Numbers 6 and Above: Other Inert Centers" by J. Burgess (27 pages, 150 references); Chapter 9, Substitution Reactions of Labile Metal Complexes, by D.N. Hague (19 pages, 115 references); Chapter 10, Substitution and Insertion Reactions of Organometallic Compounds, by D.A. Sweigart (33 pages, 116 references); Chapter 11, Metal—Alkyl Bond Formation and Fission; Oxidative Addition and Reductive Elimination, by M. Green (30 pages, 98 references); Chapter 12, Reactivity of Coordinated Hydrocarbons, by L.A.P. Kane-Maguire (18 pages, 56 references); Chapter 13, Rearrangements, Intramolecular Exchanges, and Isomerizations of Organometallic Compounds, by A.J. Deeming (31 pages, 130 references); and Chapter 14, Homogeneous Catalysis of Organic Reactions by Complexes of Metal Ions, by C. White (26 pages, 184 references).

The stand-point in Part 3 (Chs. 10—14), which is of principal interest to the majority of the readers of this Journal, is essentially that of the inorganic chemist, but the vast area of Main Group element organometallic chemistry is barely considered. Even in Part 2 the treatment of Main Group element chemistry is highly selective, and in places one might even say superficial. For instance, the area of silicon chemistry (in Ch. 4) takes 4 pages, and reference is made to 18 papers. This might well be contrasted with the series: Organometallic Chemistry Reviews; Annual Surveys. Silicon — Lead (J. Organomet. Chem. Library, 14, 1984), in which organosilicon reaction mechanisms for the year 1981 are covered in 71 pages, with 290 literature citations.

In summary, this is a useful and attractively produced book, which is primarily directed to practitioners of inorganic reaction mechanisms, and especially to those interested in transition metal complexes.

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Fourier Transform N.M.R. Spectroscopy; by D. Shaw. Elsevier, Amsterdam etc., 1984, xi + 344 pages, D.Fl. 250.

The eight years since the first edition of this useful book was published have seen many advances in Fourier Transform N.M.R. spectroscopy and many chemists now have access to high field instruments capable of a wide range of sophisticated experiments. This book describes the factors affecting the acquisition of N.M.R. data, and discusses the ways in which the techniques available can be applied.

Nine of the ten chapters are titled as in the first edition, viz.: Introduction; Principles of magnetic resonance; The mathematics of Fourier N.M.R.; Excitation techniques in N.M.R.; Pulsed N.M.R.; Instrumentation; Experimental techniques; Multiple resonance and Relaxation. The chapter in the previous edition concerned with discussion of the N.M.R. spectrum has been replaced in this volume by one about multidimensional N.M.R., which describes 2D spectra, multiple quantum experiments and N.M.R. imaging, and gives references up to and including 1983. In the retained chapters, new sections on multipulse sequences (INEPT, INADEQUATE and DEPT), spectral editing, and Fourier transformations in two dimensions bring the material more up to date. The content of most of the chapters remains generally similar to that in the first edition. Unfortunately the pages defining the symbols used are absent this time, but a new appendix of building blocks for 2D and multipulse N.M.R. is included which gives a good summary of the effects of the various pulses and time delays discussed in the main text. The discussion and the examples given are mostly concerned with proton and carbon spectra, but the general principles and techniques can be applied to other nuclei of interest in organometallic chemistry.

Most of the errors in the first edition have been corrected, but they have been replaced by a multitude of new ones ranging from simple typing errors to the duplication (on page 91) of the entire section (on page 90) dealing with difference spectroscopy.

The errors are of the kind which would have been noticed and corrected at the proof stage of a typeset publication, but this book was, unfortunately, produced by the less satisfactory direct reproduction of typescript. While many of the mistakes, particularly those in the running text, are very obvious and so not misleading (e.g. the molecules CFC_3, $PSbl_3$ and Pbl_5 in Fig. 1.1), there are also errors in some of the equations and in the tabulated data. For example, the table of N.M.R. properties of some common nuclei (Table 2.1) contains errors in the columns relating to natural abundance, electric quadrupole moment, nuclear spin and even in columns showing the isotope masses, in which ^{119}Hg and ^{51}Co nuclei (instead of ^{199}Hg and ^{59}Co) are listed, and the entry against ^{199}Hg actually gives data for the ^{195}Pt nucleus. The relative sensitivities derived from the data in the table are presumably also incorrect. The many factual errors in the book mean that the data and equations presented should be checked carefully before use.

In spite of the errors of detail mentioned above, the book gives a clear and readable account of modern techniques, and will be of value to anyone wanting to know more about how Fourier transform N.M.R. spectra are obtained.

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Chemistry of the Elements, by N.N. Greenwood and A. Earnshaw, Pergamon Press, Oxford, etc., 1984, xxii + 1542 pages. £19.50, U.S. $ 34.95 (Softback ("Flexicover")) version. ISBN 0-08-022057-6). (A hard cover version is also available: ISBN 0-08-022056-8.)

The appearance of this wholly excellent comprehensive textbook of the chemistry of the elements is greatly to be welcomed. Not the least of the reasons for this is that, in contrast to the textbooks of inorganic chemistry mainly in use today, the emphasis is on the properties and reactions of the elements and their compounds, rather than on current theories, though theory