Vice President. Prior to assuming this responsibility Mr. Reed was Manager of Production Planning and Control. He joined Pako Corp. in 1968 after extensive experience in the production control areas of several major electronic and aero-space companies.

The new Plant Superintendent is John H. Sodergren. He moves up to this assignment from the position of Assistant Plant Superintendent. A Minneapolis native, Sodergren has 24 years service with Pako.

Cornelis Hofman of Amsterdam, Holland, has been appointed Vice President Marketing and Sales for the Sennheiser Electronic Corp. in New York. He has had 20 years experience with Sennheiser products and other professional sound and film equipment with N.V. Kinotechniek in Amsterdam.

Theodore F. Phillips has been appointed St. Louis District Sales Manager for the Photolamp Division of Sylvania Electronic Products Inc. Phillips joined Sylvania in 1964 as a sales representative in Washington, DC. In 1969, he was named a specialist in tungsten-halogen studio lighting. Prior to joining Sylvania, he was a purchasing agent for Crown Photo Service.

Vernon H. Jungjohann has been appointed Program Manager, Still Picture Products, Eastman Kodak Co., Rochester, NY. He was first employed by Kodak in the development department in 1938. He was placed in charge of the development and design of slide projectors in 1955 and the following year was appointed senior supervising engineer of design. In 1963 he assumed the responsibility for the design of new motion-picture cameras and in 1965 was named program manager, motion-picture camera engineering.

Bruce L. Elle has been appointed Program Manager, Motion-Picture Cameras, Eastman Kodak Co. He joined Kodak in 1940 in the scientific department at the Hawk-Eye works. From 1945 to 1956 he worked in Recordak engineering as project engineer for several developments, and the following year was named supervising engineer for Minicard Cameras and Processor. From 1960 to 1063, he was at Lincoln Plant on proprietary work on photographic equipment. In 1963, he was named project manager and later assistant program manager for the Lunar Orbiter photographic system. Early in 1969 he was appointed program manager for the Apollo Lunar Surface Close-up Camera.

Dr. Hans Chr. Wohlrab has been appointed to the new position of Technical Director, Sales, Hollywood Film Company, 956 N. Seward St., Hollywood, CA. In his new position Dr. Wohlrab, a well-known technical industry figure, will furnish the necessary technical support for the company sales staff.

James R. Rochester has been appointed technical director of Xenotech, Inc., 7824 Sepulveda Blvd., Van Nuys, CA 91405. Xenotech is an exclusive licensee to Spectrolab, a Textron division, for the manufacture and sales of Lightsun searchlights. Mr. Rochester formerly served as project manager of research and development at Spectrolab, Sylmar, CA, where he was responsible for the development of high-intensity xenon light sources and other related photoinstrumentation products. At Xenotech, he will have complete charge of all technical programs relevant to the development of the high-intensity Lightsun sunlight simulator, and a new line of Sunbrute xenon floodlights for motion-picture and television set lighting.

Walter H. Mills has been appointed Vice President, Marketing, for Magnasync/Moviola Corp., North Hollywood. He was formerly Director of Marketing.

Edward W. Herold and **Howard Rosenthal** have been appointed to newly created Director positions on Corporate Engineering Staff of RCA Corp. Their responsibilities will include coordinating the engineering activities of the RCA product divisions with corporate research and planning functions. They will also provide liaison between the divisional engineering organizations and the office of the Executive Vice-President of Research and Engineering, James Hillier. Dr. Herold, as Director of Technology will be primarily concerned with research and engineering efforts dealing with electron tubes, solid-state devices and related technology. Mr. Rosenthal as Director of Engineering will be primarily concerned with electronic equipment and system projects.

Charles Intrator, inventor of Clipstrip and other motion-picture lighting equipment, has announced the opening of consulting offices at 666 Tenth Ave., New York, NY 10036. He designed the Clipstrip to overcome problems he had encountered while working as a lighting supervisor when lighting confined areas. The Clipstrip mounts on doors or walls or on grip equipment to leave floor space free.

Robert H. Hansen has been appointed National Sales Manager for International Nuclear Corp., 608 Norris Ave., Nashville, TN 37204. The firm manufactures and markets video television switcher systems and video distribution equipment.

BOSTON, Jan. 15 — W. J. Hannan, David Sarnoff Research Center — RCA, Princeton, NJ, described techniques for recording and replicating low cost holographic movies. Specific topics covered were techniques for suppressing speckle and scratch noise in reconstructed holographic images, image immobilization property of Fraunhofer holograms, the process for embossing phase holograms in vinyl tape, and color encoding. Playback black and white images from replicated tapes were demonstrated. — R. A. Rubenstein, *Secretary-Treasurer,* Boston.

