survey course is included, but the enterprising student will find it difficult to go beyond the scope of the book, for the author provides neither an organized bibliography nor footnotes, although many references are scattered throughout the text.

The book is worthy of consideration, and indeed has much to recommend it, as a text for use in one-semester survey courses designed for students with nonscientific backgrounds. But one wonders whether, for students who wish to become secondary school science teachers, the introduction to the subject of earth science must be written at such a low level.

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Metabolic Aspects of Cancer

There is at present no particularized and generally accepted theory of cancer, biochemical or otherwise, and any author who attempts to write a book like this one—**Biochemical Approaches to Cancer** (Pergamon, New York, 1965. 210 pp., $3.95)—will inevitably find himself cursing the darkness even while trying to light a candle. The author, Eric Reid, set out to examine cancer as a metabolic derangement, and to inquire whether there are any molecular defects which distinguish cancer tissues or which occur in precancerous tissue, but more particularly to emphasize the areas that are worthy of attention. The approaches chosen are necessarily coupled to existing theories of carcinogenesis, and Reid quickly passes over the theories of Warburg, Greenstein, and Green, dismissing the latter with a quotation by Sir Macfarlane Burnet. Later in the book (p. 155) Reid again dismisses immunological theories with the following comment— " . . . there being at present no imaginable mechanism whereby immune processes, for example at the cell surface, could influence genetic processes." Of course there *are* imaginable mechanisms, and their conception should not be discouraged in a book of this type. Reid's main preoccupation is *metabolism*, the dynamic, branched, flow pattern of chemicals that is the pulsating heart of life processes. Carbohydrate and fatty acid metabolism are discussed together, with deemphasis of the Warburg theory—"at least it seems that a respiratory defect is not a prime cause of cancer" (p. 24). Reid cited evidence that high glycolysis is probably a feature of only the advanced malignancies, and he did not have an opportunity to examine more recent claims made by Burk that, under special conditions, detectable differences between glycolysis in minimal deviation hepatomas and normal liver could be shown.

Protein and nucleic acid metabolism were covered in detail, and a special chapter on control mechanisms led to the conclusion that the choice between DNA, RNA, or protein as primary targets for carcinogens is still unclear.

Reid, who clearly favors the general idea of somatic mutation, achieves a tentative synthesis of this with the viral theory and the deletion theory, especially the more recent concept of feedback deletion. The final chapter, on biochemical pharmacology, is useful in relation to cancer chemotherapy and reiterates the earlier distinction (p. 23) between the biochemistry of carcinogenesis and the biochemistry of chemotherapy.

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Crystallography

Sir Lawrence Bragg's well-known, classic, original edition (1937) has been revised and updated in an expanded version, **Crystal Structures of Minerals** (Cornell University Press, Ithaca, N.Y., 1965. 419 pp., $11.50) by Bragg and G. F. Claringbull, with a chapter by W. H. Taylor. Whereas the earlier edition described all of the then-known mineral structures, the present version describes all the *important* ones (the term is interpreted liberally to allow inclusion of wadeite, for example, to represent rare structure types); all other structures published by the end of 1963 are cited in useful lists at the ends of the several chapters. The broad outlines of the book are unchanged; a crystallographic information "explosion" has caused the authors to omit unnecessary sections dealing with methods of x-ray analysis, and to condense the section on the relation between optical properties and crystal structure that was an impressive addendum to the description of the structure of calcite in 1937. Important extensions of knowledge between 1937 and 1965 are reflected in the increases of certain chapters shown in the accompanying box. Certain other chapters are almost unchanged in length or, as noted above, are reduced in some sections or even deleted.

A few changes in terminology—such as that from *vesuvianite* to *idocrase* and that from *titanite* to *sphene*—may bring smiles to the faces of some mineralogists who are interested in nomenclature, and in one or two instances the lack of such change may result in critical comments. In the latter group is the failure to adopt Strunz's useful Greek names for the subgroups of the silicates. The heading of chapter 9, for example, "Silicates containing separate SiO_4 groups," could more concisely and more elegantly be "Nesosilicates," which surely is no less comprehensible to most mineralogists today. The first step in this direction had already been taken on page 172, where the Strunz names are listed. I would be better pleased if the second step had also been taken, but that is of course a matter of opinion.

Like the first edition, this new edition, published almost 30 years later, will surely become an important reference source for students at all levels

	1937 edition	*1965 edition*
Chapter 7, on oxygen compounds (carbonates, sulfates, and the like)	25 pp. 10 minerals	39 pp. 15 minerals + 112 references to other minerals
Chapter 12, on chain-structure silicates (pyroxene and amphibole)	19 pp. 2 mineral groups	27 pp. 5 or more groups + 12 references to other minerals
Chapter 13, on sheet-structure silicates	27 pp.	40 pp.