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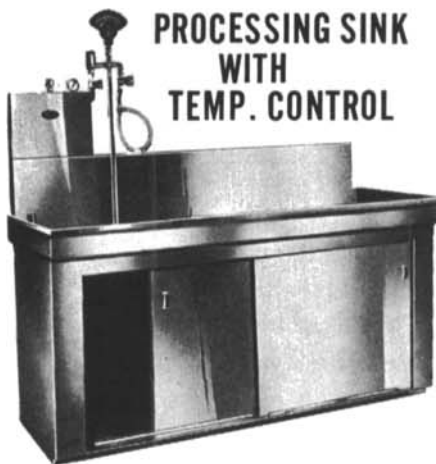
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**books
reviewed**

Calcul des Combinaisons Optiques

By Henri Chrétien. Published (1958) by Librairie Du Bac, 92 Rue Du Bac, Paris VII, France. 862 pp. Illus. 6½ by 9½ in. Price \$20.00.

This posthumous edition is now the final, authoritative record of Chrétien's classic work. The man has become an immortal among mathematicians, and the book stands as his monument.

Self-taught, Henri Chrétien displayed in his writing a keen regard for the practical. Working in a printing office at 12 years of age, with only elementary school education, he became acquainted with mathematical journals, and discovered that he had the gift of understanding mathematical formulas. He soon applied himself to the broad subject of astronomy. Then, because he wanted to realize improvements in instrument design which he felt could not be made without a serious theoretical background, he applied himself to the study of geometrical optics. By the outbreak of World War I, at the age of 35, he had earned a reputation as an authority on optical instruments. This unusual academic background may explain why his teaching was so practical. Even today, with many books published on the subject, Chrétien's

work is outstanding in the field of geometrical optics as a basic tool for the physicist who wants to design and compute an optical system.

The first part of the book is devoted to elementary basic ideas, which form the best background to geometrical aberrations ever written. The second part deals with the classical theory of third order aberrations, mainly influenced by the German school, and supported by references to English works. Even today, when we regard with pride the development of theories of aberrations of the fifth order, this part stays valuable. The precise notation is well chosen and simple. The consideration of coefficients of correction to take care of aspherisation of optical surfaces, and also the elementary manner of presentation, contributes to the value of this second part of the book. The third part is devoted to a general theory of aberrations. The works of Hamilton, Bruns, Schwarzschild, Sampson, Caratheodory, sometimes difficult to read in the original, are here much easier to grasp. After this much pure theory, the book returns to the practical. The two last parts deal with numerical computation and diffraction. A chapter covering advanced ray tracing deals with the methods of Seidel and Schwarzschild; and stands, even in these days of electrical computation, as the best approach to off-axis ray tracing. Another chapter sums up the methods of interpolation, shows how to determine empirical functions, and terminates with a method of computation introduced by Chrétien himself. By combining third order theory and ray tracing, he expresses a method for determining a set of coefficients of correction to represent the actual aberrations of a real system with the third order equations.

Some earlier editions of this book were printed in beautiful calligraphic script. Part of a page from the 2d ed., published in 1929, is reproduced herewith.—Louis P. Raitiere, General Precision Laboratory Inc., Pleasantville, N. Y.

*et négativement pour les surfaces concaves.
Examinons tout d'abord l'effet d'une seule surface réfringente (M) Nous désignerons par U le point-objet S ou T, et par U' le point image, S' ou T'.*

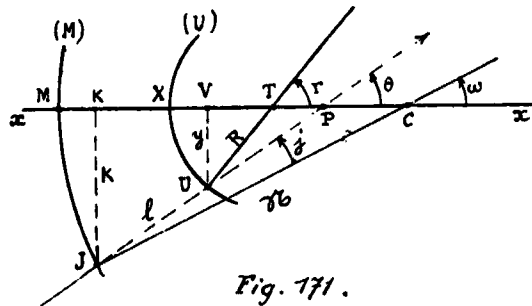


Fig. 171.

Posons (fig. 171):

$$MX = x,$$

$$MP = p,$$

$$JU = l;$$

l sera égal soit à \underline{l} , soit à $\underline{l'}$, selon que nous considérerons

l'image sagittale ou l'image tangentielle.

