting for picture presentation can be discussed on valid lines.

CARL E. EGELER, *Chairman*
L. C. PORTER
L. A. JONES
J. R. MANHEIMER

DISCUSSION

MR. CUFFE: How was the screen intensity measured?

MR. EGELER: A Macbeth illuminometer was employed but the projector was not running. The position of the instruments with relation to the screen varied with the ability of the observer to place the instrument.

MR. CUFFE: With a metallic type reflecting screen, it will depend upon the angle.

MR. JONES: Oh, yes.

MR. PORTER: I think Mr. Cuffe has in mind the foot-candle intensity reflected back from the screen. What was measured was the intensity on the screen surface; not the reflected light.