being given to emulsion systems, which will facilitate the commercialization of CRP.

The above advances now offer the opportunity to introduce high degrees of control over physical and chemical properties through the manipulation of molecular weight, polydispersity, intramolecular chemical composition distribution, glass transition temperature, branching and branching distribution, particle morphology in heterogeneous systems, and the incorporation of functional groups. Improved control over the resultant properties will lead to more efficient polymer production and new polymer products.

www.iupac.org/publications/macro/2002/182_preface.html

C_{2+} Nitroalkanes With Water or Organic Solvents: Binary and Multicomponent Systems

Valerii P. Sazonov, David G. Shaw, Kenneth N. Marsh, Nikolai V. Sazonov, Nikolai I. Lisov, and Mariya F. Chernysheva
IUPAC-NIST Solubility Data Series. 77.
Journal of Physical and Chemical Reference Data, Vol. 31, No. 1, pp. 1-121, 2002.

The mutual solubilities and liquid-liquid equilibria of binary and multicomponent systems composed of C_{2+} nitroalkanes with solvents are reviewed. The solvents (mainly in liquid phase) include water, inorganic compounds and a variety of organic compounds such as hydrocarbons, halogenated hydrocarbons, alcohols, acids, esters, and nitrogen compounds. A total 81 binary, 21 ternary, 2 quaternary, and 1 five component systems whose properties were described in the chemical literature through 1998 are compiled. For 14 systems sufficient data were available to allow critical evaluation. All data are expressed as mass and mole fractions as well as the originally reported units. Similar reviews of gas, liquid and solid solubilities for other systems have been within the Solubility Data Series.

www.iupac.org/publications/sds/2002/77_abstract.html

Advanced Organic Chemistry
Part A: Structure and Mechanisms
Part B: Reactions and Synthesis

Francis A. Carey and Richard J. Sundberg
Kluwer Academic/Plenum Publishers, 4th edition, (Part A: 823 pages), (Part B: 965 pages)2001.

A fourth edition, of Carey and Sundberg's two-volume treatise of organic chemistry is now available. Much has happened in chemistry as well as in the field of scientific textbook publishing since the third edition appeared some 12 years ago, so publication of a revised version of this almost classical text is not surprising.

The book covers are both colorful and modern, hinting that a profound revision of the books has been carried out, but this appears not to be the case. On the contrary, the completely black-and-white text looks very similar to its first edition: many of the figures are in fact identical to those used 25 years ago, the style of presentation is almost unchanged, and the division of topics between the two volumes has barely changed. Thus, part A still covers fundamental topics related to the structure of organic molecules (bonding theory, stereochemistry, and conformation) as well as reaction mechanisms in organic chemistry, whereas part B still has the subtitle "Reactions and Synthesis" and gives an overview of the main reactions used in organic synthesis. Furthermore, the material in part A is presented in chapters and subchapters, which in essence have been kept unchanged since the very first edition.

The previous paragraph may leave the impression that the new editions of the books are both outdated and dull, but that is not the case (if you don't insist on colorful illustrations to keep the concentration). Although a significant fraction of the material has not been revised at all, the texts appear clear and lucid and serve the material very well. A few figures still give a poor impression, particularly in Part A (for instance on pages 3, 34, 41, and 149), but also in Part B (e.g., pages 200 and 201), and some are still unnecessarily large (for instance on pages 39, 44, and 45 in Part A). It is also noteworthy that there are very few outright mistakes (two rare exceptions are found on p. 100 in Part A and in the table on p. 217 in Part B). And last, but not least, the problems at the end of each chapter have been increased in number and extended in scope and are excellent exercises for those wishing to test their understanding and apply the material presented in each chapter.

Reading of Part A discloses over and over again that most chapters have been updated in a balanced manner with respect to both material and key references. (An exception is chapter 13, which gives a rather shallow presentation of bits and pieces of photochemistry.) One characteristic feature of the book is clearly visible: Advances made in computational chemistry during the last couple of decades have been applied and used pedagogically to analyze structural and mechanistic problems, particularly in discussions of strained molecules and more or less unstable intermediates. But the theoretical treatment is kept at a reasonable level from an organic chemist's point of view; the theoretical discussions therefore serve the purpose and add clarity to the text. As a result, the perspective and style in Carey and Sundberg's presentation of structural and mechanistic organic chemistry appear different from those found in other comparable textbooks (e.g., J. March, *Advanced Organic Chemistry*, and T. H. Lowry and K. S. Richardson, *Mechanism and Theory in Organic Chemistry*). This is particularly beneficial for the clarity of some of the topics dealt with, and Part A is therefore highly recommended as a thorough graduate-level introduction to structural and mechanistic aspects of organic chemistry.

