concerned. There is thus a wide range of approaches as well as a considerable range of chemistry.

The book actually contains more than is promised by its title, for the first article is entirely devoted to platinum compounds, providing a detailed discussion of the mechanism of their action as anti-tumour agents. Of course, platinum complexes also keep cropping up in the discussions in most of the other chapters. After the initial treatment of the parent platinum complexes, the emphasis in the next five chapters is on ruthenium. The scene is set in the second chapter with a review of relevant aspects of ruthenium chemistry, dealing in particular with possible modes of bonding in coordination complexes and in biological contexts, especially bonding to DNA. The third chapter deals in detail with a number of water-soluble ternary complexes containing halide and nitrogen-donor ligands, especially two imidazole–chloride–ruthenium(III) species of high antitumour activity but low toxicity. This article is complemented by the next, which deals with two further promising complexes, the *cis* and *trans* isomers of $[RuCl_2(DMSO)_4]$.

The fifth chapter widens the scope, dealing with a variety of complexes of a number of metals, including iron, cobalt, nickel, copper, rhodium, platinum and even mercury, and their role in radiosensitization. Chapter 6 returns to ruthenium, this time concentrating on the two specific radionuclides ^{97}Ru and ^{103}Ru. The former is particularly attractive for imaging. Several ligands that will be familiar to technetium chemists feature here, though a number of simple coordination complexes are also mentioned.

Chapter 7 returns to antitumour agents, covering cyclopentadienyl complexes of a number of transition metals. However there is, as one would expect, a strong emphasis on bis-cyclopentadienyl titanium dichloride; there is very little mention of the Main-Group elements (germanium, tin) promised by the title for this section. Titanium appears again as the central element for the final chapter, which deals mainly with one compound, the ethoxy–dione–titanium(IV) complex *budotitane*. Between these two articles on titanium come an interesting but only marginally relevant review of $[Cr(NH_3)_6]^{3+}$ as a probe in NMR relaxation studies of drug-binding sites, and a short report on cytotoxicity of some Group VIII complexes of chelating diphosphine ligands.

Every contribution to this volume is extensively referenced up to and including 1988 (the Preface is dated March 1989), and written in clear and readable style. The book is nicely presented—well printed and abundantly illustrated. The one disappointment is that there is no sign of the 'enthusiastic discussion' which, according to the Preface, followed each lecture at the Symposium. This is a pity, since such discussions often contain useful and thought-provoking snippets of information. Nonetheless this volume can be strongly recommended. It is not cheap (around £40/$80), but it does provide a number of useful, interesting, and reasonably up-to-date reviews of a consistently high standard of presentation.

J BURGESS
Department of Chemistry, University of Leicester, UK

Inorganic Syntheses, Volume 28
Robert J Angelici (ed)
Wiley–Interscience, New York, 1991
Pp xiii + 463. £43.65. ISBN 0 471 52619 3

The Inorganic Syntheses series provides reliable and foolproof procedures for the preparation of a wide variety of inorganic and organometallic compounds. In previous volumes the syntheses chosen are usually of general interest but it is unlikely that most chemists would find all sections of equal interest. However, Volume 28 is different in that it focuses attention on basic starting materials that would be of interest to all those who have need to prepare transition-metal coordination and organometallic complexes.

There are chapters on complexes which contain easily displaceable ligands, e.g. BF_4^-, $OSO_2CF_3^-$, C_2H_4, N_2, Me_2CO; low-valent metal complexes that undergo oxidative addition reactions, e.g. $RhCl(PPh_3)_3$, $Pt(PEt_3)_4$, $Pt(C_2H_4)_3$, $Ni(PPh_3)_4$, $[IrCl(CO)(PPh_3)_2]$; substituted metal carbonyl complexes, e.g. $Cr(CO)_3$ (η^6-arene), $Mo(CO)_x(CNR)_{6-x}$, $[CpMo(CO)_3]_2$, $MnCl(CO)_5$; carbonylate anions, e.g. $[Nb(CO)_6]^-$, $[Fe(CO)_4]^{2-}$, $[CpFe(CO)_2]^-$; metal carbonyl clusters, e.g. $Ru_3(CO)_{12}$, $Os_3(CO)_{11}(MeCN)$, $H_4Os_4(CO)_{12}$, $Ir_4(CO)_{12}$; cyclopentadienyl complexes, e.g. $Cp_2Ti(CO)_2$, Cp_2ZrH_2, $CpCo(PMe_3)_2$; lanthanide and actinide complexes, e.g. $LnCl_3(THF)_x$, Cp_3Ln, Cp_3UCl; and finally a chapter on the synthesis of ligands and other useful metal complexes, e.g. PF_3, PMe_3, C_5Me_5H, anhydrous metal chlorides, $Re_2Cl_8^{2-}$, $[RuCl_2(CO)_3]_2$, $[PdCl(\eta^3C_3H_5)]_2$, $K[PtCl_3(C_2H_4)]$, to mention but a few.

Most of these syntheses are taken from previous volumes of Inorganic Syntheses but the original authors in all but one case have made any necessary improvements, added safety notes or made changes to references. Nine new syntheses are included.

As usual, the volume is well presented and referenced. Collecting so many useful complexes together in just one volume will be helpful. All chemistry libraries should have a copy and chemists in the area would find it very useful to have it in their laboratories.

R D W KEMMITT
Department of Chemistry, University of Leicester, UK