

ABSTRACTS OF PAPERS FOR THE HOLLYWOOD CONVENTION

The following abstracts were received too late for inclusions in the April Journal and are published here for reference purposes:

"Use of an A-C. Polarized Photoelectric Cell for Light-Valve Bias Current Determination;" C. R. Daily, *Paramount Pictures Inc.*, Hollywood, Calif.

When a low-frequency, low-voltage polarizing potential is applied to a gas type PEC, the cell operates as a non-linear half-wave rectifier. The voltage drop obtained across the PEC load resistor may be amplified and measured on a conventional full-wave copper-oxide rectifier meter. This conversion from d-c. to a-c. of the output current of a PEC may be applied to a PEC monitor system to provide a convenient means of determining the required light-valve bias current. Measurements indicate that the amplified current output varies linearly with respect to light changes to the PEC over a range of 16 db. Changes in bias current can, therefore, be read directly on a monitor output meter. The method may be used in place of light interrupting tone wheels, harmonic methods, stroboscopic observations, direct d-c. measurements with a microammeter of PEC current, or other means which have been employed for this purpose. With a calibrated system, variations in lamp current and valve spacing may also be detected.

"A Densitometric Method of Checking the Quality of Variable-Area Prints;" C. R. Daily and I. M. Chambers, *Paramount Pictures, Inc.*, Hollywood, Calif.

The dynamic measurement of the rectification component of a modulated high-frequency is normally used to check the processing of variable-area prints. An approximate indication of print quality may also be obtained by measuring on a PEC densitometer the difference in the average transmission of unbiased, modulated and unmodulated tracks. A comparison of routine dynamic cross-modulation measurements and static transmission measurements on cross-modulated and unmodulated track indicates that (a) for prints exhibiting optimum processing as determined by the dynamic method, the differential static transmission is substantially zero; (b) for light or dark prints the transmission of the cross-modulated track is greater or less, respectively, than for unmodulated track. The static measurement, therefore, tells the direction as well as the approximate amount of the print density deviation from optimum. Similar static measurements on 7000-cycle instead of cross-modulation track indicate that the print density required for zero differential transmission is considerably less than the optimum determined by dynamic cross-modulation measurements.

With a suitable double-aperture densitometer, the PEC's being connected to a balanced bridge circuit, the approximate processing condition of the print may be determined with only a few inches of film, saving film and eliminating the necessity of threading and running a reproducer. This facility may be of some advantage to laboratories releasing considerable amounts of variable-area track since short sections of suitable unbiased, unmodulated and cross-modulated

track could be spliced to the end of each reel of negative and routine measurements made of the differential transmission on all prints. Occasional calibrating checks by the dynamic method would still be indicated.

"Modern Instantaneous Recording and Its Reproduction;" N. B. Neely and W. V. Stancil, *N. B. Neeley Enterprises*, Hollywood, Calif.

Many papers have been written on lateral recording heads, mediums, and reproducers, so the present paper is intended to be a short, non-technical discussion of two unique units that have put lateral instantaneous recording on a par with any present recording method.

The cutter described gives exceedingly good results in the range afforded by the present method of disk recording. The reproducer is of D'Arsonval moving-coil principle made with a permanent stylus, and with an effective needle point mass of 14 milligrams. The extremely low needle point pressure, together with the very high compliance of the moving element suspension, permit an acetate disk or pressing to be played repeatedly without damaging the record.

"Flicker in Motion Pictures;" L. D. Grignon, *Paramount Pictures, Inc.*, Hollywood, Calif.

Flicker in motion pictures has been receiving attention ever since the beginning of the art, and most of the sources of this defect have been minimized, if not eliminated, by technical accomplishments. The paper constitutes a qualitative review of the now prevalent sources of flicker, presenting some new concepts, emphasizing the sources of major importance at the present time, and reporting on two investigations made on the problem. Flicker and "registration jump" are differentiated, and the latter, which is really a separate problem, is not considered. Some data are presented to indicate the magnitude and characteristics of the flicker effect.

"Controlled Sound Reflection in Review Rooms and Theaters;" C. M. Mugler, *Acoustical Engineering Co.*, Los Angeles, Calif.

This paper avoids technicalities and formulas, reaching back to elementary acoustics which are often side-tracked. Controlled reflection plays the leading role, with the minor parts delegated to sound diffusion and uniform energy distribution. Although much can be mathematically proved, the only satisfying conditions are the apparent ones, which are judged and gauged by the normal human ears.

Audio effects due to the physical characteristics of both sound absorbents and building materials are explained and their proper locations emphasized. Although a room can have the desired optimal reverberation time over the entire frequency response characteristics, it can still be unsuitable for the rendition of speech and music that is clear and distinct; the shape, size, and contours of the six surfaces in a room, plus the incidental equipment and purpose, are the deciding factors on how much and where the reflecting and absorbing materials should be placed.

"The Fluorescent Lamp and Its Application to Motion Picture Studio Lighting;" G. E. Inman and W. H. Robinson, Jr., *General Electric Co.*, Cleveland, Ohio, and Los Angeles, Calif.

The great variety of lighting problems encountered in motion picture production, the many new and interesting effects constantly called for, has made the studio electrical staffs particularly alert to take advantage of the many new lamp developments of the past year. Most outstanding of these has been the fluorescent lamp, introduced generally last April and adopted for studio dressing rooms and for the mixing of paints and set painting where a true daylight was required soon after. Subsequently it has been used for regular production lighting.

The phenomenon of fluorescence and phosphorescence by ultraviolet light is not a new one, but nevertheless much development work had to be done to make a commercially practical lamp and to control accurately the various colors. Since the energy required to activate these "phosphors," as the several fluorescent and phosphorescent materials are termed, can best be produced by a low-pressure arc, the design of suitable automatic starting and stabilizing controls constitutes another important factor in the commercial application of this source.

The increasing number of productions in color, generally with a process balanced to daylight, has made it necessary that the sets be painted and the properties be chosen under daylight. Make-up must be applied under daylight conditions, which these lamps accurately provide.

The freedom from glare and high actinic of the light has resulted in a number of cameramen's using fluorescent lamps for regular motion picture photography, particularly for "close-ups."

"A Cardioid Directional Microphone;" R. N. Marshall and W. R. Harry, *Bell Telephone Laboratories*, New York, N. Y.

A microphone is described which has uniform directivity over a wide frequency range. This is made possible by placing in a single instrument a dynamic type pressure microphone element and a ribbon type "velocity" element, and electrically equalizing the outputs before combination. The resultant directional pattern is a heart-shaped curve or cardioid, giving a fairly wide pick-up zone in front and a substantially dead zone at the back of the instrument. Because of the unusually rugged ribbon employed, the new microphone is much less susceptible to wind noise than ordinary ribbon types. Housed in an aluminum case the microphone weighs only 3½ lbs. High output level, low impedance, and high quality together with the excellent directivity, promise to make the cardioid microphone an important tool for the motion picture sound engineer.