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Book review

Chemistry of the Platinum Group Metals: Recent Developments, F.R. Hartley (Ed.), Elsevier, Amsterdam, 1991, 642 pages. \$274.50. Dfl 480. ISBN 0-444-88189-1

In 1973 F.R. Hartley published the *Chemistry of Platinum and Palladium*, which proved to be an invaluable source book for platinum metal chemists, because it contained a comprehensive compilation of the relevant literature and a useful section on the syntheses of common starting materials. Indeed my own copy is chemically stained and held together by many layers of sellotape – the hallmarks of a really useful book for the bench chemist. Therefore, my expectation from the title was that Professor Hartley had completed the most welcome, but almost impossible, task of updating and extending the scope of his earlier book to include material that previously had been included in W.P. Griffiths' *Chemistry of the Platinum Group Metals*. In fact, this book has very different aims and objectives, but the editor has nevertheless identified and filled an important gap in the market. It sets out to define those areas of platinum metal chemistry that have had a technological significance and to trace the relationships between the fundamental science and the commercial application. These ambitious aims have been achieved by harnessing the talents of 17 authors, who have very different reviewing and writing styles, but who share in common a transparent enthusiasm for the subject which they are describing. The result is a very dense book (physically and literally) which may not find its way onto the laboratory bench, but will certainly be used frequently by research managers and group leaders trying to chart the future development of the subject. Following an introductory chapter by Professor Hartley on the occurrence, extraction, properties and uses of the platinum metals there are sixteen chapters dealing with the catalytic, electrochemical and biomedical properties and applications of the platinum metals and their compounds. The heterogeneous and homogeneous catalytic applications are particularly well served by an introduction by Prof. G.C. Bond which is supplemented by more detailed reviews on catalytic combustion and the applications of platinum metals in the petrochemical industry and in syngas conversion. I found the chapter dealing with catalysis in melts particularly interesting, because these applications are less commonly reviewed in the chemical literature. Homogeneous catalytic aspects are covered in chapters dealing with C–H activation and oxidation. The electrochemical and photochemical aspects are described in chapters by E.N. Balko and A. Mills and the biomedical aspects in two chapters by H. Kozłowski and L.D. Petit and C.A. McAuliffe and his coworkers. The account in the latter chapter on the development of a new generation of platinum anti-tumour drugs provides a particularly effective blend of historical introduction, chemical modification studies, molecular biology and clinical trials. The book finishes with a chapter dealing with the applications of the platinum metals in the electronics industry – an area where there must be many important developments on the horizon. There are of course some areas of industrial importance which have not been covered, but

nonetheless the coverage is sufficiently catholic to satisfy all but the most critical of tastes.

I found the book to be a well written and stimulating reference work which provides a refreshing overview of the way in which chemical discoveries associated with the platinum metals, many of which originated in university laboratories, were subsequently exploited and developed in industrial laboratories using a combination of scientific, medical and engineering skills. It therefore represents a timely record of past achievements and a pointer to future research and commercial exploitation.

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Announcement

The 10th FEICHEM Conference on Organometallic Chemistry will be held in Agia Pelaga, Crete, Greece, from 5–10 September 1993. Details are available from Dr. C.G. Screttas, The National Hellenic Research Foundation, 48 Vas. Constantinou Ave., Athens 116 35, Greece.