CAPE KENNEDY, Jan. 17 — Frank J. Eberhardt of Eastman Kodak presented two papers originally presented at the 106th Technical Conference in Los Angeles. "A New Eastman Ektachrome Commercial Film," was presented with 35mm slides and a 16mm silent film. Eberhardt described the new Eastman film 7252 and the ECO-3 process in detail. Slides were shown comparing the current 7255 and the 7252 emulsions. Improved latitude and sharpness appeared to be the outstanding qualities of this new emulsion.

The new ECO-3 process was discussed and slides were shown to illustrate possible consolidation of the ECO-3 and ME-4 processes in a single processing machine. The second paper, "Silver Sound Track on 7389," was presented by Mr. Eberhardt with the assistance of a sound motion picture describing the new product. Techniques required to convert from the present sulfide track application to the new silver applications on 7389 were shown. A sound demonstration utilizing the new product concluded the program. An active question and answer session followed the presentation. A "Dutch" cocktail hour and dinner were enjoyed by members and guests. — Clayton O. Kelty, *Secretary-Treasurer,* Cape Kennedy.

OHIO, Jan. 20 — The January meeting was held at the General Electric Lighting Institute, Cleveland. Ken Preschel, Supervisor of Production Planning in the GE Photo Lamp Department presented a paper, "Projection Lighting Fundamentals." He then assisted Charlie Clark, Product Planner for the GE Lamp Department, in presenting a paper, "What's new in Lamps for Photography and Television." The newest developments in projection lighting and in tungsten-halogen light sources for stage and studio were presented and demonstrated. A question period was followed by a social hour during which time the members had a chance to inspect the equipment and continue questioning speakers. For content and interest this meeting started the **Ohio Section** off on a promising new year. — Byrl L. Sims, *Secretary-Treasurer,* Cleveland.

NASHVILLE, Jan. 17 — The January meeting was held at TRAFCO in Nashville. Thirty-one members and guests attended. The program consisted of five papers, some of which had been previously presented at the Los Angeles Conference. Gene Murphy and James Parker of Eastman Kodak Co., made the entire presenta-

tion. Each paper was liberally illustrated with color slides and film clips. A question and answer period followed each presentation. Some of the topics covered were: "Processing for High Quality Sound on 7389 Film Stock," "The 'New Echo'," "Super 8 Developments," "The Super 8 Cartridge Projector," and the meeting was closed with a film, "Movies Move People," a film designed for film producers to use in talking to clients. Refreshments were enjoyed at the midpoint break in the meeting. — Aaron Shelton, *Secretary-Treasurer,* Nashville.

WASHINGTON, Jan. 17 — The Washington Section Annual Christmas Party, called the "Now That it is Over" Christmas Party was attended by 45 members. An enjoyable and congenial time was had by all. — Ralph W. Sonnenberg, *Secretary-Treasurer,* Washington.

WASHINGTON, Jan. 12 — Walter L. Frankland, Silver Users' Association, discussed current stocks of silver, industrial applications and the political influences affecting the nation's supply. John T. Hurd, Eastman Kodak Co., reviewed the importance of silver to the photographic industry, current and potential influences of recovered silver as a supply factor and the range of dollar values for silver recovered from photographic materials. Richard H. Forbes, Eastman Kodak Co., provided the audience with some reasonable guidelines to be used in deciding whether silver recovered from sensitized goods should be undertaken within the individual organizations or should be put in the hands of existing silver reclamation companies. He reviewed the subject of chemical treatment versus burning and gave a detailed story on the incineration method. The meeting was very informative and held a high interest level.—Ralph W. Sonnenberg, *Secretary-Treasurer,* Washington.

HOLLYWOOD, Jan. 20 — The program was preceded by the usual pre-meeting dinner at the Carriage House in Burbank. This social function gave the speakers an opportunity to meet some of the membership. The entire program was devoted to zoom lenses. It covered their design, evolution and uses. Allen Mann, president of Optical Systems, discussed general classes of zoom lenses and how computer programs are utilized in the design of successful zoom lens systems. His presentation was followed by a discussion of quality control procedures used in zoom lens manufacture by Mrs. Alice Turner, manager of Quality Control at Zolomatics. Mrs. Turner discussed not only the importance of quality control in manufacture of new lenses but also described the importance of maintaining records and quality control information to ensure proper lens repair by the manufacturer. Willi Zole, President, Zolomatics Corp., closed the program with a history of zoom lens, showing and comparing examples of early zoom with current models. He also discussed the factors of cost and quality indicating that currently there appears to be a definite interest in higher quality and consequently high cost zoom lenses. He pointed out that nearly 90 percent of all zoom lenses currently purchased are imported from Japan, France and England. — Anthony D. Bruno, *Secretary-Treasurer,* Hollywood.

