the Geological Society's prestigious Fermor Meeting in 1997. Following a brief overview of the scope of the meeting by the book's editors, the first eight papers deal with the flux of extra-terrestrial material to the Earth, the next six papers are about craters and impactites, and the final three papers review the palaeontological evidence for a link between mass extinctions and impacts.

The book is dedicated to the memory of Dr Eugene M. Shoemaker, the Fermor Lecturer, who was tragically killed in a motor accident while studying impact craters in Australia just a few months after the meeting. His, the first paper, is effectively restricted to the extended abstract which he provided at the meeting, and includes the somewhat surprising conclusion that the rate of cratering over the last 200 million years is about double what it was during the Archaean. The next two papers discuss the contribution of comets to the impact record on Earth and, in one of these, W. Napier develops the fascinating hypothesis that a ~27 myr periodicity in the terrestrial cratering rate is linked to the vertical oscillation of the solar system through the galactic plane, and the resulting gravitational disturbance of Oort Cloud comets. D. Hughes also discusses comets and comments on the general problems of estimating the mass distribution of impactors. The next four papers discuss the contribution of meteorite finds in hot deserts and Antarctica to an estimation of the meteorite flux, and show that despite problems of pairing, meteorite removal, and measuring the age of fall, the calculated flux is remarkably similar to that obtained from fireball observations today.

The six papers relating to cratering include an excellent review of terrestrial impacts by R. Grieve, a discussion of the recognition of the projectile material in impactites by C. Koeberl, two papers on the end-Cretaceous Chicxulub structure in Mexico, a paper by J. Spray on the localized nature of shock effects at impact sites, and a paper by I. Gilmour on the survival of carbon in different forms in crater settings.

In the first of the three palaeontological contributions, N. MacLeod contends that a demonstration of a causative link between major impacts and mass extinctions is precluded by the nature of the fossil record. More specifically, A. Milner shows that the fossil record of dinosaur extinction is too limited and diffuse to prove that it occurred precisely at the end of the Cretaceous. Finally, A. Hallam concludes that of all the mass extinctions in the Phanerozoic, only the end-Cretaceous event correlates with an impact and, even in this case, proof of a causative link is diffused by the concurrence of other sources of environmental stress.

The book's broad, topical interest, and the high international standing of its contributors, make it a valuable source of information in this cross-disciplinary field, and every self-respecting geological library should possess a copy. However, its price probably puts the book beyond the reach of many individual would-be-purchasers, even with the significant reductions offered to AAPG and Geological Society members.

I. SANDERS

Hazen, R. M. *The Diamond Makers*. Cambridge (Cambridge Univ. Press), 1999, xiv + 244 pp. Price (paperback) £9.95 ($15.95) ISBN 0-521-65474-2.

This book spans centuries of ground-breaking science, bitter rivalry, outright fraud and self-delusion, and is centred on the brilliant but often controversial pioneers of high-pressure research. It represents a new and heavily revised edition of *The New Alchemists* (1994), and is presented as a blend of dramatic personal stories and scientific advances (and failures) in the quest to create synthetic diamonds. After a brief account of the natural occurrences of diamond, details are presented of the early work by Hannay, Moissan, Crookes, Hershey and Sir Charles Parsons, and the founding of modern high-pressure research techniques by P.W. Bridgman, before turning to the first true synthesis of diamond by ASEA in Sweden in 1953 followed by the General Electric Company in the U.S.A. in 1955.

One of the delights of this book is its inclusion of many photographs of the experimenters and their apparatus. We are given insights into the belt apparatus, the tetrahedral-anvil press and the cubic-anvil press with its six carbide anvils arranged in three opposed pairs to give a cube-shaped sample chamber.

