

CONTENTS

| | |
|--------------------------------|-----|
| LIST OF CONTRIBUTORS | v |
| PREFACE | vii |
| CONTENTS OF VOLUME 1 | xi |
| CONTENTS OF VOLUME 2 | xi |
| CONTENTS OF VOLUME 3 | xii |

Carbon and Graphite

ERLE L. SHOBERT II

| | |
|--|----|
| I. Introduction | 1 |
| II. Physical Properties of Carbons and Graphites | 16 |
| III. Applications | 59 |
| IV. Recent Developments | 82 |
| V. Conclusion | 94 |
| References | 95 |

Materials As Affected By Radiation

T. S. ELLEMAN AND C. W. TOWNLEY

| | |
|--|-----|
| I. Introduction | 101 |
| II. Radiation Fundamentals | 102 |
| III. Interaction of Radiation with Materials | 115 |
| IV. Effects of Radiation on Materials | 124 |
| V. Radiation Hazards and Personnel Safety | 151 |
| VI. Conclusion | 164 |
| References | 165 |

Materials for Plain Bearings

P. G. FORRESTER

| | |
|--|-----|
| I. The Role of a Bearing Material | 174 |
| II. Properties Required in Bearing Materials | 175 |
| III. Selection Criteria | 182 |
| IV. Whitemetal Alloys | 188 |
| V. Copper-Base Alloys | 194 |
| VI. Aluminum-Base Alloys | 209 |
| VII. Other Materials for Lubricated Bearings | 215 |
| VIII. Comparative Assessment of Lubricated Materials | 218 |
| IX. Dry Bearings | 218 |
| X. Conclusion | 237 |
| References | 237 |

Solid Lubricants

ROBERT J. BENZING

| | |
|---|-----|
| I. Introduction | 244 |
| II. Theory of Lubrication with Solid Lubricants | 247 |
| III. Resin-Bonded Solid Lubricants | 261 |
| IV. Lubricating Plastics | 274 |
| V. High-Temperature Bonded Films | 281 |
| VI. Other Solid-Type Lubricants | 287 |
| VII. Wear and Other Evaluation Techniques | 299 |
| VIII. Environmental Effects | 308 |
| IX. Current and Future Applications in Industry | 313 |
| References | 316 |

High-Strength Constructional Alloy Steels

A. M. HALL

| | |
|---|------------|
| I. Introduction | 327 |
| II. High-Strength Steels | 334 |
| III. Extra-High-Strength Steels | 349 |
| IV. Ultrahigh-Strength Steels | 358 |
| Selected Bibliography | 405 |
| AUTHOR INDEX | 407 |
| SUBJECT INDEX | 416 |