Écrivons les équations de l'imagerie astigmatique sous forme d'invariants:

$$(5) \quad \mathcal{L}_s = \frac{n \cos j}{r_s} - \frac{n}{s} = \frac{n' \cos j'}{r_s'} - \frac{n'}{s'}$$

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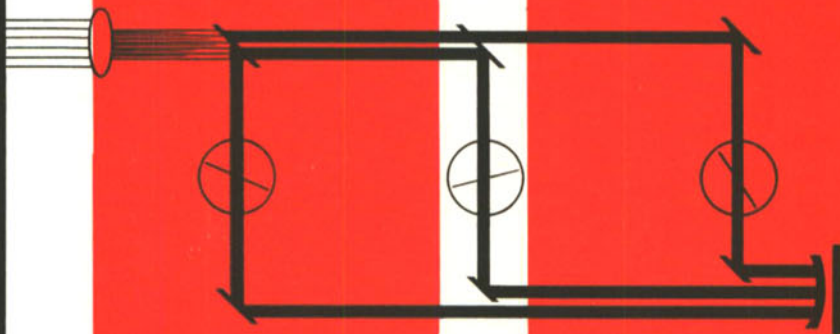


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Closed-Circuit Television Systems: Color and Monochrome

Prepared by Government Service Department, RCA Service Co. Published (1959) by RCA Service Co. (Available from Educational Administrator, RCA, Bldg 15-2, Camden, N.J.) Three divisions are included in this one volume: Book I, "Monochrome Systems," 226 + xii pp. incl. index, table of contents, list of illus., list of tables; Book II, "Color Systems," 102 + v pp. incl. index, table of contents, list of illus., list of tables; Book III, "Addenda: Educational Television—Industrial Television." 19 + i pp. incl. index, table of contents, list of illus. 8 1/4 by 11 in. Price \$4.50.

This volume is a convenient source of information on many aspects of closed-circuit television applications, especially for management personnel responsible for the planning and for technical personnel responsible for the system engineering. Originally written under an Air Force contract as a guide for military personnel in the planning and application of closed-circuit television for military use, the information is equally useful in non-military situations. The information is presented simply and clearly and, in the descriptive sections, in nontechnical language. The Addenda contains brief descriptions of specific educational and industrial installations such as the Walter Reed Army Medical Center and the installation at the State University of Iowa.

Photographic Chemistry, Vol. I

By Pierre Glafkides. Tr. from 2d French ed. (1957) by Keith M. Hornsby, Fountain Press, London (1958). Distributed by The MacMillan Co., 60 Fifth Ave., New York 11 (1959). 491 + xiii pp. Charts, diagrams and tables. 6 by 9 1/4 in. Price \$21.00

This is a British translation of about half of the second edition of Glafkides standard test book *Photographic Chemistry*. The second French edition has been in use for about two years and has proven very helpful, when used with discretion. The translation suffers the same defects as the French original, plus some poor proofreading and other minor inaccuracies.

However, in spite of these disadvantages the book is essentially a very useful one which covers the field more completely and in greater detail than do most books of its type. In particular this book contains a large section on photographic emulsions, starting with a chapter on gelatin as a raw material, and continuing with the preparation and handling of emulsions and of the base materials on which they are coated. This is the most complete coverage of this aspect of photographic chemistry that has been in print in English in many years.

On the debit side the main disadvantages are due to frequent generalizations drawn from specific cases which may be in themselves accurate reports of individual situations. In addition to this, work of a preliminary type is often reported with equal

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emphasis to that given work resulting from many years of detailed study. The experienced user of the book unconsciously makes allowance for this, but students being introduced to the subject for the first time or newcomers to the photographic industry would have no way of knowing how much relative value to give to various portions.

