Transition Metals

An Introduction to Transition-Metal Chemistry. Ligand Field Theory. LESLIE E. ORGEL. Methuen, London; Wiley, New York, 2nd ed., 1966. 186 pp., illus. $5.95.

The first edition of this book has had a great influence on the teaching and practice of transition metal chemistry. This new edition gives a more up-to-date assessment which will undoubtedly sustain the work's usefulness and popularity. The book shows how ligand field theory gives a basis for the understanding of many of the physical and chemical properties of molecules and ions containing transition-metal atoms. The effectiveness of the theory is demonstrated in the discussion of a variety of topics concerned with transition-metal compounds, including molecule and ion shape, thermodynamic stability, spectra, reaction mechanisms, low valency, "sandwich" compounds, and highest valency. Well-chosen references to pertinent recent reviews are given at the end of each chapter.

The main change from the first edition is one of greater emphasis on the molecular orbital theory, although approximately the same space as in the first edition is given to the electrostatic crystal-field theory. The additions and modifications take account of some of the important theoretical and experimental findings of recent years, but the book is only seven pages longer than the earlier edition. The writing is characterized by the lucidity and conciseness that marked the first edition. Mathematical arguments are absent, and the author is at pains to present clear physical pictures whenever possible; hence the book is understandable to the beginner in science, although the more sophisticated will also profit from a reading of it.

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Bad Weather

Early American Winters, 1604–1820. DAVID M. LUDLUM. American Meteorological Society, Boston, 1966. 297 pp., illus. $10.

To this day winters in the eastern United States are full of unpleasant weather surprises, but to the early settlers from Europe the rigors of a New England winter were entirely unexpected. Their diaries are studded with references to cold, snow, and gales. Even the final landing place of the Mayflower pilgrims was largely a result of a meteorological accident.

Ludlum has pieced together a most interesting chronicle of winter weather during colonial times and the first few decades of the Republic, up to the point when organized meteorological observations began in this country. Students of climatic fluctuations can be grateful to him for his excellent collection of source material. With a unique education as both historian and meteorologist, he is most qualified to undertake this work, which bears everywhere the stamp of a labor of love.

The information from the 17th century is all qualitative, consisting of vivid accounts by reporters and diarists. Hardly any of the records were prompted by scientific interest. Scientific knowledge, however, became a primary motive in the 18th century, and instrumental observations were begun at a number of places. Preachers and physicians, statesmen and college presidents were among the regular and faithful observers. Now they would regard weather primarily as a nuisance, and I know some who are in doubt that it is an object worthy of serious intellectual effort.

Much of the information was gathered from the early press. Evidently weather was as newsworthy then as it is now. New England, New York, and eastern Pennsylvania are best represented in this collection. Some attention is devoted to the scarce data from the eastern Great Lakes region. In the old South winters were only sporadically sensational, but both Washington and Jefferson were eager students of atmospheric events, and their observations provide many interesting references. A special chapter is devoted to the winter weather events of the Revolutionary War. The miseries of the soldiers are vividly recounted. The effects of weather on early warfare were only too obvious, and it is melancholic to contemplate that even the most modern weapon systems are still subject to atmospheric vagaries. After the Revolution it became possible to look at the same weather event in a synoptic fashion, with the use of a variety of early instrumental records, diaries, and news stories from many localities. The clever weather interpretations woven into this skeleton of facts show that essentially the same large-scale weather patterns as now bring about the snow-laden Northeasters and Arctic cold outbreaks. Little seems to have changed in the frequency and alternation of cold, snowy, and mild winters. Yet some decades had more bad winters than others. The exceptional events of 1717, 1740–41, and 1798–99 are vividly described.

The author recognizes that much additional material may still be unearthed from diaries and other manuscript material in the custody of historical societies. Among this potential information are the only sparingly used Canadian data and Spanish sources from Florida that undoubtedly still exist. As a matter of fact there are even additional instrumental observations available for exploitation, such as the 1753–1757 records for Nottingham, Maryland, made by Richard Brooke and published by Henry Baker, and the data for 1760–62 ascribed to Francis Fauquier of Williamsburg, Virginia, published by Andrew Burnaby.

If our contemporaries, even though bolstered by the comforts modern technology provides, are tempted to grumble about winter hardships, I can only recommend that they browse in this volume, especially in the delightful closing section, "A winter anthology." Weather historians will look forward with considerable eagerness to the second volume, which will cover the pre-Weather Bureau period from 1821 to 1870.

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New Books

Acetylene: Its Properties, Manufacture and Uses. vol. 2. S. A. Miller. Academic Press, New York, 1966. 424 pp. Illus. $22.

Actions Chimiques et Biologiques des Radiations. M. Haïssinsky. Masson, Paris, 1966. 332 pp. Illus. F. 120. Four papers.

An Administrative History of NASA, 1958–1963. Robert L. Rosholt. National Aeronautics and Space Administration, Washington, D.C., 1966 (order from Superintendent of Documents, Washington, D.C.). 399 pp. Illus. $4.

Advances in Agronomy. vol. 18. A. G. Norman, Ed. Academic Press, New York, 1966. 406 pp. Illus. $15. Seven papers.

Advances in Heterocyclic Chemistry. vol. 6. A. R. Katritzky and A. J. Boulton, Eds. Academic Press, New York, 1966. 484 pp. Illus. $18.50. Six papers.

Advances in Pharmacology. vol 4. Silvio Garattini and Parkhurst A. Shore, Eds.

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