page 121, a two-layer orthorhombic mica (lepidolite) *has* been reported (Christie, 1961); and use of the notation $hk \cdot \ell$ is inconsistent, as is the manner of designating referenced authors.

These faults, however, do not measurably detract from the value of the book. The authors have assembled a profusion of experimental and theoretical data, formerly strewn throughout the literature, into a well-organized, readable volume, and this liberally referenced first text on polytypism is a timely, welcome addition to the crystallographic literature.

J. A. KOHN
Institute for Exploratory Research, U.S. Army Electronics Command, Fort Monmouth, New Jersey

Analogues for Tumor Cells

G. F. Gause's **Microbial Models of Cancer Cells** (Saunders, Philadelphia, 1966. 109 pp., illus. $4.50) is the first of a series of monographs edited by A. Neuberger and E. L. Tatum to be published under the collective title of Frontiers of Biology. The aim of the series is "to present coherent and up-to-date views of the fundamental concepts which dominate modern biology." The editors hope to accomplish this objective by using authors who have made significant contributions to advances in various areas of biology.

This monograph has as its purpose the stimulation of interest in microbial biochemical systems as models of cancer cells. The author says that neoplastic disease is "basically a 'somatic mutation'" and that "'cancer DNA' is basically the 'evil genius' of the cancer cell." He believes that the most significant change in cancer cells which finds its mutational counterpart in bacteria is that of impaired respiration (anaerobic respiration). This is brought about in both microorganisms and tumor cells by deficiencies in cellular regulatory mechanisms caused by disturbances in the genetic DNA. With this concept as a basis, various respiratory-deficient mutants of yeast, fungi, bacteria, and protozoa are discussed, and similarities between the biochemical and enzymatic causes of these deficiencies and those of most tumor cells are compared. There are some comparisons of other bacterial mutant abnormalities with similar ones in tumor cells, but these are treated superficially. These include differences in cell wall amino acid composition, changes in cell wall surface properties, DNA-base composition distortions, and similarities in the action of different specific protein, DNA, and RNA inhibitors.

Finally the author discusses a "new" approach to the possibility of obtaining antimetabolites of tumor cells. This is founded on the hypotheses (i) that it is possible to produce mutations in microorganisms which give biochemical alterations similar to, but not identical with, corresponding biochemical alterations of tumor cells, and (ii) that these metabolites for some systems show antimetabolite properties when tested in similar biochemical systems of another species. In view of these concepts, Gause believes that components of some mutated microbial biochemical systems may occasionally act as antimetabolites for similar biochemical systems of cancer cells.

This is not a new approach to this problem, and it has been attempted for many years without much success. The difficulty has been that the organism with cancer is composed of normal cells as well as tumor cells, and effective analogues have always been almost as toxic for the normal as for tumor cells. The monograph is a fair review of the phenomenon of impaired respiration in biological systems and related biochemical changes; and it gives evidence that microbial mutants can be advantageous in the study of this phenomenon in tumor cells. Outside of this, however, it fails to make a case for the value of microbial models of cancer cells.

There is a definite need for monographs of this type, and the book is well written and easy to read. However, the treatment of the subject of this monograph falls far short of the editors' aims and ambitions for the series. One hopes that future publications in the series will develop their particular "Frontiers" in more breadth.

FELIX L. HAAS
M. D. Anderson Hospital and Tumor Institute, Houston, Texas

Contributions to an Amorphous Field

The sociology of science, once an esoteric if not an eccentric hobby, is now an important and rapidly expanding field. As yet there are no accepted disciplinary boundaries and no journal; and although there is a variety of persons interested in the subject, they do not yet constitute an organized group identified with the field. Thus in **Science and Society** (Rand McNally, Chicago, 1965. 625 pp., illus. $8.95) Norman Kaplan, a sociologist, has done a great service, not only by gathering and reprinting this collection of recent articles, but by giving some organization to a rather amorphous field.

The book contains 39 selections, of which all but seven have appeared since 1960, on various aspects of the interrelations between science and society. The articles are arranged in six sections, each with an introductory essay by Kaplan. The first section contains three articles on the problems and concepts of the study of science in society and three giving historical background to present problems of scientific organization. The second section focuses on the behavior and attitudes of scientists and on the changing position of science in the world today.

The next section concerns the problems of laboratory organization and administration, and is followed by several analyses of the national science establishments of the United States, Russia, and western Europe. The succeeding section deals with the relatively new field of science policy; that is, the problem of planning for the development of science as a part of national policy. The last and largest section, Prologue to the Future, contains 10 articles dealing with foreseeable problems, such as those posed by the necessity for international cooperation and the effects of big science on the internal characteristics and direction of science itself.

The selections represent a fair cross-section of our current knowledge of the interrelationship between science and society. The varied background of the authors is a reflection of the complexity of the subject, for although a majority were trained as physical or natural scientists, almost every field of the social sciences is represented as well. A good bibliography and a thorough index add to the utility of this excellent volume.

DAVID D. VAN TASSEL
Department of History, University of Texas, Austin