The book has an extensive list of references, although some chapters could have used a last-minute update of references because of the rapid pace of change in the field.

The first part of the book discusses the clinical aspects of ischemic changes of the myocardium and presents a general overview of the biochemical markers. Chapters 3 and 4 are a must for every laboratorian who performs biochemical marker testing for MI. Cardiologists and emergency room physicians will also find these chapters useful, despite the somewhat dated references in chapter 4.

Part II of the book deals with the traditional, or cytoplasmic, markers. It has a comprehensive list of methodologies. Two methods, the manual column chromatography method and the DuPont aca column chromatography/immunoinhibition method for CK isoenzyme measurement are not even in use any more in the US. I would have preferred that discussions of these methods indicate that these techniques have historical interest only.

The other techniques, such as electrophoretic measurement of CK isoenzymes and the immunoinhibition method for CK-MB, mostly have been replaced by CK-MB mass assays. The chapter on lactate dehydrogenase (LDH) isoenzyme measurement also is more reflective of the practice of the past than that of today.

The last two parts of the book contain the most practical information for laboratory professionals. The first chapter of Part III describes the biochemistry of troponins I and T. The following two chapters each start with the currently available immunoassays for the cardiac troponins and then discuss the clinical utility of cardiac troponins T and I, respectively. The roles of the cardiac troponins in MI, unstable angina, cardiac contusion, and various other clinical conditions are presented. Ample clinical and analytical information based on up-to-date references is provided for the reader. The last chapter of Part III provides a balanced review of the myosin heavy and light chains. Part IV is dedicated to future assays and assay formats, including point-of-care assays. It is worth buying the book just for these two parts. No other publication that I know of has such a comprehensive collection of clinical and technical information available on the current and future biochemical markers of MI.

A few errors have escaped detection. Some are minor, such as the misspelling of names of referenced authors; others are potentially misleading for the readers, e.g., the TIMI grades in Fig. 5 on page 13.

My overall assessment is that Cardiac Markers is a very timely and important book. It should be in the library of every laboratory professional. I know I will use my copy regularly in my daily work and in my teaching, and I urge you to do the same.

Geza S. Bodor
Denver Health Medical Center
Medical Laboratories
Denver, CO 80204


There have been many ironies in the evolution of the clinical laboratory over the last 25 years. One striking irony has been the movement in the clinical toxicology laboratory from specific chromatographic assays to immunoassay technologies. At the same time, implementation of gas chromatography–mass spectrometry (GC/MS) capability has become increasingly necessary, driven by the need to confirm antibody-based screening for drugs of abuse. At one time, GC/MS was reserved for academic and research settings, and the instruments were characterized by their need for a large amount of dedicated space, highly trained and motivated operators, a significant capital investment, and frequent downtime and maintenance; modern instrumentation, however, is compact, accessible to the college gradu-

ate with good computer skills, affordable (read “justifiable”), stable, and capable of relatively high throughput. Unfortunately, the trend to immunoassays led to a decline in the number of gas chromatographs in clinical laboratories and a corresponding decline in the skills necessary to achieve good results and to troubleshoot and maintain instruments. With the reemergence of the gas chromatograph as an input device for the mass spectrometer, however, there is a renewed need for individuals with a grasp of the principles and mechanics of chromatography and the insight to apply and maintain the MS. It is important and fortunate that clinical laboratories can rely on their existing medical technology staff to satisfy this need. Implicit in this development is the capacity to provide the laboratory operator with the knowledge, skill, and motivation needed in this rapidly changing field. It is surprising that there have been very few examples of comprehensive GC/MS textbooks since McFadden published Techniques of Combined Gas Chromatography/Mass Spectrometry (1) in 1973. This lack may have been a result of the rapid changes that have occurred since that time. It is in this context that GC/MS: A Practical User’s Guide provides encouraging contributions.

The book is concise, sometimes maddeningly concise, but has sufficient scope to consider basic principles (Chapter 1), input techniques (Chapters 2, 3, and 14), mass spectral interpretation (Chapter 11), alternative ionization and mass separation technologies (Chapters 4, 12, and 13), maintenance and troubleshooting considerations (Chapters 5, 6, 7, and 9, and Appendix A), the role and importance of microcomputers (Chapter 8), and examples of applications (Chapter 10). The brevity of description and explanation is offset in part by a large number of illustrations that reinforce the text.

It would be fair to characterize the presentations as superficial, but unfair if this were taken as a measure of the value of the collected information. There are many instances in the
course of an education in which it is desirable to provide a resource that can be digested rapidly but is sufficiently comprehensive to expand the world view of the reader. New technologists, graduate students beginning a project, and pathology residents all benefit from practical information that expands their understanding of the task at hand. The value of this book greatly depends on the existence of more specific, detailed information, such as that provided by instrument manufacturers, and regular exposure to the instrumentation in the laboratory. It is far less useful if it is purchased to fill the GC/MS niche in a personal or corporate library and is assumed to encompass the field.

Reading the chapters dedicated to ion-trap technology and to liquid chromatography (LC)/MS and the various interface options was enjoyable. It was discouraging to see the lack of depth devoted to the operation of the gas chromatograph in Chapter 3 and the role of computer hardware and software in instrumentation control, data collection, and interpretation in Chapter 8. There are many choices and problems here that would benefit from expanded coverage, for example, Selected Reading List in Appendix D. The inclusion of the application of GC/MS to the environmental laboratory in Chapter 10 provided limited insight into the practical considerations in this field and presented specific data compared with the general information, opinions, and anecdotes provided elsewhere. Some schematic representations (such as 8.1, 10.1, and 10.2) because of their complexity may not provide the clarity that the authors desire. In any text that addresses a rapidly changing and complex field, there will be quibbles over detail and emphasis, and such is the case here. The inclusion of more specifics and examples would serve to make this volume even more practical.

Taken by itself, this book is not the answer to the question, “Whither GC/MS?”, but it does offer a solution to the need for a swift education in a complex, fast-moving field of enormous importance to the clinical laboratory. The rest of the answer must be found elsewhere.

References


John Wilson

Department of Laboratory Medicine
William Beaumont Hospital
Royal Oak, MI 48073