

AN OUTLINE
OF
INDUSTRIAL HISTORY

**WITH SPECIAL REFERENCE TO PROBLEMS
OF THE PRESENT DAY**

BY
EDWARD CRESSY

MACMILLAN AND CO., LIMITED
ST. MARTIN'S STREET, LONDON

1929

COPYRIGHT

First Edition 1915

Reprinted 1919, 1920, 1923, 1925, 1929

PRINTED IN GREAT BRITAIN

BY R. & R. CLARK, LIMITED, EDINBURGH

PREFACE

THE object of this little book is to sketch lightly some of the facts and phenomena which lie between school-boy history and the politics of the man. Modern life is so complicated, and the development of the last two hundred years has proceeded so rapidly, that those who have not specialised in history find it difficult to connect what they have learnt in their youth with the problems upon which they are called to express an opinion in manhood's days. The historian, confining himself to documentary evidence and, in general, limiting his view to times so far remote that his interpretations may be free from suspicion of prejudice or party feeling, endeavours to draw a picture of things as they were, without reference to things as they are or may be. It is an inevitable result of his method that he should, as a rule, stop short of the problems which belong to his own age. And it is equally inevitable in periods of rapid social, economic, and political change, that the predominant features of one epoch should fade speedily and be replaced by others, quite different, in the next. Successive movements rise to maturity, and die away, to be followed by events which could hardly have been foreseen a quarter of a century before.

In no case is this so true as in the industrial history of the last two centuries, and it would be wrong to charge

historians with failing to observe and to record either the character or the importance of the changes which have occurred. But while ample details have been given of the earlier portion, even in elementary books, the striking developments of the later years have only been described in large monographs or in blue-books which the layman has no leisure or no inclination to read. And yet, for the practical purposes of life, this knowledge is clearly a condition precedent to the formation of a sound political judgment. In a word, there seemed to be a need for a book connecting more closely the dead past with the living present; so this little volume is offered as a supplement to the smaller, and as an introduction to the larger histories which trace the growth of our national industry and commerce.

The supplementary character of the book will be apparent from its contents. Emphasis is laid upon the scientific basis of industry, not because it was a conscious feature in the earlier stages of human effort, but because it is a dominant fact to-day. The same principle of selection justifies a mere outline, in the first three chapters, of the economic and social fabric before 1700. From that date the development of certain important groups of industry and certain lines of political activity are traced in a series of parallel chapters. Thus, a brief historical account is given of Agriculture, Textile Industries, Fuel and its Applications, and the Union of Science and Practice, for the purpose of illustrating how scientific discovery and mechanical invention have increased the productive capacity of the individual workman, and have altered and are altering the technical character of industrial control. These are followed by chapters on Transport and Communication, and Banking and the Credit System, which have facilitated

so considerably the growth of trade. From a consideration of technical achievement the book passes to a short account of Combinations of Capital, The Conflicts of Capital and Labour, Co-operation, and Municipal Ownership, as illustrations of modern business management and its problems. The Extension of the Franchise, The Change in the Function of Government, The State and the Factory, The Growth of Economic Thought, and the provision of Education complete the survey.

It is obvious that a book covering so wide a field can be no more than a framework, and the author has endeavoured to keep this fact in view throughout. It purports to give the chief historical landmarks in the evolution of modern problems of industry and politics, rather than a picture corresponding in its entirety to any other period; and the author hopes that this historical continuity will compensate for lack of historical unity which other writers have endeavoured, rightly and not unsuccessfully, to attain. He is under considerable obligations to the works mentioned in the appendix; he has been at some pains to check his facts; he has endeavoured to be fair and moderate in such inferences as it has seemed necessary to draw; and he presents the book as a small contribution to the efforts which are now being made to create a well-informed electorate, competent to maintain the great traditions committed to its care.

E. C.

November 1915.

BY EDWARD CRESSY

Crown 8vo. 4s.

A Brief Sketch of Social and Industrial History

WITH ILLUSTRATIONS

JOURNAL OF EDUCATION.—"Excellent book . . . It is eminently fitted to serve as a first sketch of the subject for pupils in elementary, secondary, or continuation schools."

SCHOOLMASTER.—"The book is ably and fully illustrated throughout, and should prove a most useful ally to teachers of older pupils, as well as an interesting reader to all who wish to know the various causes leading up to present conditions in social and industrial England."

SECONDARY EDUCATION.—"An admirable book written in Mr. Cressy's best style. . . . The book meets a real want of the times."

TEACHER'S WORLD.—"We recommend it confidently to the notice of teachers in continuation and central schools, believing they will find it a valuable help."

EDUCATIONAL TIMES.—"The book should serve its purpose well."

LONDON: MACMILLAN AND CO., LTD.

A Selection of Books on Kindred Subjects.

THE CHILDHOOD OF THE WORLD. A Simple Account of Man's Origin and Early History. By EDWARD CLODD. Crown 8vo. 4s. 6d. net.

THE PAST AT OUR DOORS : or the Old in the New Around Us. By W. W. SKEAT, M.A. Illustrated. Globe 8vo. 2s. 6d.

