Excited States and Reactive Intermediates — Photochemistry, Photophysics and Electrochemistry. ACS Symposium Series 307 (Ed. A.B.P. Lever), American Chemical Society, Washington D.C., 1986, xii + 276 pages, $68.95 ($56.95, U.S.A. and Canada). ISBN 0-8412-0971-5.

Chemistry, for the past fifty years, has focussed on the ground state: it could be convincingly argued that the next fifty years belong to the excited state, and this volume adds significantly to such arguments. This volume reflects the papers presented at the 1985 Biennial Inorganic Chemical Symposium, Toronto, Ontario, 6th–9th June, 1985 (sponsored by the Divisions of Inorganic Chemistry of the American Chemical Society and of the Chemical Institute of Canada), and has been admirably edited by Lever.

There are sixteen articles in this volume, and these cover the excited states of mononuclear and dinuclear chromium(III) complexes (H.U. Güdel), ab initio analysis of charge-transfer excitations in $[Cr(CN)_6]^{3-}$ (L.G. Vanquickenborne et al.), excited state geometries of coordination compounds (H.-H. Schmidtke), excited state distortions (J.I. Zink et al.), resonance Raman studies of one-dimensional and electrochemically generated species (R.J.H. Clark), MLCT photochemistry of metal–metal bonded complexes (D.J. Stufkens et al.), doublet excited state lifetimes in chromium(III) complexes (J.F. Endicott et al.), static spectral sensitization of photocatalytic systems (H. Hennig and D. Rehorek), electrochemically generated transition metal complexes (A. Vogler et al.), SERS for detection of reaction intermediates at electrodes (M.J. Weaver et al.), thermal and photoinduced long-distance electron transfer in proteins and in model systems (G. McLendon et al.), photochemistry of dinuclear d^8–d^8 iridium and platinum complexes (H.B. Gray and coworkers), photochemical production of reactive organometallics for synthesis and catalysis (W.C. Trogler), the flash photolysis of rhodium and iridium phosphine complexes (D. Wink and P.C. Ford), intrazeolite organometallics (G.A. Ozin and J. Godber), and spectroscopic studies of the active sites in blue copper centres in plastocyanin (E.I. Solomon).

The standard of these papers is remarkably high and consistent, and it would be impossible for any inorganic chemist to read this volume and not be stimulated with new ideas. Of particular interest to the organometallic chemist are the articles by Trogler, Ford and Ozin. Trogler describes the photogeneration of $\{Pt(PR_3)_2\}$ and $\{Pd(PR_3)_2\}$ fragments from $[M(C_2O_4)(PR_3)_2]$ (M = Pd or Pt), whereas Ford describes the flash photolysis of the complexes $[M(CO)(PPh_3)_2Cl]$ (M = Rh or Ir) to form $\{M(PPh_3)_2Cl\}$, and the reactions of these intermediates with PPh_3, CO, C_2H_4 and H_2. In contrast, Ozin describes the loading of zeolites with organometallic complexes such as $[V(\eta^6 - C_6H_6)_2]$, $[M(\eta^5 - C_5H_5)_2]$ (M = Cr or Fe), $[Co(C_6H_5Me)_2]$ and $[Co_2(CO)_8]$.

Although rather expensive for a book produced from a camera-ready manuscript, particularly in view of the rather patchy quality found in this volume, the scientific content of the text is outstanding, and this book is clearly a must for all libraries associated with active inorganic chemistry departments. I wholeheartedly recommend it.

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