the text such regional addresses as the Central Wales Mining District are used.

But this is an inspiring book and the inclusion of very full references to some four hundred publications, together with a comprehensive index, should make it an essential item on mineralogists' bookshelves.

R. A. HOWIE

Davies, G., ed. *Properties and Growth of Diamond.* London (The Institution of Electrical Engineers), 1994. xvi + 438 pp. Price £135.00. ISBN 0 85296 875 2.

This book, in the Institution's Datareviews Series, aims to list and discuss all the important properties which characterize diamond. There are contributions from 30 authors, assembled in 12 main chapters, ranging from the bulk properties of natural-isotope diamond, through the surface properties of diamond, the properties of nitrogen in diamond, the properties of nickel, silicon, hydrogen and oxygen in diamond, radiation damage, ion implantation and diffusion, decay times of luminescence and laser action in diamond, carbon isotope effects, donors, acceptors and electrical conductivity in diamond, the technology of diamond surfaces, metastable growth of diamond, and the high-temperature, high-pressure synthesis of diamond.

Most of the individual sections are extremely brief (one or two pages), but the mere fact that there are sections headed 'Optical constants of diamond' or 'The type terminology for diamond' makes reference easy. The literature on the properties of diamond is dispersed between physics, mineralogy, crystallography, materials science and electrical engineering, and the Editor is to be congratulated on drawing together the world expertise on diamond and presenting the results in one internationally authored, highly structured, fully indexed volume. At first glance the reader may be surprised by the relative paucity of diagrams, but the aim is to review a diversity of research results and to present brief summaries of current thinking on the topics covered — and we are given diagrams in the somewhat more expansive chapter on the metastable growth of diamond. The process of making polycrystalline diamond films by chemical vapour deposition (CVD) is a rapidly emerging technology which offers diamond at a relatively low cost, in large areas and in a variety of surface morphologies. In this chapter, reports and views are offered on a variety of burgeoning CVD techniques, ranging from hot-filament assisted growth to plasma synthesis, combustion flame methods and the laser-assisted growth of diamond. The flame characteristics for the combustion growth of diamond are discussed, and this is followed by a section on the physics and chemistry of combustion flames. The final chapter is concerned with the high-pressure synthesis of diamond and in particular with diamond grown with metal catalysts.

There are extensive references at the end of each section, and these will be essential to gain familiarity with the data scattered throughout the literature of many disciplines and most continents. Both the typeface used and the format and cost of the volume are large, but this is clearly a work that must be available to all interested in the properties and use of diamonds. Its careful study will surely justify the expense of obtaining a copy.

R. A. HOWIE

Regional Geochemistry of the Lake District and adjacent areas. Geochemistry Group of the British Geological Survey, Keyworth, Nottingham (British Geological Survey), 1993. viii + 98 pp, 46 coloured maps + 1:250 000 geological map. Price £50.00. ISBN 0 85272 2257.

This is the ninth publication in the series providing a systematic survey of the regional geochemistry of Great Britain. As the results are being presented starting with Shetland and working southwards, this is the first area to be dealt with in England covering not only the Lake District with its copper lead-zinc, baryte and tungsten mineralization but also west Cumbria and Furness areas with hematite and the western part of the North Pennines lead-zinc-fluorite-baryte orefield. The principal aim of the project, started in 1975 and continuing to the present day, was to identify new occurrences of metalliferous minerals but it also provides quantitative data on natural element levels in the environment against which to assess contamination and to supplement geological information in the investigation of the geological evolution of Great Britain.

The procedures for sampling, sample treatment, analysis and error control are described in detail. The stream sediment sampling for this region took place in the summers of 1978-80 from some 6200 sites covering the area at an average sampling density of one sample per 1.6 km^2. The conductivity, pH and fluoride content of 2585 stream-water samples were measured and the bicarbonate content at a smaller number of sites. The stream sediments were analysed for 28 elements by direct reading emission spectrometry, arsenic and antimony were determined by atomic absorption spectrometry and uranium in stream sediments and water samples by delayed neutron activation analysis.