ANTHROPOLOGY. An Introduction to the Study of Man and Civilisation. By Sir E. B. TYLOR, D.C.L., F.R.S. Crown 8vo. 8s. 6d.

THE COAL QUESTION. An Inquiry concerning the Progress of the Nation and the Probable Exhaustion of our Coal Mines. By W. S. JEVONS, F.R.S. Third Edition. Edited and revised by Prof. A. W. FLUX, M.A. 8vo. 6s. net.

OUTLINES OF RAILWAY ECONOMICS. By DOUGLAS KNOOP, M.A. Crown 8vo. 5s. net.

THE EVOLUTION OF MODERN MONEY. By WILLIAM W. CARLILE. Extra Crown 8vo. 7s. 6d. net.

EVOLUTION OF INDUSTRIAL SOCIETY. By RICHARD T. ELY, Ph.D. Crown 8vo. 10s. net.

WAGES AND LABOUR COSTS. A Statement of the Economic Laws and Theory of Wages. By EDMUND DANE, LL.B. Crown 8vo. 4s. 6d. net.

LONDON: MACMILLAN AND CO., LTD.

A Selection of Books on Kindred Subjects.

INDUSTRY AND POLITICS. By the Right Hon.
Sir ALFRED MOND, LL.D., M.P. (Lord Melchett). 8vo.
12s. 6d. net.

**PROFIT SHARING BETWEEN EMPLOYER AND
EMPLOYEE.** By N. P. GILMAN. Crown 8vo. 13s. net.

**MONOPOLIES, CARTELS AND TRUSTS IN
BRITISH INDUSTRY.** By Prof. HERMANN LEVY, Ph.D.
8vo. 14s. net.

WORK AND WEALTH. A Human Valuation. By
J. A. HOBSON. 8vo. 12s. 6d. net.

THE STATE IN RELATION TO LABOUR. By
W. STANLEY JEVONS. Fourth Edition. Edited by FRANCIS
W. HIRST. Crown 8vo. 2s. 6d. net.

**PRINCIPLES AND METHODS OF MUNICIPAL
TRADING.** By DOUGLAS KNOOP, M.A. 8vo. 10s. net.

THE GOVERNMENT OF ENGLAND. By Prof. A.
LAWRENCE LOWELL. 2 vols. 8vo. 24s. net.

**INTRODUCTION TO THE STUDY OF THE LAW
OF THE CONSTITUTION.** By A. V. DICEY, D.C.L. 8vo.
12s. 6d. net.

A HISTORY OF THE BRITISH CONSTITUTION
By the Rev. J. HOWARD B. MASTERMAN. Crown 8vo. 3s. 6d.

LONDON: MACMILLAN AND CO., LTD.

A Selection of Books on Kindred Subjects.

DEMOCRACY AND THE ORGANIZATION OF POLITICAL PARTIES. By M. OSTROGORSKI. Translated from the French by FREDERICK CLARKE, M.A. Two vols. 8vo. 25s. net.

AN INTRODUCTION TO THE STUDY OF PRICES WITH SPECIAL REFERENCE TO THE HISTORY OF THE NINETEENTH CENTURY. By WALTER T. LAYTON, M.A. Crown 8vo. 7s. 6d. net.

INDUSTRY AND TRADE. A Study of Industrial Technique and Business Organization: and of their Influences on the Conditions of various Classes and Nations. By ALFRED MARSHALL. 8vo. 18s. net.

MONEY, CREDIT AND COMMERCE. By ALFRED MARSHALL. 8vo. 10s. net.

ELEMENTS OF ECONOMICS OF INDUSTRY. Being the first volume of "Elements of Economics." By ALFRED MARSHALL. Crown 8vo. 4s. 6d.

ECONOMICS. An Introduction for the General Reader. By Prof. HENRY CLAY, M.A., M.Com. Crown 8vo. 4s. 6d. net.

THE STATE IN ITS RELATION TO EDUCATION. By Sir HENRY CRAIK, K.C.B. Crown 8vo. 2s. 6d. net.

THE EVOLUTION OF EDUCATIONAL THEORY. By Prof. JOHN ADAMS, LL.D. 8vo. 12s. 6d. net.

TEXT-BOOK IN THE HISTORY OF EDUCATION. By PAUL MONROE, Ph.D. Extra Crown 8vo. 15s. net.

A BRIEF COURSE IN THE HISTORY OF EDUCATION. By PAUL MONROE, Ph.D. Extra Crown 8vo. 10s.

LONDON: MACMILLAN AND CO., LTD.