A whole chapter is devoted to the crystal syntheses carried out by Loring Coes, a chemist working for the Norton Company. Rather than tackle diamond synthesis directly, Coes crept up on the conditions necessary for its formation by first producing more than 40 silicates never before synthesized, such as pyrope, staurolite, kyanite,

topaz, zircon, etc. These were produced not from the pure oxides of the conventional logic but from mixing such ingredients as, for pyrope, $Mg(NO_3)_2$, $Al(OH)_3$ and SiC and reacting them in a slightly open capsule allowing the volatile components to escape, leaving tiny but perfect crystals of garnet. The results were not published initially, but after the synthesis of a new dense form of crystalline silica, now coesite, a short note [M.A. 12-409] appeared on this together with a remark that 'the synthesis of several naturally occurring minerals' was to be reported in a subsequent paper. This led to a meeting in December 1953, at the Norton Co., at which Coes demonstrated his methods and results to Messrs. Birch, Boyd, Hurlbut, MacDonald, Robertson, Roy, Thompson, Van Valkenburg and Yoder. Coes never did succeed in making diamonds, but these nine scientists left in amazement and on return to their respective laboratories developed research techniques which continue to be of lasting importance to the earth sciences.

In further chapters, the six-year legal battle between De Beers and General Electric in which the former challenged the originality and accuracy of the description of the latter's discovery, the production of diamonds via explosive processes, and their successful synthesis from chemical vapour deposition are described. A final chapter details the invention and development of the diamond anvil cell, with an interesting history of Van Valkenburg and Weir having an abundant supply of natural gem diamonds confiscated by the U.S. Customs and offered to scientists at the National Bureau of Standards.

This is an entirely readable book, full of fascinating often first-hand accounts of the trials and tribulations of high-pressure research workers in academic, commercial and government laboratories. The price should encourage a wide readership. R. A. HOWIE

Selwood, E. B, Durrance, E. M. and Bristow, C. M. (Eds.) *The Geology of Cornwall and the Isles of Scilly*. Exeter (Exeter University Press), 1998. xxii + 298 pp. Price £15.99 (hardback £42.50). ISBN 0-85989-432-0.

The development of the important metal mining industry in the English county of Cornwall towards the end of the 18th Century was associated with some of the first, sustained geological studies in Britain. Early work on the geology of the county by the national survey and the formation in 1814 of a regional geological society were important events which accelerated geological interest in the region. During the subsequent two hundred years the amount of published geological research on the region has been enormous, and not just on the subject of the mineralization, but into all aspects of the geology. However, the voluminous literature and the constant evolution of ideas on the area's geology have combined to make it difficult for newcomers to the region to obtain a concise and up-to-date insight into the geology of Cornwall.

This book aims to fill this gap by summarizing the results of these studies and presenting the current views on the geology and geological evolution of the county of Cornwall. In sixteen chapters, twenty authors present fairly comprehensive and authoritative accounts of the geology of this county. After an 'Introduction' and a chapter outlining the plate tectonic setting of the region ('Pre-Devonian tectonic framework') there are three chapters dealing with the geological environment and evolution during the Palaeozoic Era ('The Lizard Complex, Devonian, Carboniferous'). The Upper Palaeozoic history of the area then culminated in widespread deformation and metamorphism ('Variscan structural and regional metamorphism') and associated igneous activity ('Granites and associated igneous activity'). Associated with the granites there was widespread mineralization and hydrothermal alteration and these important aspects are covered in several chapters ('Mineralization', 'Modelling the mineralization framework', 'China Clay', 'History of metalliferous mining', and 'The contemporary extractive industry'). More recent geology is described in chapters on 'Offshore and Mesozoic Geology, The Tertiary', and 'The Quaternary'. A final chapter briefly covers some aspects of 'Environmental Geology'.

The book is not directed solely at the academic community and will also be of interest to the informed amateur geologist. It contains abundant diagrams, map references for relevant localities, and a listing of geological and geomorphological conservation sites. Obviously the boundary to the area under consideration is essentially non-geological (the river Tamar) so there is a certain lack of completeness to some of the discussions (it is a shame that some aspects of the geology of the adjoining county have been excluded). There are 22 pages of references, but as these represent