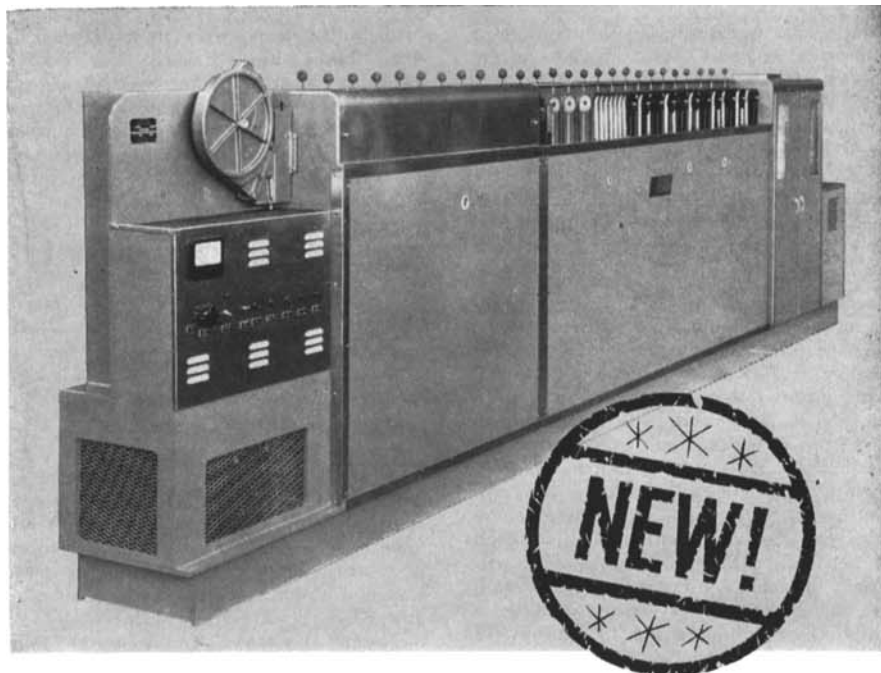
In addition, although the French edition is dated 1957, there is a considerable amount of well documented published work on various aspects of photographic chemistry which has been omitted here. For instance, there is only a slight discussion of the use of ammonium thiosulfate as a fixing agent and a paper by D. B. Alnutt (*Jour.* Oct. 1943, pp. 300-328) is the only reference given on this subject. There is no mention of the newer hypo neutralizing solutions based upon the sea-water washing work of Crabtree's group at Kodak, and there is little mention of Phenidone, or of the contributions of Dr. Mitchell to photographic theory.

The book is well organized and the various sections fit together extremely well so that with the exceptions mentioned above the reader finds that his introduction to the various aspects is progressive and in a good order. The tabulations of the various types of photographic emulsions give an excellent picture of the interrelations between the various types and since most commercial emulsions are based upon more than one type or are even separate coatings of different emulsions upon the same base, it is well to know how they compare with each other.

The chapter on stabilizing and finishing photographic emulsions is generally excellent although there are a few flaws such as the rather uncritical reporting of extensive experimental work with the various antifoggants and a few generalizations which are definitely incorrect; for example, Glafkides says (p. 383), "a photographic emulsion coated onto a gelatin treated base cannot stick perfectly without the use of a wetting agent." Wetting agents are used in all production departments, but small-scale test coatings do not need them.

In general then, this is an excellent text book marred by a number of flaws which will be easily recognized by the experienced user, but not by the student or newcomer to the field, for whom the book otherwise would have the most value. One of these flaws is careless use and spelling of names in references which would not prevent finding the references but might confuse those not familiar with the literature. For example on page 128 reference is made to U.S. Patent 2,596,978 as issued to Dillon and Searle. In fact, the patent was issued to Dillon and Burtner and assigned to the G. D. Searle Co., their employer.

Macmillan, who distribute the book in this country, tell us that the Volume II, promised for late 1959, is progressing well and should be ready in a few months. This portion covers color photography as well as sensitizing dyes and some fundamental chemistry for the student. A list of its contents is given in the current Vol. I, following the index.—*Thomas T. Hill*, Photographic Products, Atlantic Gelatin, Woburn, Mass.



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Filmfacts, a weekly publication containing comments on, and evaluations of, current motion pictures is now in its second year of publication. During 1958 it covered 435 films, quoted from over 1100 reviews and printed more than 180 illustrations, according to an announcement issued by the publishers. The Editor is Ernest Parmentier. The address is P.O. Box 53, Village Station, 150 Christopher St., New York 14.

