

the nature and properties of light may cause some of the theoretical physicists to shake their heads. There are also items promised in the preface that are not treated according to the announcement in the preface. For instance, the preface says, "The Rayleigh limit was for decades an ultimate performance goal; today it is recognized as being a rather coarse criterion of quality." On page 259, the author says, "In an actual instrument, the resolution is not often that set by the diffraction limit of the aperture concerned. In most instruments, residual aberrations establish the resolution limit at a somewhat degraded level from the diffraction."

As another example, the preface says, "The classification of optical instrument types is believed to be unique, as is the treatment of reflections and image rotation in mirrors and prisms." I fail to see what is so unique about the presentation. Although the book is long and correspondingly expensive, there are certain items missing that one would expect in a "modern" text of optics. Although there is a long chapter devoted to optical measurement, there is no treatment, aside from a very short paragraph, of its uses in metrology. The fact that today the fundamental unit of length, the meter, is defined in terms of wavelengths, rather than in terms of the

distance between two bench marks, is ignored.

In editorial matters, I would like to complain of misspelling of both names and references. Many of these misspellings are rather systematic, indicating that they are not due to typographical error. So for instance, the name of Bloembergen is systematically misspelled Bloembergen. Another example of systematic misspelling is the name of Wien, who is always called Wein. As to the references, I deplore the system of giving unpublished reports as references. I think at one time the Optical Society made a definite request not to use such references.

The figures, which are very numerous, fall into two categories. The line drawings are almost uniformly good. Unfortunately, there are too many halftones containing photographs of instruments which are not informative at all. About 90% of these photographs could be discarded without impairing the usefulness of the book.

The book may serve as a useful introduction to the study of optics, particularly to engineering optics, but for serious study, quite a bit of added reading is necessary.

* * *

The reviewer, who has done research in optics and electron physics for many years, is chief of international relations for the National Bureau of Standards.

PLASMA INSTABILITIES

AND

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Edited by William B. Pardo
and Harry S. Robertson

*Physics Department, University of
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Physics of the Solar Corona. (2nd ed.) By I. S. Shklovskii. Translated by Louis Anderson Fenn. 475 pp. Pergamon Press, New York, 1965. \$18.50.

Methods of Orbit Determination. By Pedro Ramon Escobal. 463 pp. Wiley, New York, 1965. \$17.50.

BIOPHYSICS & MEDICAL PHYSICS

Diffraction of X-rays by Chain Molecules. By B. K. Vainshtein. 414 pp. Elsevier, New York, 1966. \$23.50.

Progress in Biocybernetics, Volume 3. Norbert Wiener, and J. P. Schade, eds. 258 pp. Elsevier, New York, 1966. \$15.75.

CHEMISTRY & CHEMICAL PHYSICS

Molecules, Crystals, and Quantum Statistics. By Enrico Fermi. Transl. from Italian by M. Ferro-Luzzi. Lloyd Motz, ed. 300 pp. W. A. Benjamin, New York, 1966. \$12.50.

Chemical Physics of Ionic Solutions. Conf. Proc. (Toronto, Canada, May 1964). B. E. Conway and R. G. Barradas, eds. 622 pp. Wiley, New York, 1966. \$25.00.

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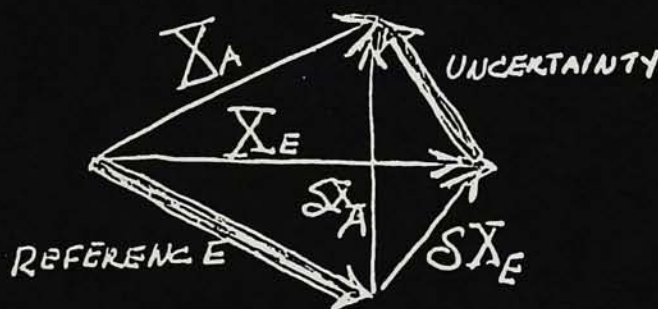
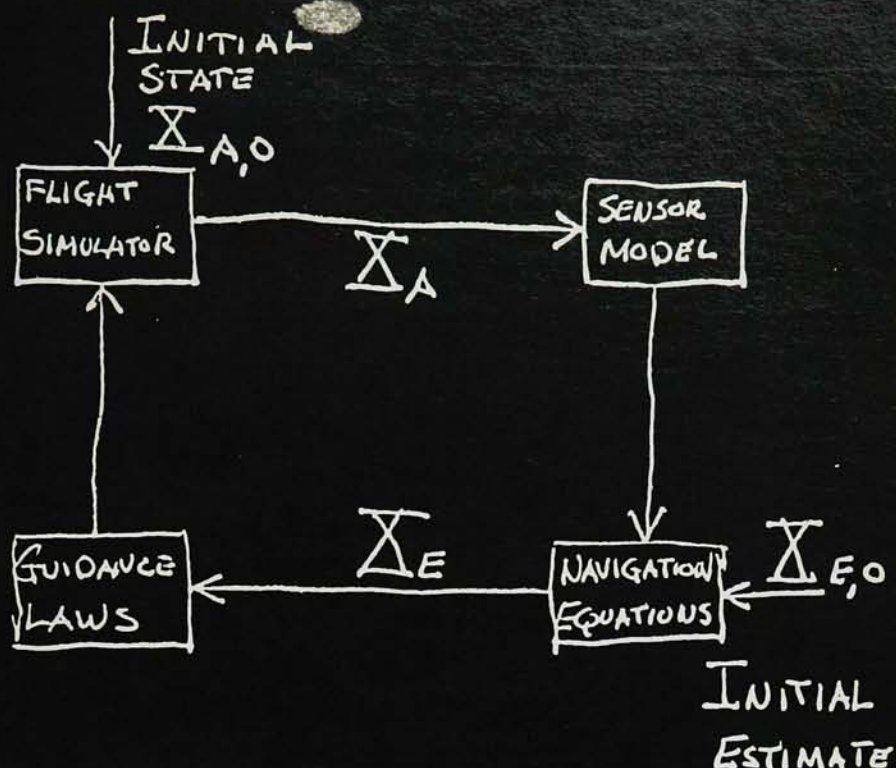
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HANDBOOKS, TABLES, ETC.

McGraw-Hill Yearbook of Science and Technology. Comprehensive Coverage of the important Events of 1965 as Compiled by the Staff of the McGraw-Hill Encyclopedia of Science and Technology. 451 pp. McGraw-Hill, New York, 1966. \$24.00.

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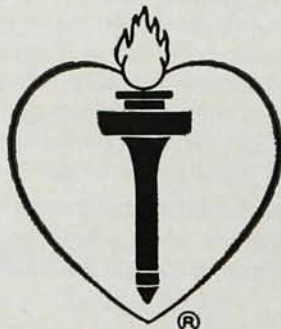
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