MONTREAL, Feb. 4 — Dr. John Chapman, Deputy Associate Minister (Research) Dept. of Communications and Director Telsat, Canada, outlined the effects that the instructional and commercial television broadcasters will feel from the advent of Domestic Satellite Communications and from the growth of the Cable Transmission Systems. The paper and the subsequent lengthy discussion period covered many aspects of first, second and third generation satellite systems from technical details and political ramifications to their effect on the social scene in Canada. Dr. Chapman was able to lead a very interesting evening. Attendance at the meeting was well above average and included a party of 25 hardy souls who braved the 20 below zero weather to come from Montreal. The evening concluded with an informal tour of the theatre facilities at the National Arts Center, Ottawa. — Ken P. Davies, *Section Chairman,* Montreal.

WASHINGTON, Feb. 9 — Leon Kosofsky, NASA, described the present photographic systems, how they operate and the type of quality of data being acquired from the APOLLO Project. Donald Light, TOPOCOM, reviewed the reduction of Lunar Orbiter photography. He described the type of products presently being generated from Orbiter and APOLLO photography. He identified the potential capabilities that could be derived from future APOLLO MISSIONS. Frederick Doyle, U. S. Geological Survey, described some plans actually being pursued by NASA for future APOLLO missions. The meeting was very well attended. Speakers were thorough and the audience reaction very good. The discussion period was brief because the actual meeting lasted over two hours and was, apparently, too long. Approximately 18 people attended a pre-meeting dinner. — Ralph W. Sonnenberg, *Secretary-Treasurer,* Washington.

SAN FRANCISCO, Feb. 10 — Eighteen members met at the Rathskeller Restaurant for dinner and cocktails. Informal discussion concerning the meeting and related subjects continued throughout the dinner. Sixty-eight were present at KGO-TV for a demonstration and discussion of the International Video Corporation's new IVC 30 Plumbicon color camera along with its associated control equipment. Equipment examination and general discussion followed led by Gerald Hobbs, International Video Corp. — William High, *Secretary-Treasurer,* San Francisco.

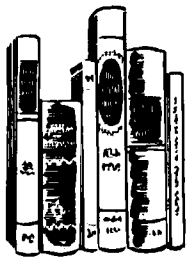
BOSTON, Feb. 11 — Dr. R. Clark Jones, Polaroid Corp. Cambridge, MA, spoke on, "Problems Encountered with Theoretical Model Film Systems." the relationship between theoretical efficiency and actual performance of photographic films. The measure of efficiency of the film is the detective quantum efficiency introduced by A. Rose. Both models and actual films and

the differences in efficiency and latitude were related. An explanation was offered for the differences between the model and actual film efficiencies.— R. Rubenstein, *Secretary-Treasurer,* Boston.

ROCHESTER, Feb. 12 — Robert W. Barnes, Director, Reynolds Audiovisual Dept., Rochester Library System, described the loan facilities of the Rochester Public Library. Dr. Keith E. Whitmore, Senior Research Associate, Research Labs, Eastman Kodak Co., showed films prepared by elementary school children which were very successful in improving their reading ability, compared with control groups. Richard K. Schafer, Product Specialist, Eastman Kodak Co., showed films which demonstrated the improvements in grain and sharpness of Super-8 films over the past few years. — R. A. Morris, *Secretary-Treasurer,* Rochester.

TORONTO, Feb. 19 — Dr. Frank Kent, Eastman Kodak presented a paper on the new Eastman Ekta Commercial Film. The paper was being heard by part of the audience for a second time and reaction was not so active as might be anticipated. The paper was well presented and very useful. I. Switzer, MacLean-Hunter Cable TV Ltd., presented a paper on "Picture Degradation Problems in CATV," and was the first of its type given in our section. It received enthusiastic interest and questioning. Switzer was a particularly enjoyable speaker and evoked a surprising participation from the audience.— S. F. Quinn *Secretary-Treasurer,* Toronto.