Problems in Technical Publication Management—A Preliminary Survey is a 22-page pamphlet containing 10 chapters dealing with various aspects of technical writing and publishing. Author and publisher is Roswell Ward who is well known as writer, consultant and executive in the specialized field of technical writing. First published as a series of articles appearing during 1958 in *Armed Forces Management*, the 10 chapters have been revised and illustrated. Although primarily directed to Technical Publication Managers, the subject matter includes a number of helpful hints to authors of technical papers, especially in the chapters on "Creative Imagination in Technical Publications," and "Streamlining Methods of Technical Writing." The booklet is available from Mr. Ward at Rockledge, Bantam, Conn. It is priced at \$3.50.

Better Movies in Color, a 24-page Eastman Kodak publication has been revised from an earlier version to include the latest available information on cameras

with built-in exposure meters. Planned for the "home moviemaker," the booklet contains illustrated, step-by-step instructions on the best use of Brownie Automatic and Kodak Cine Automatic Cameras. It is priced at 35 cents and is available from Kodak dealers.

section reports



The Dallas-Fort Worth Section met on September 24 at the Mercantile National Bank Auditorium in Dallas with an attendance of 40. Speakers were Gordon Tubbs of Eastman Kodak Co., who discussed the Eastman Color Negative Type 5250, and Jay Berry of Alexander Film Co., who discussed the 1959 International Film Festival.

Through the use of slides, Mr. Tubbs described the specifications of the new higher speed Eastman Color Negative Film Type 5250. Following the description of the film capabilities, Mr. Tubbs showed 35mm film sequences dramatically demonstrating the advantages of the new film. The wives and guests particularly enjoyed the footage of the Japanese Royal Wedding and the Ice Follies.

Mr. Berry described the importance of creative engineering in the production of good commercial films. He showed many of the winning entries in the "International Festival of Television Commercials and Theatre Advertising Films." Before each film was shown he described the techniques to be seen, the country in which the film was made and the category in which the prize was awarded. These films from Italy, France, England and the United States were extremely entertaining and presented many stimulating ideas.—Philip W. Wygant, *Secretary-Treasurer*, 6021 Plants Ave., Dallas 12, Texas.

The Hollywood Section had an attendance of 225 at its September 15 meeting at the National Broadcasting Co. in Hollywood. Oscar F. Wick and Ralph E. Lovell, both of NBC-Burbank, and Mel W. Smith, S&S Mfg. Co., Alta Loma, were the speakers. Mr. Wick discussed "Double System Editing of Color Video Tape." Mr. Lovell's subject was "An Electronic Leader Device for Video Tape Recording." Mr. Smith talked about "A Precision Video Tape Splicer of Unique Design."

Mr. Wick described, and illustrated by the use of slides, the double system editing of color video tapes by NBC-Burbank. This system involves the making of a separate magnetic soundtrack and a photographic kinescope recording simultaneously with the making of the video-tape recording. A common cueing system is employed which keeps these records in synchronism. The photographic kinescope single-system recording serves as a cutting work print. Its cues serve to permit the synchronous cutting of the magnetic soundtrack and the video-tape recording. After these two records have been cut, the soundtrack is dubbed from the separate sound record onto the video-tape recording to make a composite record. This technique overcomes the disadvantages of cutting single-system records in that the action does not have to be preplanned to allow a section where no dialog occurs to take care of the sound-picture separation.

Mr. Lovell described and demonstrated an electronic leader device to permit the recording of an "Academy" leader on the head end of video-tape records. This device, having a rear illuminated slate section for recording the production, scene and take numbers, also incorporates an electronically generated count-down device which forms Arabic digits that count down at 1-sec intervals to be photographed by the television camera to act as a cueing leader. In addition, audible signals were provided to cue the audio soundtrack.

Mr. Smith described a high-precision video-tape splicer which incorporated a number of unique features, such as a calibrated microscope, a special shearing action cutter and vernier tape-positioning rollers. The details of this splicer were shown graphically by color slides.—Robert C. Hufford, *Chairman*, Eastman Kodak Company, 6706 Santa Monica Blvd., Hollywood.

The New York Section met on September 15 at the Carnegie World Affairs Center with an attendance of 62. Paul Wittlig, *Manager*, Production Development, CBS-

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