

may cause confusion for the neophyte. In eq. 2.13, p_i occurs, but in the adjacent text ρ_p whilst a comparable substitution exists on p. 67. In eq. 2.25 one subscript is missing. On p. 61 both C and c are used for concentration although C earlier symbolises force. The decision to represent sedimentation coefficient by italic S is not adhered to throughout p. 49. The first version of eq. 2.16 is incompatible with the signs in the preceding equations whilst the last equation on p. 61 should include a factor of 2 if x is diameter and R radius. It is unfortunate that radius is represented by R and the asymmetry factor by a when a or r is generally used for radius. Definitions are not always beyond criticism, molality being given as concentration in g/kg solvent and the footnote on p. 27

contrasting rather oddly with the glossary definition of sedimentation coefficient. Density gradient itself might have been defined better.

Instances of virtual duplication involve relaxation techniques (pp. 63, 118), effects of high ionic strength (pp. 80, 81) and gradient inversion (pp. 113, 118). Section 2.1.2 contains jumbled lines, two sentences near the top of p. 105 should run as one and the reference on p. 67 to Beaufay and Berthet (1963) is missing.

In spite of the minor shortcomings this paperback is a very useful compilation, but younger workers' desires for a personal copy may be inhibited by the price.

P. A. Charlwood

High Pressure Liquid Chromatography in Clinical Chemistry

Edited by P. F. Dixon, C. H. Gray, C. K. Lim and M. S. Stoll
Academic Press; London, 1976
xxv + 224 pages. £4.80

Column chromatography during the past ten years has experienced the sort of expansion shown by gas chromatography in the previous decade. The types of packing materials used necessitated the use of high column pressures (up to 10 000 p.s.i.) and this led to the term high pressure (or performance) liquid chromatography. However, with increasingly efficient packing materials, columns today are becoming shorter, often requiring pressures of much less than 1000 p.s.i. The day-to-day use of the technique is simple and a minimum of technical experience is claimed to be required for successful operation.

This volume represents the proceedings of a Symposium held at King's College Hospital Medical School, London, in December 1975 and contains 29 contributions. Five chapters are concerned with methodology, such as an appraisal of the present situation and the moving wire chromatograph. A wide range of compounds was considered and this included contributions on the analysis of drugs (8), steroids (4), porphyrins (4) and lipids, oligosaccharides,

nucleotides, biogenic amines implicated in the aetiology of schizophrenia, catecholamines, urinary metadrenalines, anticonvulsants in serum, chlorophenols and antibiotics (1). The number of separations shown is proof that HPLC is already an important analytical tool. Unlike gas chromatography, derivatization is usually unnecessary (an exception is where bile pigment methyl esters were prepared for their separation, p. 100). Ambient temperatures were used (particularly valuable for heat-labile compounds) and some separations were carried out in less than 10 min but the separation of eight nucleotides in less than one hour (p. 112) was impressive.

The most usual detection system is by absorbance at a fixed wavelength of 195–280 nm. This is not sufficiently sensitive for some purposes and imposes a serious limitation on the technique. However, fractions from the column may always be taken for individual analysis at a high level of sensitivity, as carried out for corticosteroids (p. 59). This is not an ideal solution and it is generally accepted that new and more

sensitive detection systems are required urgently.

An appendix lists the various types of packing materials. There is an adequate index. The names and addresses of contributors and participants should prove useful to anyone looking for expertise and help. The book is well produced and reasonably priced.

Readers who wish to know more about HPLC will find extensive theory and description of techniques in other volumes [1-6] and the application of HPLC in pharmacology and toxicology [6] and in many fields with more than 1000 references [5].

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- [5] Rajcsanyi, P. M. and Rajcsanyi, E. (1975) *High Speed Liquid Chromatography*, Chromatographic Science Series, Vol. 6., Marcel Dekker; New York, Basel.
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