If the volume has a shortcoming it is in that it is dominated by case studies replete with data. These studies tend to address the consequences of extension rather than the causes. What is sadly lacking are a couple of critical review articles. One of these could usefully have dealt with the causes of extension (for instance, why does the over-riding plate decouple from the subducting plate? What causes subduction zones to lock or not?) and could have critically assessed the two dimensional finite modelling that predicts the dominance of extensional stresses in the over-riding plate. The second could have assessed, equally usefully, the likely types and chemistry of volcanic rocks extruded coeval with extension. Although the geochemical data detailed throughout the volume are always interpreted as being consistent with extension, the volcanic rocks do show significant differences in type and geochemistry from case study to case study. Is there a signature characteristic of extension at consuming plate margins? Unfortunately, Hamilton's review article is overly assertive and fails to address either of the areas where I believe that a review would have been most useful.

This is a valuable book which, with the exception of a bizarre typographical error on the back cover, has been excellently produced, as usual, by the Geological Society Publishing House and which does provide a useful synthesis of structural styles and volcanic products of extension of the over-riding plate at subduction zones. I heartily recommend it to anyone working in any arc terrain, modern or ancient, and to anyone with an interest in volcanism and magmatic processes. P. J. TRELOAR

Saha, A.K. *Crustal Evolution of Singhbhum North Orissa Eastern India.* Geological Society of India, Memoir 27, 1994. 341pp. Price US$ 40.

For many readers outside the Indian sub-continent, understanding of the Precambrian evolution of India is dominated by the data from southern India, notably the Dharwar Craton. The nineteen chapters in this Memoir redress this imbalance by providing an up to date summary of the Archaean and Proterozoic crustal evolution of another very important area of Precambrian rocks, those of northeastern India. Unravelling this area has been very much the life-time work of the author, who figures prominently in an extensive reference list. However, summaries of geological debate over the author's work, for example, the geochronology of the Older Metamorphic Group, are included.

Chapters 1 to 3 give an outline of basic concepts of Precambrian crustal evolution, the geology of the Sinhghbum-North Orissa region and the regional structure. Data from remote sensing and geophysical studies are included thus providing an integrated framework for the detailed descriptions of the major units which follow in chapters 4 to 16.

The Archaean (Chapters 4–9) covers the evolution of the old gneiss complex and the overlying supracrustal rocks. Chapters dealing with younger, individual components follow, each broadly organised in a similar way describing field relations and structure, petrography, geochemistry and petrogenesis. To many this information will be readily accessible in one place for the first time.

The geochronology (Chapter 10) is used to link the Archaean and Proterozoic parts of the Memoir. However, it seems a little out of place as data and argument about the Proterozoic rocks (Chapters 11–16) which have not been described, are presented.

Description of each of the Proterozoic components is broadly organized into supracrustal and volcanic rocks with associated intrusive bodies followed by intrusive granitic rocks. Again there is a logical organiztion of information within each of the chapters. The short Chapter 15 describing a group of supracrustal rocks does not follow easily.

Chapter 17 deals with major thrust zones whilst Chapter 18 describes metallogeny which, together with Chapter 5, provides good information on the economic geology of this region. The final chapter provides a personal model for Precambrian crustal evolution.

The use of abbreviations for many of the components causes difficulties because of the number involved. Most of the diagrams and photographs have been well reproduced, though some unfortunate misprints *(e.g.* Nb instead of Nd) occur. There are both author and subject indices.

This book would be a useful addition to a University Library catering for research as it provides a comprehensive guide to a relatively unknown region. I suspect that undergraduates will not be directed towards this Memoir as the region is not generally considered to be a classic area of geology. However, this book is a very useful summary and represents good value. C. R. L. FRIEND

Babu, T. M. *Tin in India* Bangalore (Geological Society of India: Mineral Resources in India, 7), 1994. ISBN 81 85867 10 0. x + 217pp., 15 maps. Price Rs 200 ($25.00).

Although India is a country which is not usually associated with tin mineralization, it does in fact contain numerous scattered deposits of cassiterite. The majority of these deposits are contained in pegmatites hosted by high-grade Proterozoic meta-