c_{ij} and s_{ij} which have been variously called elastic constants, moduli, coefficients, stiffnesses and compliances. The last two ("stiffness constant" for c_{ij} and "compliance" for s_{ij}) get Christian's particular endorsement.

Seldom can one say with any assurance, on reviewing a new book, that it is destined to become a classic in its field. Christian's book, however, affords us one of those rare occasions which it is a pleasure to acknowledge.

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Hot gases

RADIATIVE CONTRIBUTIONS TO ENERGY AND MOMENTUM TRANSPORT IN A GAS. By Douglas H. Sampson. 178 pp. Interscience, New York, 1965. $8.50.

By R. Landshoff

Any calculation whose results depend on the energy and momentum balance of a very hot gas must include the contributions of the radiation field. Sampson's book is intended to indicate to research engineers how these radiative contributions arise and how they should be calculated under various conditions. Actually the emphasis of the book is not really pointed to the practical questions that are of interest to the research engineer, who would probably be quite happy to accept a more intuitive line of reasoning. Instead the book leans heavily on a rather formal approach. The radiative transport equation, for example, is regarded as the Boltzmann equation of the photon gas. The intuitively obvious result that one can equate the heating of the gas with the excess of absorption over emission is then derived from this Boltzmann equation following essentially the well known method of Chapman and Cowling for deriving the conservation relations of an ordinary gas. The emphasis on formalism shows up even more strikingly in an attempt to extend the theory to situations where one can not assume local thermodynamic equilibrium. By expressing the nonthermal distribution of the gas in terms of a set of pseudotemperatures the author manages to give the equations a deceiving look of elegance. This formulation doesn't really help with finding the distribution itself which is the hardest part of the problem when one can't assume LTE. As a matter of fact we acquire the additional bookkeeping problem of having to translate the one-parameter set of occupation numbers into the two-parameter set of temperatures T_{ab}.

In the sections devoted to applications, the reader is introduced to solutions of the transport equations when the gas is optically thick or thin and with or without scattering. Some mention is also made of cases of intermediate optical thickness. This presentation stays largely away from detail except for a discussion of surface concepts. For the calculation of radiative absorption coefficients and for numerical integration procedures the reader is referred to other sources.

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Optical technology

MODERN OPTICS. By Earle B. Brown. 645 pp. Reinhold, New York, 1965. $25.00

by L. Marton

I must confess to a certain amount of prejudice against this book even before opening its cover. The prejudice originated from the title, *Modern Optics*. I find that the use of the word "modern" was unfortunate. Somehow, in my mind at least, "modern" means "up to date," and the question immediately arises: How long will it stay up to date? I am aware that the author probably uses the expression "modern" in the sense of contemporary, but I have known books that came out with "modern" in the title, and unfortunately, they didn't stay modern nor were they modern at the time of publication.

My last remark doesn't apply to this book. It is up to date as of now, and its coverage is remarkably broad. The adjective "modern", however, makes you search for items that are not contained in other well known texts on optics, and there are relatively few items that can be picked out from the wealth of material presented in the book. In fact, I would only single out two items. One is the extensive chapter on the role of information theory in optics, and the other is the much shorter chapters on lasters and laser applications. The latter is rather superficial, and the author apologizes for it in the preface, whereas the information-theoretical part is exhaustive and kept at a reasonably high level. In fact, I am inclined to consider it the best part of the book.

All this brings us to the purpose of the book. For whom is it written? Usually a preface gives this type of information, and I tried to find it. The author says, "The guiding purpose of this book has been to give as broad a picture of optical technology as is possible within a reasonable bulk and to present the material at a technical level which will neither insult the intelligence of the intended reader nor burden him with unnecessary detail. A reasonable level of rigor has been attempted, but no attempt has been made to include proofs of many of the mathematical formulations." Problems have not been included. The book is not intended as a text for a classroom course in optics, but for self-study." "There is very little in this book that is not discussed in greater detail and with greater rigor elsewhere; the primary aim has been scope rather than uniqueness of subject."

The above definition of "scope" is rather negative, and the question arises: For whom is the book really written? The search for an indication leaves the reader rather frustrated. There are many items that are very good, others are mediocre and some are way down to downright naive. So, for instance, some of the introductory statements on