

**COLLINS' ELEMENTARY
SCIENCE
SERIES: PRINCIPLES OF
COAL MINING**

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Collins' Elementary Science Series: Principles of Coal Mining by J. H. Collins

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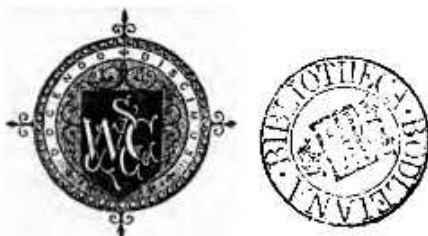
PRINCIPLES
OF
COAL MINING.

BY

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AUTHOR OF A "HANDBOOK TO THE MINERALOGY OF CORNWALL AND DEVON."
"A FIRST BOOK OF MINERALOGY," "PRINCIPLES OF METAL MINING," ETC.
HONORARY SECRETARY TO THE MINERS' ASSOCIATION OF CORNWALL AND DEVON.

With 139 Illustrations.



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PREFACE

IN preparing this work I have supplemented my own observations in the colliery districts of Staffordshire, Somersetshire, and South Wales, by making free use of the information contained in Mr. W. W. Smyth's excellent *Coal and Coal Mining*, Mr. Greenwood's *Mine Engineering*, and Professor Hull's *Coal-fields of Great Britain and Ireland*. To these authors, and to various writers in the "Proceedings of the South Wales Institute of Engineers," those of the "Institution of Mechanical Engineers," and some others, as well as to sundry friends, for information privately supplied, I hereby acknowledge my indebtedness, and offer to them the thanks to which they are fully entitled.

The unusually large number of illustrations will render the book useful to the youngest students of mining, for whom the book is primarily intended. Should more advanced students notice any errors or omissions, important or unimportant, I shall be glad to be apprised of them.

J. H. C.

TRURO, November, 1875.

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PRINCIPLES OF COAL MINING.

CHAPTER I.

INTRODUCTION.

1. **Coal Mining**, the youngest and at the same time the most important branch of the mining art, at least so far as the United Kingdom is concerned, differs from metal mining, and especially from vein-mining, in many important particulars; and it is the object of this treatise to aid the young coal miner in his daily labours, by putting before him the results of experience in many different localities.

2. **Annual Production**.—The importance of this branch of mining is well shown in Mr. Hunt's official returns of coal and ore production in the United Kingdom, from which it appears that in 1873 no fewer than 127 millions of tons of coal were raised, of an estimated value of £47,631,280, or an average of nearly 7s. 6d. per ton at the pit's mouth. During the same period the metallic ores produced amounted to less than 17 millions of tons, of an estimated average value as sold of £10,288,413, or about 12s. 10d. per ton.

3. **Comparative Bulk**.—This difference in the value of the minerals appears more striking if we compare the relative *bulk* of the materials for equal weights or values. Taking the coal to weigh about one ton for each cubic yard, which is pretty near the truth, the ores will, on an