

JOURNAL of the SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS

PUBLICATION OFFICE TWENTIETH AND NORTHAMPTON STREETS EASTON, P.A.

Officers

President, 1965-66

ETHAN M. STIFLE, Eastman Kodak Co., Prudential Plaza, Rm. 2430, Chicago, Ill., 60601

Executive Vice-President, 1965-66

G. CARLETON HUNT, General Film Laboratories, Inc., 1546 North Argyle Ave., Hollywood, Calif. 90028

Past-President, 1965-66

REID H. RAY, Reid H. Ray Film Industries, Inc., 2269 Ford Pkwy., St. Paul, Minn. 55116

Engineering Vice-President, 1964-65

DEANE R. WHITE, Photo Products Dept., E. I. du Pont de Nemours & Co., Inc., Parlin, N.J. 08859

Editorial Vice-President, 1965-66

HERBERT E. FARMER, Dept. of Cinema, University of Southern California, University Park, Los Angeles, Calif. 90007

Financial Vice-President, 1964-65

JOSEPH T. DOUGHERTY, E. I. du Pont de Nemours & Co., Inc., 45 Rockefeller Plaza, Rm. 550, New York, N.Y. 10020

Conference Vice-President, 1965-66

KENNETH M. MASON, Eastman Kodak Co., 200 Park Ave., Rm. 2910, New York, N.Y. 10017

Sections Vice-President, 1964-65

WILTON R. HOLM, E. I. du Pont de Nemours & Co., Inc., 7051 Santa Monica Blvd., Hollywood, Calif. 90038

Secretary, 1965-66

ROBERT G. HUFFORD, Eastman Kodak Co., 6706 Santa Monica Blvd., Hollywood, Calif. 90038

Treasurer, 1964-65

BYRON ROUDABUSH, Byron Motion Pictures, Inc., 1226 Wisconsin Ave., N.W., Washington, D.C. 20007

Governors, 1964-65

EDWARD P. ANCONA, JR., 3170 Lake Hollywood Dr., Hollywood, Calif. 90028

ROBERT A. COLBURN, Geo. W. Colburn Laboratory, Inc., 164 N. Wacker Dr., Chicago, Ill. 60606

J. S. COURTNEY-PRATT, Bell Telephone Laboratories, Murray Hill, N.J. 07971

EDWARD H. REICHARD, Consolidated Film Industries, 959 Seward St., Hollywood, Calif. 90038

ROBERT C. RHEINECK, Putnam Green, Apt. 3-H, Greenwich, Conn.

WILLIAM H. SMITH, Allied Film Laboratory, Inc., 9330 Greenfield Rd., Detroit, Mich.

Governors, 1965-66

MAX BEARD, 10703 E. Nolcrest Dr., Silver Spring, Md. 20903

WILLIAM D. HEDDEN, Calvin Productions, Inc., 1105 Truman Rd., Kansas City, Mo. 64106

RICHARD S. O'BRIEN, CBS Television Network, 51 West 52 St., New York, N.Y. 10019

HERBERT W. PANGBORN, 6512 Orion St., Van Nuys, Calif.

RODGER J. ROSS, 784 Duchess Dr., Cooksville, Ont., Canada

JOHN M. WANER, Eastman Kodak Co., 6706 Santa Monica Blvd., Hollywood, Calif. 90038

JAMES L. WASSELL, 919 Harvard Lane, Wilmette, Ill.

Governors and Section Chairmen, 1965

JACK P. HALL, 10146 Gaynor Ave., Granada Hills, Calif.

EDWARD A. WINKLER, Eastman Kodak Co., 200 Park Ave., Rm. 2910, New York, N.Y. 10017

Section Chairmen

MICHAEL W. BARLOW, 5052 Chestnut Ave., Pierrefonds, Montreal, Que., Canada

JACK BEHREND, Behrend's, Inc., 161 East Grand Ave., Chicago, Ill. 60611

H. PAUL CHRISTMAN, 5102 Danbury Rd., Bethesda, Md.

MAURICE L. FRENCH, 32 Dallington Dr., Willowdale, Ont., Canada

WILLARD H. HAUSER, Westinghouse Radio Stations, Inc., 1170 Soldiers Field Rd., Boston, Mass. 02134

STEWART A. MACONDRAY, Palmer Films, Inc., 611 Howard St., San Francisco, Calif. 94105

BERNARD H. MOLLBERG, 1005 Kenamer Dr., S.E., Huntsville, Ala.

