Rensselaer Polytechnic Institute since 1967).

This slender book (144 pages of text) undertakes in its first 70 pages to review nearly the whole field of physical optics. The level of the presentation is definitely not for the layman, but could be appreciated by a senior majoring in physics. Many well drawn diagrams greatly aid the exposition. It does not seem appropriate in this review to belabor minor errors in the equations; on the whole the pedagogy is excellent.

Nonlinear phenomena are treated in the remaining 74 pages. The subject is divided into two parts, nonlinear phenomena in passive media (harmonic generation, parametic amplification) and nonlinear phenomena in active media (stimulated Raman scattering, acoustic modulation of light). An active medium is here defined as one that "imposes its own characteristic frequencies on that of the impressed light." I was disappointed to find no discussion of the propagation of short pulses in optically pumped media. The high level of pedagogy is maintained, although the reader is hereby warned that the correct answer to the numerical example on page 96 is 3.3 cm, not 4.11 mm.

On the whole this book succeeds very well in meeting the limited objectives as frankly and clearly stated in its first few pages. It does indeed provide a relatively elementary but nonetheless thorough account and is highly recommended for the engineer with little time for study in depth or the manager who must make decisions.

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The Design of Optical Spectrometers

By J. F. James, R. S. Sternberg
239 pp. Chapman and Hall, New York, 1969. $10.50

Although spectroscopy is a very widely used tool in physical, chemical and biological studies, surprisingly few investigators know much about the limitations of their instruments or the principles on which the designs are based.

Course work in the physical sciences emphasizes the uses of spectroscopy, leaving the analyses of aberrations and experimental problems to be learned elsewhere. Unfortunately they are rarely learned anywhere. The small book by J. F. James and R. S. Sternberg attempts to present enough information about optical design principles, aberration minimization and so forth to permit intelligent assessment of the capabilities of different designs. I believe the book succeeds in achieving its aim.

One reason the authors succeed is that they suppress the temptation to expose, in encyclopedic fashion, all the underlying optical theory. Instead, an "it can be shown" attitude is adopted. In other hands this approach often fails because insufficient information is given; here a good harmony is reached among details of exposition, motivation in using a particular analysis and practical designs. The principal topics covered are plane- and concave-grating spectrometry, Fabry–Perot spectrometry and multiplex spectrometry. Other, shorter, sections discuss detectors, optical components and general construction criteria.

With the exception of some older books that contain some but not all of the same material (for example, R. A. Sawyer's *Experimental Spectroscopy*) most of the subject matter presented by James and Sternberg is not available elsewhere in as compact and useful a package. I believe that all graduate students beginning research using spectroscopy would benefit from reading this book; I will certainly recommend it to my students.

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College Physical Science

By Vaden W. Miles, G. Ray Sherwood and Willard H. Parsons
(second edition) 529 pp. Harper and Row, New York, 1969. $9.95

For over a decade it has appeared that physicists have believed their principal goal to be reproduction of their own kind. Every bright youngster who passed through college found his physics professors trying to seduce him with the idea of "physics as a career" and to gain a new convert to the faith that the need to accelerate particles ever faster should be an axiom of our social order.

It couldn't last, of course, and it didn't. Now, more than ever, it is important that the meaning of pure science (and perhaps even some of its delights) should be rehabilitated in the public mind.

College Physical Science makes this task a lot easier. It is intended for courses taught to liberal-arts and business majors, and does a very good job of interspersing the hard facts of physics and chemistry among the less demanding concepts of meteorology, astronomy and geology. The illustrations are plentiful and well chosen, and the style of writing is clear and direct.

The sad thing is that all the complimentary remarks of the previous paragraph apply equally well to the first