

the cameras is equipped with a wide-angle lens for viewing clouds in an area about 800 miles on each side; the other employs a narrow-angle lens to scan cloud details in a smaller area. A miniature television magnetic tape recorder, designed for satellite use, is linked to each camera.

At the start of each orbit, the cameras can be electronically instructed to photograph a specified area — such as a typhoon center over the Pacific, or a hurricane in mid-Atlantic. The instructions, prepared at the NASA Computing Center in Washington in cooperation with the Weather Bureau, are sent to the ground stations. At the appropriate station, the program is sent in the form of radio signals to an “electronic clock” inside Tiros. The clock stores the instructions somewhat in the fashion of a remotely operated alarm clock, causing the cameras to start a sequence of operations at the specified time during the succeeding orbit as the satellite passes over the region of particular interest. As the satellite swings around the Earth and comes again within range of a ground station, a command signal is sent from the ground for transmission of the cloud pictures stored on the tape. At the ground station, the information is displayed on a television picture tube and recorded on another magnetic-tape system. The image on the picture tube also is photographed and stored for future reference by meteorologists.

The purpose of the Tiros system has been defined by Barton Kreuzer, Manager of Marketing for RCA Astro-Electronics

Products Division, as “visual observation of cloud formations over large parts of the Earth to produce new information about such weather phenomena as hurricanes, typhoons, and the movement of weather fronts.” And Sidney Sternberg, the Division’s Chief Engineer, described the satellite as “a major space system complex incorporating advanced concepts in space communications and the remote control of satellite functions.”

The radio-inertial command guidance for Tiros is the same system as that developed by Bell Telephone Laboratories and Western Electric Co. for the Air Force Ballistic Missile Division for use in the first squadrons of the Titan intercontinental ballistic missile.

It is interesting to note that only a week before Tiros was launched, a paper presented at the International Convention of the IRE in New York called attention to the “billions lost each year in storm damage” in the United States, and warned of grave consequences if weather research were neglected.

Admiral Luis de Florez, consulting engineer and former Assistant Chief of Naval Research, in addressing a Symposium on “Electronics — Out of the World,” called for more manpower and more funds to be devoted to vital research in weather forecasting and control. “Actually, it would be of greater immediate importance to this country to be the first to find the answer to the feasibility and practicability of weather control than to land a man on the Moon,” he said.



Warren Magnuson, Chairman of the Senate Committee on Interstate and Foreign Commerce, author of S. Con. Res. 75 (*Journal*, Sept. 1959, p. 638; and Oct. 1959, p. 706) has been a strong defender of research and scientific endeavor during his active political career extending over almost three decades. He was elected to the Washington State House of Representa-

tives in 1932; in 1937 he became a member of the U.S. House of Representatives and in 1944 he was elected to the Senate.

Among the many evidences of his interest in science is his sponsorship of legislation to create the National Science Foundation, and he is presently directing efforts toward broadening the scope of its research program. He is sponsor of legislation to get the Navy’s Tenoc program in Oceanographic Research funded and underway. The Senate Resolution, referred to above, expresses Senator Magnuson’s sincere interest in scientific advancement in general and recognition of the importance of the 5th High-Speed Congress in particular. The Resolution calls for active participation by Federal agencies and was passed unanimously by the Senate.

Education, Industry News

Rapid processing of film is the subject of a symposium of the Society of Photographic Scientists and Engineers will be held in Washington, D.C., October 14–15. It is planned in conjunction with the Fifth International Congress on High-Speed Photography, October 16–22. SPSE Papers Chairman is Fordyce M. Brown, c/o Photomechanisms, Inc., 6 West 18 St., Huntington Station, N. Y. The emphasis will be on compact, simplified photo-processing equipment with short process time. Primary interest will be in the special techniques associated with development and design, specialized photographic chemistry, and specific uses in science, industry and the military. Depending on time available, reports on design and construction of larger processing machines and on advances in processing methods and control systems may also be scheduled. An introductory paper, “The Revolution in Photographic Processing,” will be presented by George Eaton, SPSE President. A technical exhibit of equipment related to reports presented at the Symposium is being arranged.