Part B gives an extensive presentation of a broad selection of organic reactions of synthetic importance, organized by reaction type. Structurally, the book is similar to W. Carruthers' book *Some Modern Methods of Organic Chemistry*, but one significant difference is Carey and Sundberg's much more comprehensive coverage of organometallic reagents and intermediates. Similarities and differences between a variety of reagents are discussed systematically and related to metal properties, particularly the metals' ability to form complexes with substrates and ligands. As a result, the discussion becomes rather mechanistic, and this gives a profound understanding at the molecular level of stereocontrol, which is so important in modern synthetic organic chemistry. Only one chapter, which amounts to 10 percent of the book, is devoted to synthetic planning and retrosynthetic analysis, which is the modern vehicle used to present organic synthesis (for instance in S. Warren, *Designing Organic Synthesis—A Programmed Introduction to the Synthon Approach*, and E. J. Corey and X.-M. Cheng, *The Logic of Chemical Synthesis*). However, intelligent retrosynthesis requires solid reagent knowledge, and to acquire such knowledge, reading of "Advanced Organic Chemistry, Part B: Reactions and Synthesis" is highly recommended.

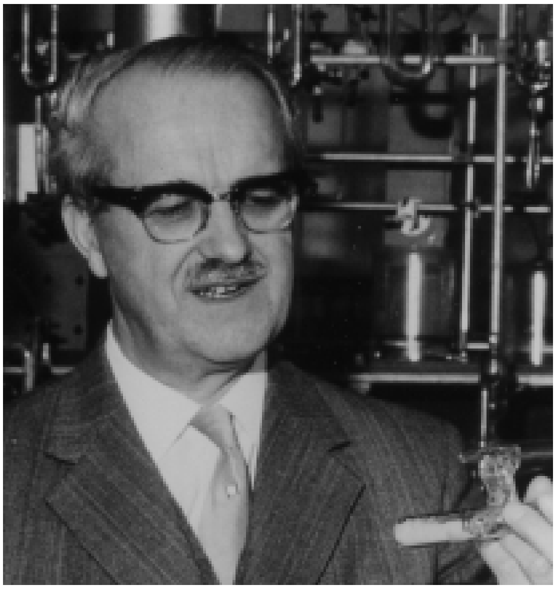
Reviewed by Leiv K. Sydnes, University of Bergen, Norway.

www.wkap.nl/prod/b/0-306-46243-5
www.wkap.nl/prod/b/0-306-46245-1

Modern Coordination Chemistry—The Legacy of Joseph Chatt

G. J. Leigh and N. Winterton, editors
Royal Society of Chemistry, Cambridge, United Kingdom, pp. xviii + 386, 2002.
(ISBN 0-85404-469-8)

The scientific work of Joseph Chatt played a significant role in shaping the field of coordination chemistry as we know it today. The volume under review is an outgrowth of discussions held at the 34th International Coordination Conference (ICCC 34) in Edinburgh, Scotland in July 2000 commemorating Chatt's contributions, while also celebrating the Golden Jubilee of the first meeting of this body organized by Chatt at the ICI Laboratories at the Frythe, Welwyn (near London). The present work is intended to provide a historical perspective of the scientific achievements of J. Chatt and to show how his contributions have led to current research in the field. These goals have been admirably achieved.


Joseph Chatt

The volume is headed by a section containing personal reminiscences of five close co-workers: G. J. Leigh, R. G. Wilkins, G. A. Gamlen, D. M. Adams, and L. A. Duncanson. Reminiscences of other contributors are also dispersed throughout the subsequent chapters. The next seven sections feature chapters by active contributors organized around the broad range of interests of Joseph Chatt, namely hydrido and dihydrogen complexes, the chemistry of phosphines, transition metal complexes of olefins and other unsaturated hydrocarbons, chemistry related to dinitrogen complexes, biological nitrogen fixation, and patterns in stability and reactivity. One example worth mentioning here is the chapter by G. Frenking titled "The Dewar-Chatt-Duncanson Bonding Model of Transition Metal-Olefin Complexes Examined by Modern Quantum Chemical Methods."

In this review I would like to call attention to two original papers that have become classics in the field of hydridometal complexes. The first of these is "A Volatile Chlorohydride of Platinum" by J. Chatt, L. A. Duncanson, and B. L. Shaw, *Proc. Chem. Soc.* (1957) 343 announcing the synthesis of the new hydrido complex $Pt(H)Cl(PEt_3)_2$. The substitution reactions of this and related complexes were subjected to kinetic studies by F. Basolo and his soon to be famous graduate student H. B. Gray. The non-pi bonding hydrido ligand was found to confer a high kinetic trans effect lending support to the polarizability theory promulgated by the Russian school. A summary of this work including an amusing anecdote about a friendly competition between B. L. Shaw and H. B. Gray are recounted in the chapter