method for finding out if the rare-earth elements (and Sc) in these compounds contribute an equal number of electrons to the bonding is to compare the volumes of the unit cells of the isotypic compounds. In Fig. 1 is plotted the cube root of the volume associated with the formula unit [≡ (volume of cell/4)$^{1/3}$] *versus* the trivalent ionic radii of the rare-earth (or Sc) ions (Parthé, 1967). One can conclude that all rare-earth elements (and Sc) with the exception of Yb exhibit the same behaviour. The deviation for Yb_2Pt is probably correlated with the divalent character of Yb in this compound.

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Book Review

Works intended for notice in this column should be sent direct to the Book-Review Editor (J. H. Robertson, School of Chemistry, University of Leeds, Leeds LS2 9JT, England). As far as practicable books will be reviewed in a country different from that of publication.

Acta Cryst. (1979). B**35**, 1746

Synthesis and properties of low-dimensional materials. Edited by JOEL S. MILLER and ARTHUR J. EPSTEIN. Pp. 828, *Ann. NY Acad. Sci.* **313**. The New York Academy of Sciences, 1978. Price US$80.00.

This book contains the series of papers presented at a conference entitled *Synthesis and Properties of Low-Dimensional Materials*, held by The New York Academy of Sciences, June 13–16, 1977.

Besides an introduction by one of the editors, containing a valuable bibliography on the development of the subject, and appendices (common abbreviations, constants, author index), the book is divided into four sections: Part I: General Papers (16 papers), Part II: Organic Materials (17 papers), Part III: Inorganic Materials (17 papers), Part IV: Covalent Materials (10 papers).

The general papers of Part I present a very good introduction to some of the main topics of the subject from the chemical and the physical points of view, while the more specialized contributions of Parts II–IV, reporting mostly experimental work, give insight into recent research activities. Altogether this volume contains abundant and very interesting chemical and physical information.

Materials of so-called low dimensionality are actually three-dimensional substances which are highly anisotropic with respect to some physical properties. Some of these have been known to chemists for a long time. In the last two decades, however, physicists have evaluated the unique properties arising from cooperative interactions within linear chains or layers. Thus theoretical and experimental work on physical properties, especially those associated with cooperative phenomena of highly anisotropic conducting materials, has mushroomed in the last few years, stimulating also the efforts of inorganic and organic chemists to synthesize new substances of this class. Therefore the whole spectrum of research in this field has become very interdisciplinary, rendering it more and more difficult to survey it. Certainly this book, which is very well equipped from the technical point of view, can help to remedy these difficulties.

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