

Journal of Organometallic Chemistry, 202 (1980) C87
Elsevier Sequoia S.A., Lausanne — Printed in The Netherlands

Book review

The Tunnel Effect in Chemistry; by R.P. Bell, Chapman and Hall, London and New York, 1980, ix + 222 pages, £ 15.00.

The appearance of a book by R.P. Bell is always an important event. It is certain that the book will be sized upon with enthusiasm both by the leading experts in the field concerned and by beginners seeking a clear authoritative introduction, and that it will appear very frequently in reference lists for many years to come. This monograph is more specialized than Prof. Bell's earlier volumes, but no less welcome for that.

The book summarizes the evidence for tunnelling and sets out clearly the basic theory. The main emphasis is naturally on the kinetics of chemical reactions involving the transfer of protons, hydrogen atoms, or hydride ions, but tunnelling by entities other than hydrogen is considered (e.g. the binding of CO to heme proteins) and there is a chapter devoted to the role of tunnelling in molecular spectra (including the NMR spectra of fluorides of the type XF_n). Electron tunnelling is only briefly touched upon because it has been extensively reviewed elsewhere. The book is well produced, and modestly priced for these days — perhaps because it can be confidently expected to sell in large numbers.

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