

CONTENTS

ILLUSTRATIONS xv

LIST OF ABBREVIATIONS xxxv

PART I

PRIMARY PRODUCTION

1. FOOD AND DRINK by R. J. FORBES, Professor of History of Pure and Applied Sciences in Antiquity, University of Amsterdam 1
2. METALLURGY AND ASSAYING by CYRIL STANLEY SMITH, Professor of Metallurgy, University of Chicago, and R. J. FORBES 27
3. COAL MINING AND UTILIZATION by J. U. NEF, Professor of Economic History, University of Chicago 72
4. WINDMILLS by REX WAILES 89

PART II

MANUFACTURE

5. TRADESMEN'S TOOLS c1500-1850 by R. A. SALAMAN 110
with *A Note on the Wheelwright's Trade* by J. GERAINT JENKINS and R. A. SALAMAN 123
and *A Note on Coopering* by J. GERAINT JENKINS and R. A. SALAMAN 128
6. FARM-TOOLS, VEHICLES, AND HARNESS 1500-1900 by OLGA BEAUMONT, Assistant, Museum of English Rural Life, University of Reading, and J. GERAINT JENKINS, Assistant Keeper, Museum of English Rural Life, University of Reading 134
7. SPINNING AND WEAVING by R. PATTERSON, Curator, Castle Museum, York 151
with *A Note on Knitting and Knitted Fabrics* by JAMES NORBURY, Chief Designer, Patons and Baldwins 181
8. FIGURED FABRICS by the late J. F. FLANAGAN 187
9. GLASS by R. J. CHARLESTON, Assistant Keeper, Department of Ceramics and Glass, Victoria and Albert Museum, London, and L. M. ANGUS-BUTTERWORTH, Director, The Newton Heath Glass Works, Manchester 206

PART III

MATERIAL CIVILIZATION

- | | |
|--|------------|
| 10. BUILDING CONSTRUCTION by MARTIN S. BRIGGS | 245 |
| 11. TOWN-PLANNING FROM THE ANCIENT WORLD TO THE RENAISSANCE by MARTIN S. BRIGGS | 269 |
| 12. LAND DRAINAGE AND RECLAMATION by L. E. HARRIS | 300 |
| 13. MACHINES AND MECHANISMS by A. P. USHER, Emeritus Professor of Economics, Harvard University | 324 |
| 14. MILITARY TECHNOLOGY by A. R. HALL | 347 |
| 15. PRINTING by MICHAEL CLAPHAM, Metals Division, Imperial Chemical Industries
with <i>A Note on Technical Advances in the Manufacture of Paper before the Nineteenth Century</i> by JOHN OVERTON, Thomas Nelson and Sons Ltd, Publishers | 377
411 |

PART IV

COMMUNICATIONS

- | | |
|---|-----|
| 16. BRIDGES by S. B. HAMILTON, O.B.E., Building Research Station, Watford | 417 |
| 17. CANALS AND RIVER NAVIGATIONS BEFORE 1750 by A. W. SKEMPTON, Professor of Civil Engineering, University of London | 438 |
| 18. SHIPS AND SHIPBUILDING by G. P. B. NAISH, Assistant Keeper, National Maritime Museum, Greenwich | 471 |
| 19. CARTOGRAPHY, SURVEY, AND NAVIGATION TO 1400 by CHARLES SINGER, DEREK J. PRICE, and E. G. R. TAYLOR | 501 |
| 20. CARTOGRAPHY, SURVEY, AND NAVIGATION 1400-1750 by E. G. R. TAYLOR, Emeritus Professor of Geography, University of London | 530 |

PART V

APPROACH TO SCIENCE

- | | |
|--|-----|
| 21. THE CALENDAR by SIR HAROLD SPENCER JONES, K.B.E., Astronomer Royal 1933-55 | 558 |
| 22. PRECISION INSTRUMENTS TO 1500 by DEREK J. PRICE
with a section (VII) on Hero's instruments by A. G. DRACHMANN | 582 |

CONTENTS

xiii

- 23. THE MANUFACTURE OF SCIENTIFIC INSTRUMENTS FROM
c1500 TO c1700** by **DEREK J. PRICE** 620
- 24. MECHANICAL TIMEKEEPERS** by **H. ALAN LLOYD, M.B.E.** 648
- 25. INVENTION IN CHEMICAL INDUSTRIES** by **F. W. GIBBS, Assistant
Secretary, The Royal Institute of Chemistry, London** 676

EPILOGUE

- THE RISE OF THE WEST** by **A. R. HALL** 709
- INDEXES** 723
- PLATES** at end