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THE BOOK CORNER

GAS CHROMATOGRAPHY: ANALYTICAL CHEMISTRY BY OPEN LEARNING, Ian A. Fowles, John Wiley and Sons, New York, 1995; 258 pages; ISBN 0-471-95467-5 and in paperback as ISBN 0-471-95468-3.

The text provides a working knowledge of gas chromatography and gas chromatographs. It is recommended for those who are just assuming duties for gas chromatographic determinations and for those who may have been taught how to perform a specific chromatographic determination and desire a fundamental understanding of the technique. Chemistry students who are ready for courses in analysis will find this text an excellent introduction to chromatographic practice.

The chapters cover the basic instrumentation, packed and capillary systems, injectors, detectors, data handling, quantitative and qualitative analyses. Additional sections provide introductory information on combined techniques, analysis of less-volatile substances, and environmental analysis. Specific topics generally are easy to locate from consulting the table of contents or index. Thus the student has a good reference text as well as a good learning guide.

The relationships among fundamental chromatographic parameters are dealt with concisely and in an easy-to-follow manner. Although the text disclaims coverage of chromatographic theory (the student is referred to another text in the *Analytical Chemistry by Open Learning* series for this information.), it does provide sufficient information for a basic understanding of the chromatographic process. In this respect it is weak only the the order in which a couple of topics are presented: The importance of carrier gas selection is mentioned a couple of times before an explanation is presented; and focusing or refocusing is discussed before it is defined (except perhaps in a 60-word sentence on temperature programming). These are exceptions to the the generally clear and logical way concepts and practice are presented.

The repeated emphasis on the importance of the time spent in the mobile phase is especially welcomed for it has been my experience that students should learn that concept first.

The text stresses to the point of redundancy that no text can provide the understanding of practical experience in the laboratory. Nevertheless the reasons behind standard chromatographic technique are clearly explained. I found only one exception: the importance of the position of the needle tip during injection leaves the student without any guide or reference for knowing what should be done.

The "Fowlis Rule" for determining which compounds may be successfully handled by gas chromatography comes from the author's years of experience. If a solute does not dissolve in ethyl acetate, one had best look for another method for separation, according to the rule.

The figure on the split/splitless injector is confusing. Although the pathway for carrier to septum purge is clearly open, the pathways to the column and split outlet appear blocked. I found only one incidence of lack of clarity in the text: "... the programmed temperature vaporising injector sometimes called the split/splitless injector."

Two omissions are puzzling. The author gives considerable (and deserved) credit to Walter Jennings for work in capillary chromatography and uses the "DB" series in cataloguing chromatographic phases. Nevertheless, Jennings' 1987 text, *Analytical Gas Chromatography*, is not listed in the Bibliography. Finally, I am not sure how the author kept from drawing a lesson from the statement that "on-column injection ... is the method of choice for the *discriminating* chromatographer."

Reviewed by
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