justified by space considerations and secondly because new forms of titles of chapters and sections, a table of abbreviations for literature quotations is increased by about 65% as a consequence of the increased number of compounds considered in the second part. On the other hand the subject index is much less comprehensive being contracted to about one half, and this contraction is perhaps objectionable as it reduces the usefulness of this index. Also the use of non-standard abbreviations for literature quotations is not, in the opinion of the reviewer, an improvement, firstly because it is not justified by space considerations and secondly because new conventions are being added to the jungle of those which already make everyday life so complicated.

The reviewer is frankly happy about this fourth edition as he was about the previous ones, and hopes that it will succeed in fulfilling the purposes the author states in the preface, i.e. to make ‘the results of structural studies of crystals available in a form intelligible to chemists’ and ‘to provide teachers of chemistry with facts and ideas which can be incorporated into their teaching’. The importance of structural aspects in inorganic chemistry (and in organic chemistry too) is increasing, and the idea that no sound treatment of the chemical properties of compounds can be made without a clear knowledge of their structures, is widely accepted by researchers and teachers even if sometimes inadequate emphasis is put on these aspects, particularly in teaching. Indeed it is true that in the present teaching of inorganic chemistry the solid state is not developed in most cases as deeply as it should be, but it is also true that when this is done at the right level, the views developed by Professor Wells in his book can be remarkably influential.


Many ideas are packed into this 234 page review of crystal chemistry and materials science. In addition to conventional solid state topics, several recent effects and applications are briefly described, for example semiconductor lamps, bubble memories and superionic conductors, and the properties of many complicated solids are discussed. Tables and diagrams support terse qualitative descriptions of the phenomena, and there is a sprinkling of formulae, few of which are derived. The overall effect is of a sustained essay giving a broad up-to-date insight into the diversity of solid materials, but there is insufficient detail to explain satisfactorily many of the subtle concepts involved, and the book tends to give the impression that things are much simpler than they really are. Occasional lapses also appear: for example, the units of the diffusion coefficient (a quantity never satisfactorily defined) should be cm$^2$/sec, not cm/sec in Fig. 26. Though the book cannot be recommended as a text for solid state courses, it could provide useful background reading to broaden the perspective of graduate students studying some particular branch of materials science and technology.

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During the period 1904–1920 Frederick Soddy provided for the Chemical Society an annual report on the progress of the subjects of radioactivity and atomic theory.

This book begins with a comprehensive introduction which gives an overview of the subject, relating the material to the present state of knowledge. While the subject tends to be treated from the viewpoint of the chemist much of interest to physicists is to be found. The level of the material is such that it could readily be understood by students, science-based or otherwise, with a limited mathematical background.