

Contents

Introduction vi

- 1** Chemistry Is Magic **1**
Is That Really Magic? **4**
Ancient Magic Was Mostly Chemistry **5**
The Reactions I Remember from When I Was but a Wee Lad **14**

- 2** Atoms, Elements, Molecules, Reactions **29**
What Is a Molecule? **36**
What Force Holds Molecules Together? **38**
What Is a Chemical Reaction? **42**
Energy **44**
Follow the Energy **48**
The Arrow of Time **57**
Entropy **59**

- 3** Fantastic Reactions and Where to Find Them **65**
In the Classroom **66**
In the Kitchen **80**
In the Lab **82**
In a Factory **88**
On the Street **96**
In You **104**

- 4** On the Origin of Light and Color **113**
Absorbing Light **122**
Emitting Light **125**
The Ancient Chinese Art of Chemical Arranging **134**

- 5** The Boring Chapter **141**
Watching Paint Dry **142**
Watching Grass Grow **158**
Watching Water Boil **165**

- 6** The Need for Speed **175**
Weathering **176**
Fire **184**
Fast Fire **192**
Really Fast Fire **197**
The Fastest Reaction of All **203**

Acknowledgments **208**
Photo Credits **210**
Index **211**

