



NEWPORT RESEARCH CORPORATION

18235 MT. BALDY CIRCLE
FOUNTAIN VALLEY, CALIFORNIA 92708
714 / 962-7701 714 / 968-7683

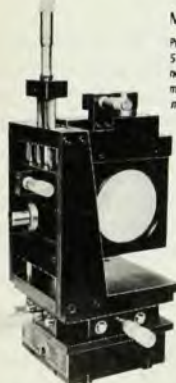
NEED AN OPTICAL TABLE ?



NRC is the leading manufacturer of vibration isolated optical tables. The honeycomb table top manufactured by NRC is unmatched in rigidity, flatness, and internal damping. Granite and cast iron surface plates are also available with NRC's superior isolation system. It pays you to check our performance specifications.

NEED A SPECIAL HOLOGRAPHIC SYSTEM ?

Please call NRC engineers for free consultation. Our experience in holography may be of value to you and we will be happy to be of service.



Model 700 TM
Precision Lens Positioner, with 5 degrees of freedom and magnetic hold-down, is one of the many Laser application equipment manufactured by NRC.

Circle No. 32 on Reader Service Card

between groups I and IIa will, of course, inevitably continue. Were it not for this fact, one might be tempted to call Marder's book the last word on the subject.

* * *

Banesh Hoffmann is a Professor of Mathematics at Queens College of the City University of New York. He worked with Einstein and Infield and has recently completed a book with Helen Dukas, Einstein's secretary, entitled *Albert Einstein, Creator and Rebel*.

Lens Aberration Data

By J. M. Palmer

118 pp. American Elsevier, New York, 1971. \$17.00

Palmer's little volume, *Lens Aberration Data*, is the first book of a new series, "Monographs in Applied Optics." The projected titles include *The Optical Transfer Function*, *A Study of Specular Reflection*, *Optimisation Techniques in Lens Design*, and *Metal-Dielectric Multilayers* and if these volumes meet the scientific standard of the first, they will indeed find a wide use in the optical field.

The title, *Lens Aberration Data*, is somewhat misleading and does not really convey the nature of the contents of this volume. No tables of data are included; rather it is the goal of the author to present a discussion of the aberrations of optical systems and the methods of evaluation of any data generated relative to these aberrations.

The first chapter is devoted to ray tracing and the methods of presenting the image defects. He then continues with a discussion of aberration tolerances including a brief discussion of the optical-transfer function and the Strehl intensity ratio. Interferograms are discussed from the point of view of the lens designer, and a program is outlined for the generation of the interferogram to be expected from a system on the basis of the initial design. Finally he presents an appraisal of the methods of analysis and a short consideration of the problem of tolerances in the specification of lens systems.

One of the more interesting aspects of this work is the indication of the computer work that has been done in this analysis and the presentation of results from computer prediction. This represents a somewhat new approach in a monograph and a rather interesting one. With the extensive use of computers today, and with so much information on optical systems

presented in various forms of computer output, one can be sure that these statements of the author will receive considerable attention on the part of the readers.

This will be a very useful book to a diverse audience within the optical community. Certainly engineers concerned with the design of systems that include optical components have needed a survey of this sort for a number of years, and they will find this (and I suspect, the remaining volumes of this series) occupying a prominent position on their shelves. Students will find this review useful and handy in their work and I suspect that many professional opticians will want to dip into it from time to time.

J. WARREN BLACKER
Vassar College
Poughkeepsie, New York

Fourier Methods in Crystallography

By G. N. Ramachandran, R. Srinivasan

259 pp. Wiley, New York, 1970. \$15.95

Crystallography has become a field that is highly productive in the determination of three-dimensional molecular structures. The advent of computers and improvements in instrumentation have made it possible to determine crystal structures routinely from x-ray and neutron diffraction data. One of the fundamental problems in this field of structure analysis is the determination of the structure-factor phase, which cannot be directly measured. As a result, a number of methods have evolved over the years for the estimation of structure-factor phases. The practising crystallographer today has a Gladstone bag filled with a variety of phasing schemes. Some of the methods are specialized, others are applicable generally. Probably the major phasing methods deal with interpretation of Patterson functions or rely on direct methods. The monograph on Fourier methods by G. N. Ramachandran and R. Srinivasan deals with phasing methods that are rather specialized.

As promised in the preface, the book is an account of phasing procedures that have been developed by Ramachandran and his group at the University of Madras over the last 15 years. In a mathematical context, the book is complementary to Martin Buerger's book, *Vector Space*. The methods covered up through chapter 8, however, are not particularly viable or widely used, so that much of the monograph is supplementary to Buerger's work on Patterson functions. In the first three