

The last two chapters of the book discuss the analysis of stable carbon isotope ratios of bone collagen extracted from human skeletal remains in order to study prehistoric human diet.

The information presented in the book will be of considerable interest and value to nutritionists unfamiliar with the applications of stable isotopes in their work and also to other researchers interested in the techniques used in the analysis of stable isotopically labelled compounds.

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This series has by now become firmly established and the present volume, which will have a much wider readership than merely the organic chemistry community, will contribute further to the process. The first chapter by Forsyth deals with the issue of isotope effects on ^{13}C nmr shifts and coupling constants. This is done mainly from a factual point of view and there is much information here to those interested in using isotope effects in assigning nmr signals and as a potential source of structural information.

Although the effect of pressure on reaction rates in solution has been the subject of extensive study only recently has it been appreciated that the pressure dependence of primary hydrogen isotope effects can be used as an additional probe of transition state structure. By taking eight reactions which have been the subject of much study, in this second chapter Isaacs discusses the additional information that has been obtained from the variation of $k^{\text{H}}/k^{\text{D}}$ with pressure. Such studies can be particularly informative when tunnelling factors are thought to be important.

Isotope effects are usually associated with difference in isotopic mass but Turro in particular has drawn attention to the possibility of isotope effects arising from nuclear magnetic moment contributions and this is the subject of the third chapter (by Turro and Krautler). It is clear that magnetic isotope and magnetic field effects provide the organic chemist with a new tool to study reaction mechanisms involving radical pairs (or diradicals).

The final chapter by Sims and Lewis deals with bond order methods for calculating isotope effects and their application to several important categories of reactions such as hydrogen transfer and substitution (both S_N1 and S_N2).

All chapters are well written, the number of errors small and the high standard of production very much what we have become accustomed to in this excellent series.

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