students tend to find troublesome. Each chapter ends with a set of problems, the answers to which are given at the end of the book. Whereas some of the answers merely consist of numerical results, many of them contain a brief explanation of the method of attack. The bibliography that completes the book is adequate, although it does not include some of the more recent texts such as those by Bertram E. Warren, Leonid V. Azaroff, Jerome B. Cohen or Arthur J. C. Wilson.

In summary, while less ambitious in scope than many other introductory books on x-ray crystallography, Woolfson's text suceeds as well or better than most in explaining those aspects of the subject that he has chosen to include.

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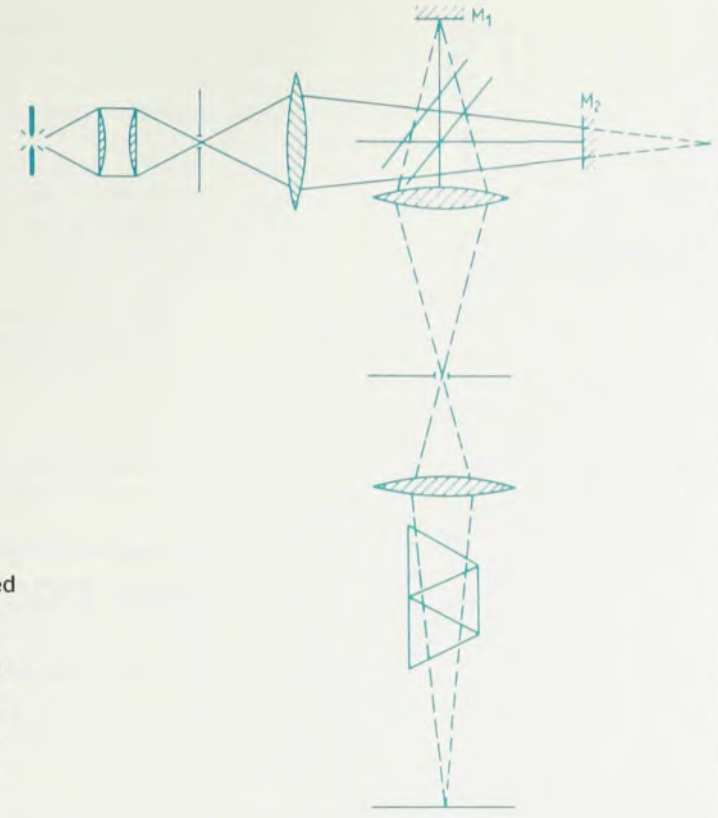
Experiments in Physical Optics

By M. Françon, N. Krauzman, J. P. Mathieu, M. May
271 pp. Gordon & Breach, New York, 1970. $19.50

The title is a little misleading, because the book is not concerned with experiments to be performed by students but rather with those that might be performed as class demonstrations. More than 100 experiments are described, and although very few are quantitative, they still demonstrate a very wide range of phenomena in physical optics. In each case, the principle of the experiment is first outlined and the effect to be demonstrated is described. A list of the necessary apparatus is then given in adequate detail and the adjustment of the apparatus is explained. The book is well illustrated both with ray diagrams and some sketches of apparatus.

An essential feature of a demonstration experiment is that it should be visible to a class of students; the authors are careful to indicate which demonstrations can be projected on to a screen, which require a television camera and screen, and which require individual observation by the students in turn. There are very few in this last group.

The title of the book invites comparison with laboratory texts, and in particular, with *Optics Experiments and Demonstrations* by C. Harvey Palmer. However, these two books are intended for different readers. Palmer's book is full of the sort of detail that a student needs and also includes many references where points are elaborated. The present volume is clearly meant for the experienced teacher. There are no references and while the notes on the principles of the experiments are perfectly adequate as reminders, they are too brief to be of much use to someone who



Michelson interferometer, arranged for the observation of the fringes of an air wedge. The air wedge is the distance in air between mirror M_1 and the image of M_2 at M_1. (From *Experiments in Physical Optics.*)

is not moderately familiar with the subject.

Surprisingly there are only ten photographs of optical effects, and as these are the sort of picture found in almost every book on optics, they are of little value.

This book must represent many years of practical experience in the teaching of optics (at the University of Paris). While none of the experiments appear to be novel, their wide range and the practical detail of the descriptions of the demonstration apparatus and its adjustment make this an invaluable book for those teachers of optics who have not yet developed their own repertoire of demonstrations and a useful one for those who have.

The translation is by S. Mallick of the Paris Institute of Optics, and is excellent with very few examples of the pedantic phrase that so often intrudes.

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Mechanics, Waves and Thermal Physics

By R. L. Armstrong, J. D. King
563 pp. Prentice-Hall, Englewood Cliffs, N. J., 1970. $9.95

This book is a new addition to the rapidly growing shelf of texts available for an introductory sequence of physics courses for science students. It is devoted to classical and relativistic mechanics, wave motion, some atomic and statistical physics, thermodynamics and even contains elements of solid-state theory. It does not discuss electricity, magnetism, or optics. Some knowledge of calculus is assumed; all other mathematical tools are provided.

It is a cleanly and carefully written book—the various topics are treated coherently, in a logical sequence, and in simple and lucid language. Major formulas are derived with care and receive adequate physical interpretation. There are many diagrams and pictures and a good collection of illustrative problems. It appears to be the kind of book that could be read and comprehended easily by even a mediocre student.

I particularly like the extensive and early discussion of the role of frames of reference in both classical and relativistic physics, a topic frequently either ignored or badly handled in an elementary text. It is treated here carefully and includes elements of transformation theory.

I confess, though, that I am troubled by what seems to me to be an *ad hoc* and early introduction of relativity, which is neither adequately motivated by the physics nor terribly well connected to the rest of the book. This arrangement is justified by the authors on the ground that it adds excitement to the course. That may be the case, but I remain skeptical of its efficacy. The discussion of atomic physics prior to any treatment of electricity and magnetism raises conceptual difficulties that are