

The book concludes with two chapters on environmental studies. Jambor and Blowes (Chapter 12) cover sulphide-bearing mine waste. They outline the mineralogy of mine waste and the theory and procedure for establishing its acid generating capacity. The meat of the chapter is concerned with the reactivities of the key minerals in the mine waste environment. Finally, Nesbitt and Jambor (Chapter 13) highlight the role of mafic minerals in neutralizing acid rock drainage and suggest they have significant intermediate to long term neutralizing capacity. Base metal sulphide-rich waste from the Waite-Amulet mine, Quebec, is used as an example and mineral-pore water reactions are discussed.

Overall the book provides a valuable introduction for research students and junior professionals and a useful refresher for 'seniors' who find it increasingly difficult to keep up with advances outside their own speciality. However, while recommending the book I would also suggest that those who can attend the next appropriate short course and see this fascinating kit in action.

C. M. RICE

runin, R. F. *Shock Compression of Condensed Materials*. Cambridge (Cambridge University Press), 1998. xi + 165 pp. Price £30.00. ISBN 0-521-58290-3.

Shock studies of condensed matter originated in the USA and former Soviet Union during and shortly after World War II. The original urgency and motivation has obvious links with the rush to catalogue the properties (in particular their equations of state) of the various materials used in the construction of nuclear weapons. The outcome of these early shock experiments in both the former Soviet Union and USA, and their continued application since the early work, is now a fully developed field of high-pressure research that includes not only dynamic laboratory experiments, but underpins more recent static high-pressure techniques with the diamond-anvil cell by providing the link to the primary pressure scale. For those interested in the origin of these fundamental condensed-matter studies, R.F. Trunin has written a compact volume summarizing the beginnings of the work and the results that were achieved in a special period of Soviet scientific achievement. Experiments evolved from high explosive sources to using underground nuclear explosions themselves as sources, gener-

ating pressures as high as 10 TPa (10000 GPa, 100 Mbar). The book focuses on the development of methods and their results, with occasional data from similar experiments elsewhere, and provides an introduction to shock-wave theory and Hugoniot states.

His style is concise and combines in the early chapters a brief description of the political motivation with the clear scientific and experimental challenge faced by experimentalists at the Russian Nuclear Centre in Sarov (Arzamas-16), Novgorod region. A large part of the book (Chapters 3 and 4) covers the simple metals: their technological importance determined that they were exhaustively studied. But this also led to the first direct experiments at Earth's core conditions and the data on iron were fundamental to early geophysical papers (with L.V. Al'tshuler) on the properties and phase diagram of iron at high pressure and temperature — problems that have not been fully resolved even today. The text contains numerous historical remarks both in terms of the original ideas of interpretation, and the outcome of the experiments. Many of the data are presented as numerous shock velocity (D)–particle velocity (U) plots.

There are shorter chapters on metal alloys, porous metals and metal hydrides (these materials also referenced in terms of historical significance for planetary interiors) as well as a chapter covering minerals (oxides, halides, sulphides). The response of rock-types to shock waves is also briefly discussed and the book closes with summary information of organic solids and various liquids — and hydrocarbons.

The book contains a useful bibliography tracking numerous references to published work in Soviet journals. In line with the suggestion on the cover, this book will provide a reference for condensed matter physicists, materials scientists, earth scientists and astrophysicist — at least those with an interest in the properties of matter at high density.

A. JEPHCOAT

Paquet, H. and Clauer, N. (Eds) *Soils and Sediments: Mineralogy and Geochemistry*. Berlin, Heidelberg and New York (Springer Verlag), 1997. xx + 369 pp. Price £68.50. ISBN 3-540-61599-7.

*Soils and Sediments* is a multi-author volume dedicated to the late Georges Millot. Millot was the founder of the leading European school of clay geology based at the University of