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by

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PLATES

Between pages 96 and 97

- iA A German double-acting column-of-water engine fitted with Watt's parallel motion
- iB Richard Trevithick's double-acting column-of-water engine as installed at the Wheal Druid mine, Cornwall
- 2 Strutt's Mill at Belper
- 3 Diagram of a double-acting column-of-water engine
- 4 Column-of-water engine at a mine in Schemnitz (Banska Stiavnica, Slovakia)

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- 5 Men in possession

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PREFACE

This collection of essays had its origin in a series of public lectures which I was asked to arrange by the History and Philosophy of Science Committee at Cambridge – the inter-faculty body which bears responsibility for determining the academic programme in this subject. The lectures were delivered during the Michaelmas Term 1968. As a ‘lay’ member of the committee, representing the History Faculty, it was thought appropriate that the theme for the lectures should be ‘science and society’; a series of explorations of major issues where science had interacted with economic, social and intellectual sequences in the development of Western society. Thus, historians who are concerned with the evolution of science primarily from a range of interests and relationships beyond that of science itself are contributors to this volume with historians of science themselves. This reflects a significant increase in interest in the history of science from a diversity of historical viewpoints – here mainly by economic historians interested in different links between science and technical change in economic development, but this is one facet of a much wider and more diversified concern. Science as an intellectual and practical activity has impacted upon so many different aspects of human development – intellectual and philosophical, economic and social, cultural, demographic, etc. – that these ‘external’ relationships and interactions form a crucially important area of research for the history of science itself. The new commitment of the Wellcome Foundation in the ‘social history of medicine’ is a recognition of this trend.

Most studies in the history of science, particularly ‘subject’ studies covering the development of individual sciences, have been ‘internal’ in their scope and objectives, plotting progress within the different branches of science as the frontiers of knowledge about formal scientific relationships get pushed back by intellectual advance. The history of science is thus seen primarily as a record of progressive intellectual discovery at the hands of individual genius. The ‘external’ relations of

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science, investigations into the impact of scientific knowledge within its wider historical context (and the impact of that context, both material and intellectual, upon the development of science) has received much less attention. It is a field where co-operation between historians of science and other historians will yield great benefits to both parties, even if, as is likely, conflicts of interpretation prove to be very much greater than with the 'internal' history of science. Such conflicts will yield much greater intellectual sophistication to their participants – to historians of science whose technical expertise has sometimes flourished at the expense of a more general historical naïveté and to other historians whose theorising has often been much facilitated by their ignorance of scientific and technological knowledge.

The 'internal' history of science, in its simpler manifestations, has also tended to emphasise the logical coherence of intellectual structure and the steady accretion of knowledge (if not a progressive revelation towards a latter-day absolute truth) over time. Such Whiggish, historicist tendencies in the historiography of science will be made more difficult to sustain as the growth of science is analysed within its historical context, philosophical no less than material. But in history, a disappointingly inexact discipline if intellectual activities be judged according to their amenability to general statements, truth is often bought at the cost of methodological simplicity.

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January 1972