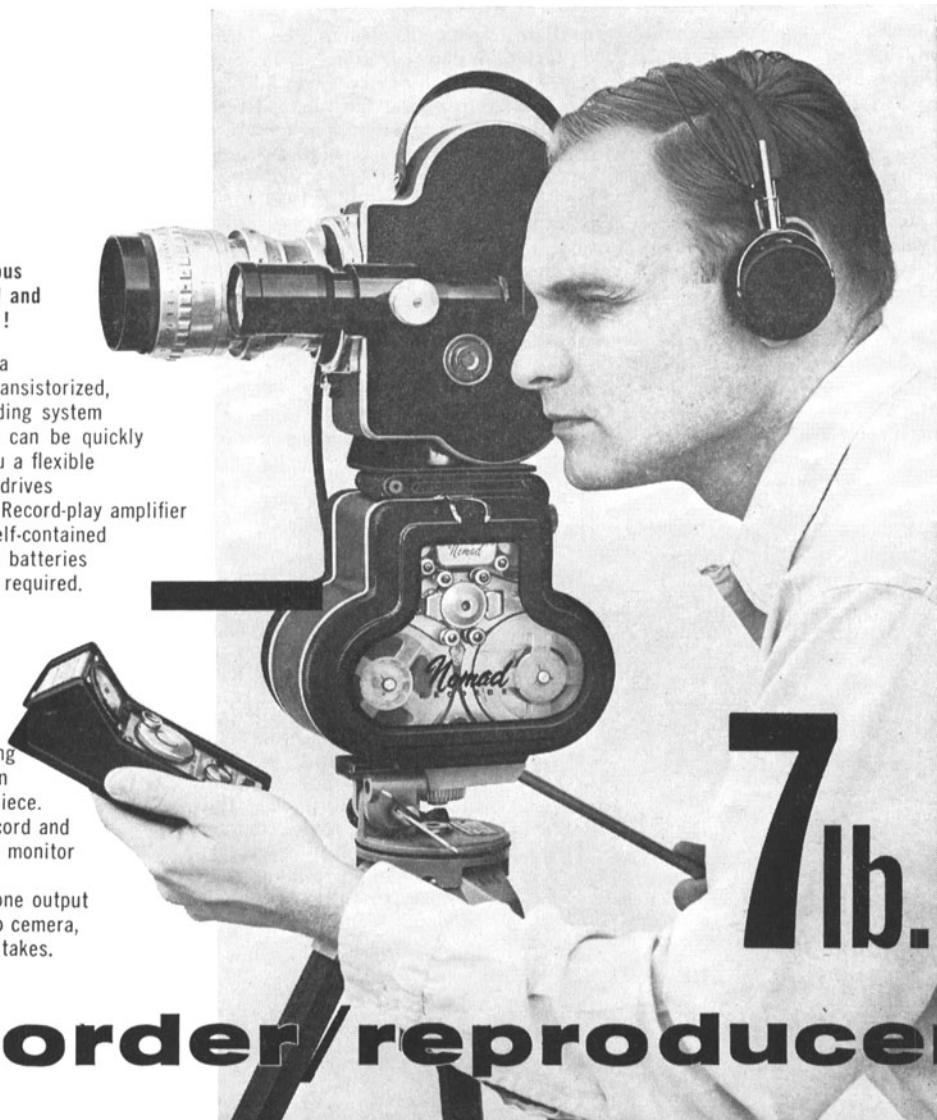
The Society of Photographic Scientists and Engineers will hold its 1960 National Conference May 9–13, at the Miramar Hotel, Santa Monica, Calif. More than 60 technical papers are scheduled, among them reports on space photography and related instrumentation. A session on photographic engineering will include papers on a new technique for high-speed photography of cyclic events, use of magnesium-filled lamps in high-speed photography, and details of photographic support of research on jet engines. Photographic sessions on processing and apparatus will



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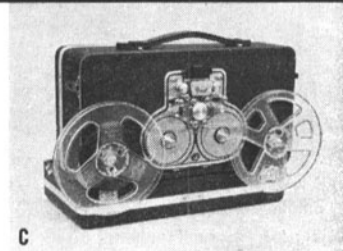
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The SPSE will extend membership registration privileges to all SMPTE members.