CONTENTS

PART I

PRIMITIVE MAN AND ANCIENT CIVILISATION

CHAPTER I

THE CRADLE OF INDUSTRY	PAGE 3
----------------------------------	-----------

PART II

THE TRANSITION FROM ANCIENT TO MODERN CIVILISATION

CHAPTER II

THE MIDDLE AGES.	19
--------------------------	----

CHAPTER III

THE RENAISSANCE AND THE PERIOD OF EXPANSION	34
---	----

PART III

THE MODERN PERIOD

A. SCIENTIFIC AND TECHNICAL PROGRESS SINCE 1700

CHAPTER IV

FOOD AND FARMING	57
----------------------------	----

1. The Eighteenth - Century Revival. 2. The Corn
Laws and Scientific Agriculture. 3. The Meat Problem.
4. Agriculture since 1875.

xii AN OUTLINE OF INDUSTRIAL HISTORY

CHAPTER V

	PAGE
THE TEXTILE INDUSTRIES	85
1. Cotton. 2. Other Textiles — (a) Wool; (b) Silk; (c) Linen; (d) Jute; (e) Hosiery; (f) Lace.	

CHAPTER VI

FUEL AND ITS APPLICATIONS.	111
1. Iron and Steel Manufacture. 2. Mechanical Power. 3. Coal Mining.	

CHAPTER VII

THE UNION OF SCIENCE AND PRACTICE	156
1. The Period of Mechanical Invention. 2. The Birth of Applied Science. 3. Applied Chemistry and Applied Electricity. 4. Scientific Features of Modern Industry.	

B. FACILITIES FOR COMMERCIAL DEVELOPMENT

CHAPTER VIII

TRANSPORT AND COMMUNICATION	185
1. Roads. 2. Canals. 3. Railways. 4. Ships and Shipping. 5. The Transmission of Writing and Speech.	

CHAPTER IX

BANKING AND THE CREDIT SYSTEM	232
---	-----

C. THE EVOLUTION OF INDUSTRIAL MANAGEMENT

CHAPTER X

COMBINATIONS OF CAPITAL	240
-----------------------------------	-----

CONTENTS

xiii

CHAPTER XI

	PAGE
THE CONFLICT OF CAPITAL AND LABOUR	246

CHAPTER XII

CO-OPERATION, CO-PARTNERSHIP, AND PROFIT-SHARING	265
--	-----

CHAPTER XIII

MUNICIPAL OWNERSHIP	270
-------------------------------	-----

D. INDUSTRY AND POLITICS

CHAPTER XIV

THE EXTENSION OF THE FRANCHISE	277
--	-----

CHAPTER XV

THE CHANGE IN THE FUNCTION OF GOVERNMENT	286
--	-----

CHAPTER XVI

THE STATE AND THE FACTORY	298
-------------------------------------	-----

CHAPTER XVII

THE GROWTH OF ECONOMIC THOUGHT	314
--	-----

CHAPTER XVIII

NATIONAL EDUCATION	327
------------------------------	-----

xiv AN OUTLINE OF INDUSTRIAL HISTORY

CHAPTER XIX

	PAGE
CONCLUSION	352
APPENDIX—LIST OF BOOKS FOR FURTHER READING . .	357
INDEX	361

PART I
PRIMITIVE MAN AND ANCIENT
CIVILISATION

CHAPTER I

THE CRADLE OF INDUSTRY

THE fundamental occupations of the human race arise out of the primary instincts, and their origin lies far away in the distant and shadowy past. Before history begins, in the vast dimness where the anthropologist gropes, primitive man acquired experience and developed that power of storing it up for future use, which distinguishes sharply the *genus homo* from all other branches of the animal kingdom. At first he fought for fruits and roots, and waged war upon those who would take them from him; the lust of conflict probably made him a meat-eater; and he stalked his enemy for food. The erect posture enabled a weapon to be used, and left his hands free to do what his brain suggested. Out of the weapon grew the tool, and ignition of the dust from the sharpened stick or sparks from the chipped flint added the production of fire to his accomplishments, forming the one bridge across which no animal has ever passed. Tools of a sort they may use, and some skill in architecture is not unknown; but fire is the unique possession of man, and in its genial warmth the seeds of civilisation grew and flourished.

From the need for food sprang the first attempts at organised labour. The results of hunting and fishing were

irregular and uncertain, while bodily comfort, no less than bodily effort, demanded regular and adequate nourishment. Flocks and herds were collected, fed, watered, and protected against the beasts who desired to share the owner's food. At a later stage food-bearing plants were encouraged by uprooting too vigorous neighbours, and still later cultivated in cleared ground. Under man's protection and fostering care flocks and herds and corn increased and multiplied, so that the labour of preparing food no longer took up the whole of his time, nor monopolised his thoughts. And it was in these hours of leisure that new tools were devised, new enterprises were planned, social systems shaped themselves, and the seeds of political theory and political practice were sown.

The gregarious instinct which draws men into groups must have been in operation at a very early period, but the nature and rate of progress was largely determined by geographical conditions. In the tropical forest the hunter remained a hunter, approximating to the beasts amid which he lived. In the park-lands which fringed the temperate forest a pastoral life predominated. But where men settled in the fertile river-valleys there seems to have been more incentive to effort and more stimulus to progress. The practical arts which contributed to comfort and reduced toil varied with available minerals, and with the fauna and flora of the district. Save that the Stone Age preceded the Age of Metals there was apparently no universal order of development, and as copper and tin ores were only present in some places, and iron ores only were present in others, the use of bronze was probably contemporaneous with that of iron.

The beginning of land transport most likely arose among pastoral people who lived near enough to the