CAPE KENNEDY, Feb. 21 — Dimitri Rebikoff, Chairman of the Board, Rebikoff Underwater Products, Melbourne, FL, opened the program with a brief history of Underwater Photography during the past quarter century. He went on to predict the potential of Oceanography in Florida, particularly the Cape Kennedy area. Rebikoff urged scientific and research corporations to relocate in the Cape area because of the availability of displaced scientists, engineers, and skilled technicians; brought about by the recent and drastic reductions in Aerospace Technology and research at Cape Kennedy. The science of Oceanography is dependent on the availability of scientific and technical knowledge; therefore it is imperative that Oceanographic Industries avail themselves of this abundance of scientific knowledge in the Cape area. A 20 minute film produced by Mr. Rebikoff, demonstrated various underwater photographic equipments and how they are used in underwater exploring, salvage surveillance, and marine studies. The audience was impressed with film quality, particularly scenes showing marine life on various reefs in the Florida - Bahamian waters. An active question and answer session followed the film presentation. This portion of the program was highlighted by Rebikoff's discussion on the discovery and exploration of a sunken, man-made structure in the waters off Bimini in the Bahamas. A Dutch cocktail hour and dinner followed the technical program. — Clayton O. Kelty, *Secretary-Treasurer,* Cape Kennedy.



books reviewed

Photographic Sensitometry: The Study of Tone Reproduction

By Hollis N. Todd and Richard D. Zakia. Published (1969) by Morgan & Morgan Inc., 400 Warburton Ave., Hastings-on-Hudson, New York, NY 10706. 312 pp. Illus. Diagrams, 5½ by 8 in. Price $9.95.

Photographic sensitometry is a branch of applied physics concerned with the effects of energy on the photographic emulsion. In the preface the authors explain that the book is intended to provide the serious photographer with the technical background needed for excellence in the application of photography to genuine problems. Methods are described for answering questions such as: How do photographic materials react to light and other radiation? How can the response of the photographic material be measured? How do we estimate the reliability of these measurements? What are the capabilities of photographic materials?

Experimental methods are emphasized, and thus the real-world problems encountered in the use of photographic materials. The first chapter, Introduction to Tone Reproduction, is an overview of the whole process of black-and-white photography. The next four chapters deal with light and light sources, sensitometric test methods, analysis of sensitometric data, photographic printing, and the tone reproduction cycle. In the remaining eight chapters, special problems are considered, including exposure effects, processing effects and processing methods, variability and process control, film speed and spectral sensitivity, density measurement, sensitometry of color photography, microdensitometry and, finally, applications of tone reproduction. A considerable number of references are listed by subject in an appendix.

The authors have been associated for many years with Rochester Institute of Technology, and have taught sensitometry to students of photographic science and engineering, and professional photography and to industrial photographers, members of photographic seminars, military personnel and employees of government agencies.

The book begins with a black-box approach to tone reproduction and the whole field of sensitometry is covered. However, some prior knowledge of mathematics, physical principles and the scientific method is needed to follow easily the system of information presentation that has been employed.

At the outset, on page 7, the concept of log luminance is introduced. Anyone familiar with logarithms will find the brief explanation given for their use in this application quite adequate, but for readers without this background an explanatory appendix would have added greatly to the value of the book.

There are a number of references in the text to ASA, US, USA, USASI and ANSI standards. An appendix listing applicable photographic standards, and giving the background for standards activities would have been helpful for readers unfamiliar with this aspect of the subject.

Special emphasis is given to the need to conform with practice in sensitometric testing of photographic materials. This emphasis on practical considerations has made the reasoning in some places rather difficult to follow. Beginners, especially, would undoubtedly benefit from more background information and explanatory details on test methods, as well as the practical applications to which reference is made.

Special attention is given to the sensitometric testing of still photography materials, i.e., negatives and paper prints. One chapter is devoted to sensitometry of color materials, but important practical applications such as the dye transfer process and making of separation negatives are not mentioned. The usefulness of the book could have been increased considerably by including additional information on the application of sensitometry in motion-picture process control and the utilization of films and slides in television.

In the chapter on the applications of tone reproduction some consideration might have been given to the influence of artificial lighting in modifying picture contrast and altering the tone reproduction scale.

Although this book represents a genuine contribution, it could have been more useful to a wider audience if the "serious" photographer for whom the book is intended had not been assumed by the authors to have an academic background that would make unnecessary explanations of such terms as "degrees Kelvin," "statistical formulas," "matrix algebra," "logarithms" and the like.

Some of the book's statements seem somewhat arbitrary. For example (p. 6) "Many photoelectric meters [erroneously called "exposure meters"] estimate scene luminance." Since an exposure meter has been classified by qualified instructors as "a specialized type of photometer (photoelectric or otherwise)" the word "erroneously" may be considered slightly overemphatic. On the other hand, the practical usefulness of the authors' definition of luminance is questionable and the foot-lambert, which expresses luminance or photometric brightness, is not mentioned.

The usefulness of the book (at least for the beginner) could be enhanced by some system of cross references. For example, on page 49, in the chapter on Sensitometric Test Methods, under the subhead, Measurement of Photographic Effects, the term "density" is introduced with no explanation as to its use and importance. Densitometry and densitometers are discussed under the following subhead of Optical Problems, but only much farther along in the book (on p. 192) will the reader find a chapter on Density Measurement or any real clarification of the pho-