Plans for a Hollywood motion-picture and television museum have been discussed, off and on, for a number of years, with hearty approval for the idea expressed by all concerned, but the progress of the dream to-

ward reality has been hampered by many obstacles. A step was taken in 1953 when the Motion Picture Relief Fund, under the leadership of the late Jean Hersholt, attempted to raise \$1 million for the purchase of the Paramount Sunset Studio to be used as a museum. This attempt failed; but six years later, in June 1959, the appointment of a Commission, empowered to formulate and put in effect plans for the museum, by the Los Angeles Board of Supervisors seemed virtually to assure the eventual construction of the long-dreamed-of museum. Civic recognition of this project seems to be in accord with a growing awareness of the historic significance of the early days of motion pictures and television and the need for preserving rec-

ords of the past. An informal report from a Hollywood member of the SMPTE Historical and Museum Committee, Syd Cassyd, recounts progress on two such projects: On Establishment of Two Archives in the Los Angeles Area.

Two important steps in collecting and archiving materials and equipment of motion pictures and television were made this past year in the Los Angeles area. The first was the establishment of a Commission on Motion Pictures and Television Museum by the Board of Supervisors of Los Angeles. Appointment of many prominent persons in the industry focused attention on this problem. Sol Lesser was appointed Head of the Commission. A site has been chosen and plans for the construction of a suitable building have been formulated. The site is close to the Hollywood Bowl which is next to the Los Angeles Freeway system which means that the proposed museum will be easily accessible to everyone in Los Angeles and surrounding areas.

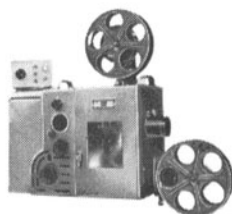
The second development in the field of collection and preservation of historic records was the appointment by the Chancellor of the University of California, Los Angeles, of an Honorary Curator of a proposed Television Archives. The appointment was made in accordance with a suggestion made by the Head of the University's Television Library Committee. It is hoped that this appointment will have the effect of speeding up the difficult job of collecting materials and programs which are slowly disappearing, particularly those of the years preceding 1946 and the 1946-1949 era. This project has been underway since 1956 when the Chancellor, in cooperation with the Academy of Television Arts and Sciences, appointed a committee to study all aspects of the project. Problems of space, and clearances for guilds, unions and finances have been the main roadblocks to collection. The networks and local stations are cooperating and it is hoped to report progress soon.

A one-week seminar in Electronic Flash and High-Speed Photography will be held at the Massachusetts Institute of Technology August 15-19. The meetings will center at the Stroboscopic Light Laboratory where the theory and application of various methods will be studied. Mornings during the program will be devoted to theory and demonstrations; laboratory practice sessions will be held



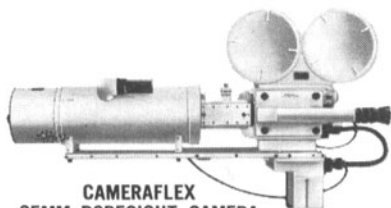
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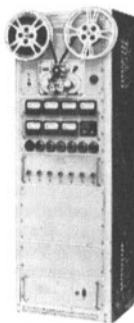
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Test Film Resales

It has come to the attention of the Society that a quantity of several types of SMPTE Test Films which were produced some years ago, are now being offered for resale. Due to the fact that the physical characteristics and the useful life of film may be affected by the conditions and length of storage, the Society can make no representation as to the conformance of such films with established Society standards.

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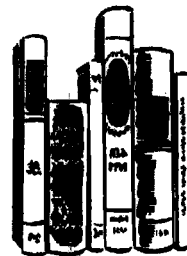
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during the afternoons. Subjects to be covered include pulsed stroboscopic lighting, optical high-speed cameras, Kerr cells, Faraday shutters, and image converters. Specialists in high-speed photography have been invited to lecture on their particular subjects. The seminar will include laboratory demonstrations of many types of equipment related to high-speed photography. The program will be under the direction of Prof. Harold E. Edgerton of the Department of Electrical Engineering, M.I.T. Tuition is \$175. Academic credit is not offered.

