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Book Review

Environmental Chemistry
G.W. vanLoon, S.J. Duffy, Oxford University Press, Oxford, 2002, xi + 492 pp., ISBN: 0-19-856440-6 (£ 27.99)

The subject of environmental chemistry has an important place in teaching and research. As the subject has developed it has encountered many challenging studies of highly complex systems. In *Environmental chemistry* a number of topics deal with the chemistry of the earths atmosphere (air), the hydrosphere (water) and the terrestrial environment. The environmental chemical composition of the natural system, its chemical process and reactions are dealt with between and within each of the various compartments. Although the book focuses on basic knowledge and general principles, examples are used from around the world allowing the text to be considered in a global context. Also, there is discussions on the way in which systems respond to perturbations whether they are natural or caused by humans without the specific focus on pollution.

Environmental chemistry begins with an introductory chapter covering the background of environmental chemistry in a global perspective and describing the general subject matter of the book. In Part A—*The earth atmosphere*—Chapter 2 provides a background to this section covering regions of the atmosphere and reactions and calculations in atmospheric chemistry. Chapters 3 to 5 cover stratospheric chemistry—ozone, tropospheric chemistry—smog and precipitation. These chapters cover various radical cycles; hydroxyl, nitric and chlorine. Other cycles include the null and holding cycles. Many reactions are also stated and include kinetic and secondary reactions. Chapter 6 discusses atmospheric aerosols and includes topics on sea spray and dust. The chemical composition of air of where people live is the content of Chapter 7 followed by Chapter 8 describing the chemistry of the global climate.

Part B is focused on *the hydrosphere* with Chapter 9 leading this section covering physical and chemical properties of water. Chapter 10 looks at the distribution of species in aquatic systems. Chapters 11 and 12 examine gases and organic matter in water and Chapter 13 looks at metals in the hydrosphere. The environmental chemistry of colloids and surfaces is presented in Chapter 14. A number of microbiological processes including the carbon, nitrogen and sulfur cycle is the content of Chapter 15. The final Chapter 16 of part B describes water pollution and wastewater treatment.

In part C the chapters are centred around *the terrestrial environment*with Chapter 17 introducing this section. The physical, chemical and environmental properties of soils is detailed as part of Chapter 18. The chemistry of solid, organic and mixed urban wastes is focused upon in Chapter 19. Chapter 20 describes organic biocides with sections on chemical stability, mobility and leachability.

Each of the chapters contains features to well-known environmental issues; worked examples and problems and also how to approach other environmental problems not discussed in the book. Also included are sections on main points, additional reading and references. *Environmental Chemistry*—a global perspective—is a comprehensive textbook ideal for upper level undergraduates.

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