voted to *Spectral interpretations*. As the analytical applications of NIRS are often still developed with an empirical approach, our knowledge of the fundamental significance of the NIR adsorption bands is far from complete. One interesting article deals with the relationship between the NIR and the mid-infrared spectral range. An attempt to model the interaction between light and biological material is also presented.

One of the most interesting parts, *Progress in calibration methods*, covers the statistical methods which can be applied to NIR spectral data for developing the analytical applications. Besides the usual statistical methods such as multilinear regression, many very sophisticated techniques such as partial least squares or neural networks are now available for calibrating NIR instruments. These new techniques deserved to be presented and compared.

The progress made in NIRS also appears in the *Developments in instrumentation*. Two important tendencies are presented in the book. The first one consists in designing simple and robust instruments, in which the light source is a cheap device such as a light-emitting diode. The other one is the construction of multiplex NIR spectrometers, in which the amplitude information of each wavelength is encoded with a unique signature and transmitted simultaneously to the photo-sensitive detector.

The rest of the book (ca. fifty articles) deals with the analytical applications of NIRS, in the domain of *Agriculture, Food sciences* and *Chemical industry*. Many applications are, of course, related to quality control and analysis of many components in the studied samples. Many applications are original either according to the nature of the variable to be estimated from the NIR spectral data, or to the product which is analysed. In agriculture, many presented applications consist in the evaluation of feed for livestock (ruminants and monogastric). In food sciences, strong emphasis is put on the quality of foods for consumers, and particularly on the problem of food authentication. Nine new applications in the pharmaceutical and petrochemical industries are also described. It can be supposed that the range of possible applications of NIRS in these industries is still underestimated.

This book fulfils its objective, and will be of interest to advanced users of NIRS, researchers, chemical spectroscopists, food and agricultural scientists and those concerned with the development of scientific instrumentation. It is a valuable source of recent information and presents, in a comprehensive manner, the current important topics of NIRS.

DOMINIQUE BERTRAND
Institut National de la Recherche Agronomique
Nantes, France

Statistical Methods in Analytical Chemistry, by P.C. Meier and R.E. Zund

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Statistics is a major tool in instrumental analytical chemistry. It became apparent that one (uncertain) number is no result, that the 'true' value would have to be extracted from several such measurements. This book treats the application of statistics to analytical chemistry in a very practical manner. A minimum of statistical theory is explained but applied to everyday, that is, complex situations. The book integrates PC computing power, testing programs and analytical know-how in the context of good manufacturing practice/good laboratory practice (GMP/GLP) introducing the new small statistical system.

The first question that arises is why analytical chemists cannot use one of the many existing statistical analysis systems (Statgraphics, S+, SAS, Statistica, Systat, Adstat, etc.) that provide programs for a large variety of statistical methods, are widespread, and, due to permanent maintenance, reach a rather high degree of reliability. If we consider that besides analytical chemometricians who prefer comfortable software and fully equipped PCs there are still many analysts who occasionally use statistical analysis on pocket calculators or cheap PCs, we understand the answer to the question: the more options for statistical systems that are available, the more the complexity increases, leading to harder usability and learnability. Consequently, such systems are not attractive for users who seldom perform statistical data analysis or work with computers. Furthermore, it has to be mentioned that many users with rather simple statistical problems are not able or willing to pay the license fees for a comprehensive analysis system.

This book brings a reliable, easy-to-use and inexpensive package of programs for statistical data analysis. This tool aims at users having data sets of small to medium size, *didactically* being designed in a manner supporting the proper use of the system even for PC beginners. Last but not least an advantage is that the system is distributed with the book as public-domain software or shareware in order to avoid copyright problems and to encourage widespread use.

The book is written at a basic mathematical and statistical level but with a minimum of tools explained and illustrates procedures by worked-out examples of complex analytical situations. It represents an attempt to create the impossible, namely, the text that satisfies all readers, bores none, and leaves everyone's self-esteem intact. The first three chapters present the classical statistical techniques mainly in univariate data analysis. Chapter 4 contains a number of examples that might confront the analyst nearly every day. Core sections of BASIC programs are presented in Chapter 5. A 3.5-in. disc is included with the book to provide the reader with ready-made programs and data files: preaching without practice is unsound.

The book is of value in many fields of analytical chemistry and should be available in all relevant libraries. The authors have found a good balance between mathematical theory and practical analytical examples with a lot of well documented illustrations and tables. Extensive references give a quick path to the detailed information for specific cases. The book is well printed and supported with a disc (of programs and data); it is cheap in relation to its information content.

MILAN MELOUN
Dept. of Analytical Chemistry
University of Chemical Technology
532 10 Pardubice
Czech Republic