A trend away from the "learning more and more about less" type of specialization and toward the "Renaissance man" type of diversified learning was hinted

at by Hans H. Zinsser, M.D., Chairman of the Medical Electronics Session at the International Convention of the Institute of Radio Engineers held in New York, in March. In discussing medical engineering foreseen as a new profession, Dr. Zinsser spoke of "a new breed competent to talk in both fields, not only through acquisition of a vocabulary, but trained in ways of thought that summarize much more than medicine, or engineering, or basic biology comprises at the present time. It is by the development of such multiple-faceted minds that we can most readily progress to the full realization of the potentialities before us."

Dr. Zinsser outlined a suggested curriculum leading to a degree in medical or bio-medical engineering.



books reviewed

Principles of Optics

By Max Born and Emil Wolf. Published (1959) by Pergamon Press Inc., 122 East 55 St., New York 22. v-xxvi + 803 pp. including illus., charts, graphs, etc. 6½ by 9½-in. Price \$17.50.

It is interesting to note that much of the brilliant work done in optics in the second half of the nineteenth century is still perfectly valid and in continuing use. But the broadening scene of physics has elucidated many points that remained mysterious at the close of that period. The optical accomplishments of the twentieth century are constantly revising the point of view in this field.

The present book is a re-working of an earlier *Optik* by the senior author, Max Born. There have been many changes, and the volume is practically a new work. In several respects it is more, perhaps, to be compared with the famous *Lehrbuch der Optik* of Paul Drude. This came out at about the turn of the century (in English translation only by 1922). The comparison consequently reflects a half-century of development in optics.

The broad objectives of the *Lehrbuch* and the present work are really much alike — to present a systematic and unified theory of the major optical phenomena.

The subject matter of the two books is surprisingly similar. Simply, it covers the production of images by lenses and mirrors, interference and diffraction phenomena, the many phenomena of polarized light and its transmission through crystals, and the optics of conducting media such as metals. Some of this is treated by the use of geometrical optics, but most of it needs the more fundamental wave theory.

The first difference that one notes is in the order of presentation. Drude started with the straight geometrical optics. When he introduced waves, he managed as long as possible with an equivocal mechanistic medium. Electromagnetic waves appeared only very far along in the book.

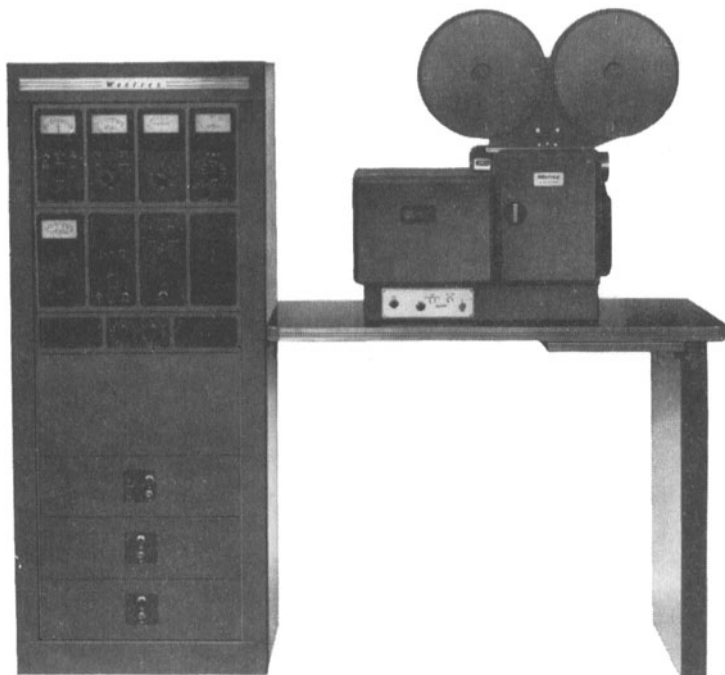
Born and Wolf start right out in the very first chapter with Maxwell's equations. It is only after a hundred pages that they show how the equations lead to the rectilinear light rays of geometrical optics, and they then proceed to go into image formation.

The authors gather together all the material dealing with partially coherent light into a single chapter. Drude treated bits of this here and there as he dealt with Young's fringes, breadth of spectral lines,

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