The Porphyrin Handbook

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Preface

The broadly defined porphyrin research area is one of the most exciting, stimulating and rewarding for scientists in the fields of chemistry, physics, biology and medicine. The beautifully constructed porphyrinoid ligand, perfected over the course of evolution, provides the chromophore for a multitude of iron, magnesium, cobalt and nickel complexes which are primary metabolites and without which life itself could not be maintained.

Falk's book, *Porphyrins and Metalloporphyrins*, published in 1962, was a fairly thin volume which represented the first attempt to apply the principles of modern chemistry and physics to the structure and function of porphyrin systems. By 1975, the time when a single author could write authoritatively on this field was past; one of us (K.M.S.) managed to shoehorn the field into one volume, but the new version of *Porphyrins and Metalloporphyrins* (1975) needed to be a multiauthored volume. The field was spreading rapidly in every direction across the whole spectrum of science — far beyond the ability of one person to describe it.

The present *Handbook* follows an unavoidable trend (e.g., Dolphin's *The Porphyrins*, 1978–79) in that it is a multivolume edited set. But no longer is it possible for only one editor to coordinate such an endeavor. The three of us have contributed individually to the expansion of our field — at the time of writing, we have in our careers published among us more than 1,220 papers. Our areas of expertise are complementary, being in physical chemistry, organic chemistry and organometallic/coordination chemistry. The formative days of this project were spent in Dijon, France, where two of us have been honored by the third by being annually appointed, over more than a decade, as visiting professors at the Université de Bourgogne. There, one summer, we put together the pathway for this endeavor and began testing the waters by inviting some of the world's best porphyrin scientists to contribute to a putative new series of books on porphyrins which we told them we were planning to compile. Had we been unsuccessful in obtaining support from those we initially contacted, the project would probably have ended there and then. But such was not the case, and we received encouragement and informal agreements to contribute from the first twenty or so experts that we contacted from Dijon in just the first few days.

The resulting *Handbook* is divided into ten volumes. It progresses through synthesis and organic chemistry of porphyrins, heteroporphyrins and expanded porphyrins, to inorganic and coordination chemistry, and then through biochemistry and spectroscopy, to applications and theoretical, physical and electrochemical characterization. It is important to note that the last two volumes contain collections of structural, electrochemical and equilibrium data; this is a data-intensive field, and we believe that compilation of relevant data should be useful to investigators. We have attempted to ensure that every chapter was written by the currently acknowledged expert in the field, and very early on we had in our hands no less than sixty-nine signed contracts for chapters. With the fullness of time, and as deadlines for *Handbook* chapter submission and other essential activities (e.g., research proposal renewals) converged, some of our authors had to withdraw. On occasion we were able to recruit new authors who, with only a month or less of lead time, were able to fill these gaps and come up with authoritative and high-quality chapters. Whereas we wish to thank all of our authors for their wonderful contributions and for the way that they honored their contractual agreements to contribute, we do particularly want to thank those who stepped up to bat at crisis time and came through for us — you know who you are! In the end, we have assembled sixty-one chapters divided to provide ten separate volumes. We regretted the loss of the absent chapters, but coverage is so thorough that we believe that only the editors really know what is missing!

The manuscript deadline for the *Handbook* was October 1998. Readers can expect critical or comprehensive coverage only up to that date. Nevertheless, numerous authors continued to add new material to their submitted chapters as time went by (even up to the page-proof stage), and others (including two of us who were otherwise engaged with editing) were granted extensions to the deadline which stretched into 1999. As a result, many chapters contain literature citations from 1999, but the end of 1998 is most likely a better benchmark for coverage. For a project as large as this, we considered that publication within twelve months of the firm manuscript deadline would be a creditable target; this has been accomplished and we wish to thank the publisher, production editors and typesetters for enabling us to achieve our aim. But above all, of course, we must thank our army of contributors for their cooperation and attention. Toward the end, the e-mail instructions, reminders, pleas, demands and occasional threats flew fast and furious, but everyone — to a person — cooperated. As editors, we asked each of the authors to write a manuscript which would be definitive in this field for fifteen years to come, and we believe that most of them, if not all, rose to this challenge. Time will tell.

Enjoy!

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September, 1999

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