plete but concise description of the pollen. The reviewer has had the opportunity to study many of the slides on which this publication is based. Some of the finer details will be seen only in pollen grains that have been prepared by the acetolysis and chlorination techniques introduced by the author.

This book will be a stimulus to systematists because of the numerous observations about pollen types of particular species and genera that are not in harmony with the other members of their respective groups. Possible relationships derived from pollen should be considered in future monographs. Dr. Erdtman found the pollen of *Cneorum pulverulentum* Vent. differed so much from the other species of *Cneorum* that he made a new generic combination (p. 115). This is mentioned because it is the only new combination and could easily be overlooked.

Those who desire to identify pollen for ecological, geological, and climatic interpretations will experience some difficulty, because a key to the pollen groups has not been included. (Imagine trying to identify a plant in *Gray's Manual of Botany* without the aid of an analytical key.) For the experts, however, there is a wealth of information which can be found through the complete index and the citations of pollen of similar structure in other families. A second volume on the gymnosperms, ferns, and mosses is in preparation. Chronica Botanica will act as agent for American sales.

CLAIR A. BROWN
Department of Botany, Louisiana State University

Polarized Light in Metallography. G. K. T. Conn and F. J. Bradshaw, Eds. New York: Academic Press; London: Butterworths, 1952. 130 pp. $3.80.

For a long time polarized light in transmission microscopy has found wide application in mineralogy and petrography, and, at first glance, one would assume that its use in reflection microscopy should also be of great advantage. However, because of inherent difficulties, the reflection method has been employed in the past only sporadically, and it is only in recent years that it has found wider application by metallographers for the investigation of metallic structures. It has, indeed, proved to be a valuable tool in this field.

The aim of the present book is to acquaint a wider circle with the technique and method of this new development in reflection microscopy by giving a concise treatment of the physical principles involved, by describing the necessary accessories, and by exemplifying the advantages connected with the method. Nine specialists wrote this survey, which was prepared for the Optical Methods Sub-committee of the British Iron and Steel Research Association. The first two chapters describe polarized light, anisotropic materials, and the principles of reflection and absorption. Four further chapters treat the equipment and procedures of reflection microscopy in polarized light, the examination of metal surfaces, the identification of inclusions in metals and alloys, and the use of reflected polarized light in the study of ores. The closing chapter gives a summary of the subject. A glossary of optical terms is attached.

There is no doubt that this book will help to disseminate the knowledge necessary for a further advance in this very promising type of research. It must be stated, however, that the introductory part contains several serious misstatements and that it needs careful revision.

K. W. MEISSNER
Deparment of Physics, Purdue University

Experimental Nucleonics. Ernst Bleuler and George J. Goldsmith. New York: Rinehart, 1952. 393 pp. $6.50.

Experimental Nucleonics is a text for a laboratory course for students who have had previous training in nuclear physics and in chemistry. It is divided into four parts: an introduction, and sections on general, chemical, and physical techniques. It includes details of 24 experiments, of which 16 or 17 are considered to comprise the course. These experiments cover a wide variety of techniques involving the measurement of radioactivity, from the determination of the decay scheme of K^{42} by coincidence measurements on the physical side, to separation of chemicals by solvent extraction on the chemical side. Thus, this volume leads to an integration of the sciences of physics and chemistry, so that the physicist who carries out these experiments should be able to perform his own simple chemical purifications, and the chemist who masters the material in this volume should be equipped to perform accurate physical measurements.

Since a separate chapter is devoted to each experiment, there is room for a full description of the physical and chemical principles involved in the measurement. Thus, the experimental details are the smaller part of the total text by a considerable margin. It is this feature which leads to much of the value of the book. Indeed, the introductory material on scintillation counters is the first simple summary that has come to this reviewer's attention, and it appears to be accurate and complete.

The experiments have been wisely chosen to illustrate a great wealth of techniques, and to provide experience in many of the techniques useful in modern radioactivity measurement. They involve, for example, the detection of radiation with photographic plates, measurements in ionization chambers, and absolute β-counting; and they provide experience with many of the garden varieties of Geiger counter. Indeed, if one is to seek a point to criticize, it is that the equipment required to implement the course is quite extensive, and the work required to present the experiments is quite intensive, so that, more's the pity, one might only expect to find such a course given at relatively few universities.

There is one additional use for this volume which the authors do not seem to have had in mind, and that