

CONTENTS

| CHAPTER | PAGE |
|--|-------|
| PREFACE | vii |
| SYMBOLS AND NOTATION | xix |
| INTRODUCTION | xxiii |
| I. TWENTY ELLIPTIC FUNCTIONS AND THEIR FORTY TRIG SERIES | 1 |
| <i>Appendix I.</i> A third series for the Jacobian functions | 28 |
| II. DERIVATIVES AND SQUARES OF THE ELLIPTIC FUNCTIONS | 35 |
| <i>Appendix II.</i> Expression of the Jacobian functions through $Sm\ z$ as parameter | 60 |
| III. THE THETA AND THE PEETA FUNCTIONS | 62 |
| <i>Appendix III.</i> A third representation of the Theta functions | 89 |
| IV. THE ADDITION THEOREMS | 93 |
| V. ELLIPTIC INTEGRALS OF THE FIRST KIND | 112 |
| <i>Appendix V.</i> Evaluation of indefinite integrals of the First Kind by the First Incomplete Elliptic Integral Table | 132 |
| VI. ELLIPTIC INTEGRALS OF THE SECOND KIND | 139 |
| <i>Appendix VI.</i> Evaluation of indefinite integrals of the Second Kind by the two Incomplete Elliptic Integral Tables | 173 |
| VII. ELLIPTIC INTEGRALS OF THE THIRD AND FOURTH KINDS | 179 |
| <i>Appendix VII.</i> Evaluation of indefinite integrals of the Third Kind | 228 |
| VIII. THE KAY AND THE EEE FUNCTIONS | 230 |
| <i>Appendix VIIIA.</i> The Hypergeometric Function | 251 |
| <i>Appendix VIIIB.</i> Derivatives and integrals of K and E | 253 |
| IX. THE WEIERSTRASSIAN POLELESS FUNCTIONS | 256 |
| X. APPLICATIONS OF ELLIPTIC FUNCTIONS TO GEOMETRY | 264 |
| <i>Appendix X.</i> The intrinsic equations of curves | 296 |
| XI. APPLICATIONS OF ELLIPTIC FUNCTIONS TO MECHANICS | 299 |
| <i>Appendix XI.</i> The Incomplete Elliptic Integral Tables and their Uses | 325 |

| CHAPTER | PAGE |
|--|------|
| XII. INTRODUCTION TO CONFORMAL REPRESENTATION | 352 |
| <i>Appendix XII.</i> The saw-tooth problem | 378 |
| XIII. THE ELLIPTIC FUNCTIONS IN CONFORMAL REPRESENTATION | 381 |
| MISCELLANEOUS EXAMPLES | 444 |
| XIV. REMARKS AND CONCLUSION | 448 |
| SUPPLEMENTS | 455 |
| <i>Supplement A</i> | |
| (1) Formulae for powers and reversion of series | 455 |
| (2) The Dibinomial theorem | 466 |
| (3) Integrable interpolation formulae | 468 |
| <i>Supplement B</i> | |
| Tables with hints on their uses | 471 |
| <i>Supplement C</i> | |
| A Postscript | 498 |
| INDEX | 503 |
| CONTENTS OF CHAPTERS X TO XIII. | 507 |

[The Appendices bear the numbers of the chapters they are attached to and are not numbered serratim.]