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David C. Walker
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As with Wagner, it's not so bad as it sounds.
Mark Twain

PREFACE

The fast-breaking field of muon science is truly transdisciplinary. Using the tools of nuclear physics (as it examines the intrinsic decay of a short-lived, man-made, elementary particle one at a time) it draws inferences about normal chemical behaviour and about reactions which are not otherwise observable. Specifically, the muon is used to mimic the basic properties of our two best known elementary particles, the proton and the electron.

This book attempts to cover all aspects of the muon as a chemical entity, showing the current scope of the field, its major achievements and watersheds. Its main aim, however, is to try to make the muon zealots' poetic formalism intelligible and useful, through the medium of eponymous pedestrian prose, to chemists who deal with molecules composed of natural atoms.

My thanks are due to persons too numerous to list here. First, there are the authors whose data and ideas I have incorporated in this book. Then there are people whose work and effort provided the opportunity for my involvement with muons at TRIUMF: from the initial planners, designers and builders of this meson facility; to those who brought the muon spin rotation technique here; to the whole μ SR group past and present; but particularly to my close associates in the research we are doing together - 'Jerry' Jean, Bill Ng, John Stadlbauer and Yasuo Ito. I am also most grateful to Anneke Rees who calmly and resourcefully transcribed to the disc of a word-processor my scribbles on thousands of paper scraps. Finally, to Gale and baby Elizabeth, who lived with those scraps of paper underfoot, and my preoccupation with them while we could have been doing other things together, in such good humour.

David C. Walker
Vancouver, August 1982

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