DUANE M. MUIR, Methodist Radio and Film Comm., 1525 McGavock St., Nashville, Tenn.

JOHN I. NEWELL, Western Cine Service, Inc., 312 S. Pearl St., Denver, Colo.

WILLIAM M. SHEAHAN, 26 Azalea Dr., Cocoa Beach, Fla.

HOWARD W. TOWN, National Educational TV & Radio Center, 2715 Packard Rd., Ann Arbor, Mich.

WILLIAM H. WHITE, 1454 S. Gordon St., Atlanta, Ga.

ALLAN L. WILLIAMS, 92 Old North Hill, Rochester, N.Y. 14610

Editorial Office

9 East 41st St., New York, N. Y. 10017

Editor—VICTOR H. ALLEN

Advertising Manager—DENIS A. COURTNEY

BOARD OF EDITORS

Chairman—PIERRE MERTZ

66 Leamington St., Lido, Long Beach, N.Y. 11561

HARLAN L. BAUMBACH

GERALD M. BEST

BERLYN BRIXNER

J. S. COURTNEY-PRATT

GEORGE R. CRANE

BERNARD E. DRIMMER

HAROLD E. EDGERTON

CARLOS H. ELMER

CHARLES R. FORDYCE

JOHN G. FRAYNE

LLOYD T. GOLDSMITH

LORIN D. GRIGNON

A. M. GUNDELFINER

CHARLES W. HANDLEY

RUSSELL C. HOLSLAG

CLYDE R. KEITH

W. I. KISNER

RALPH E. LOVELL

HERBERT W. PANGBORN

BERNARD D. PLAKUN

WALDEMAR J. POCH

ALLAN L. SOREM

R. T. VAN NIMAN

DEANE R. WHITE

W. T. WINTRINGHAM

HAROLD WRIGHT

CHARLES W. WYCKOFF

EMERSON YORKE

Papers Committee Chairman—C. LOREN GRAHAM, Eastman Kodak Co., Color Technology Dept., Kodak Park, Rochester, N.Y. 14650

THE SOCIETY today is the result of nearly fifty years of achievement and leadership. Its members are engineers, scientists and technicians skilled in every branch of motion pictures, television, instrumentation and high-speed photography. Through the Society they are able to keep abreast of current technology and contribute continuously to the technological advancements and education in these fields.

Membership is open to any interested person according to his qualifications. The Society's Headquarters welcomes inquiries from individuals who may apply for these grades: Active (annual dues, \$20.00), Associate (annual dues, \$15.00) and Student (annual dues, \$5.00). All members receive the Journal.

Subscriptions to the Journal are available to non-members at \$16.00 a year (outside continental United States, add \$1.00 for postage). Single copies are \$2.00 for one-part issues; \$2.50 for special two-part issues. A 10% discount is allowed to individual members and accredited agencies on orders for subscriptions and single copies. Residents in countries that participate in UNESCO may use UNESCO coupons for payment in the event other means for remitting are not available.

In addition to information about membership, subscriptions, technical activities, standards and test films, a list of priced and gratis publications is available from the Society's Headquarters Office, 9 East 41st St., New York, N.Y. 10017

SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS, INC.

Headquarters Office: 9 East 41 St., New York, N.Y. 10017

Cables: Somopict

Telephone: Area Code 212
TN 7-5410

Executive Secretary: LEWIS A. BERNHARD, JR.

Published monthly by the Society of Motion Picture and Television Engineers, Inc. Publication office 20th and Northampton Sts., Easton, Pa. Second-class postage paid at Easton, Pa. © Copyright 1965, by the Society of Motion Picture and Television Engineers, Inc. Permission to republish Journal text material must be obtained in writing from the Society's Headquarters Office, 9 East 41st St., New York 10017. The Society is not responsible for statements of contributors. Printed by Mack Printing Company, Easton, Pa.