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THE ECONOMIC HISTORY OF THE BRITISH IRON AND STEEL INDUSTRY, 1784–1879. *By Alan Birch. New York, Augustus M. Kelley, 1968. Pp. xv + 397. $17.50.*

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This book attempts to fill the temporal gap between Ashton's *Iron and Steel in the Industrial Revolution* (before 1825) and Burn's *An Economic History of Steelmaking* (after 1870). Its weaknesses are attributable partly to a faltering imitation of the scholarly tradition established by Ashton and Burn and partly to the flaws of the tradition itself.

The book is badly written. It has in profusion the usual vices of academic prose: jargon, pedantic detail, habitual use of the passive voice, and inversion of normal sentence structure. The style runs out of control, as in this apologia from the preface: "The traditional picture of the scholar pursuing a line of enquiry arising purely out of his own disinterested interests persists. Nevertheless, one's own academic interests are influenced in some degree by the kind of problems which are being talked about around one. Often the kind of book one would like to write is that very book which would definitively work out the implications of approaches to the subject which are being currently talked about around one."

A disorganization of the substance parallels the disorganization of the prose. The book has no unity of vantage point, shifting abruptly from the iron market in Scotland to the accounts of a firm in Wales. Nor does it have unity of method. It both slights and misuses literary evidence, economic theory, and statistics. Nor does it have unity of purpose. The book has no argument, question, or theme. Nor does it have the historian's standby, unity of temporal sequence. Nor even does it have the last resort of a weak historical imagination, unity of source. There is a revealing admission in the preamble to a history of five ironworks: "Since they have been based on the business records available there is naturally a difference in the emphasis given to the several aspects of industrial development." The sources dominate the book rather than the other way around. The book mixes uncritical reporting of primary sources (the worst example is a pointless three page quotation on pp. 83–86) with uncritical reporting of secondary sources (Chapter I is a compilation of Ruttan, Habakkuk, Erickson, Flinn, and Campbell; Chapter II is Hildebrand; Chapter IV is Mott, Campbell, Crouzet; and so on).

The best chapter in the book is Chapter VI, "The Ironmasters' Associations in the Early Nineteenth Century," because it has an interrogatory focus: was there collusion in the industry? The argument is crippled, however, by economic naïveté. It accepts the ironmasters' position that combinations, because they brought stability to the industry, were a good thing. And it does not ask or answer the question of how effective the combinations were.

The book, indeed, is a vivid example of the obstacles to writing economic history without economics. It is hardly the author's fault that he stumbles on the obstacles, for many fine scholars in this tradition of economic history have done the same. The chief obstacle is that without the guide of economic theory historical explanations can become aggregations of trivialities even though there exist more general and concise explanations. In explaining the founding of the Haigh Ironworks, for example, the book states, after some irrelevant biographical detail, that the Earl of Balcarres, "finally incapacitated from further military service on account of a lame leg, . . . was forced by economic necessity to recognize the need for 'the improvement of his property,' as the official history of the family succinctly puts it." The difficulty with lame-leg explanations of industrial history is their lack of generality. It is not false to say that John's engine block cracked on a cold night because his car was parked in front of his house, but neither is it false to say that it cracked because the night was cold; and this explanation has the virtue that it applies to other cars besides John's. Economic theory provides such generally applicable categories for explaining the growth of an industry, namely, the supply of and demand for the industry's products and its resources.

The theory, of course, need not be economic. If one wishes to approach industrial history through the history of one firm or one type of economic factor, then sociological theories or organizations or the behavior of people in roles might be more appropriate. The tradition of economic history of which this book is a representative, however, passes lightly over the insights of the social sciences. Its theory is makeshift economics, the economics of the man in the street, and it appears frequently in this book. Economies of large scale are realized over decades, speculators determine price fluctuations over many months, excess capacity exists whenever the entire plant is not in use, shortages of one resource exist although all resources are scarce: these are all examples in this book of makeshift economics. The difficulty with it is that it is at best unenlightening and at worst wrong.

One concrete example, however, will make the point better than a dozen methodological manifestoes. This book is filled with numbers, but their interpretation displays the weakness of makeshift economics. On page 230, for example, the halving of merchant bar prices from the end of the Napoleonic wars to the middle of the century is interpreted as a measure of "the extent of those economies made by improved production." The extent of those economies is an extremely important issue. On it rests the evaluation of technological changes in the industry (especially the hot blast) and the relative weighting of demand and supply factors in explaining the growth of output.

A little theory goes a very long way here, for the mere realization that the prices of the resources used partly determine the price of the output suggests a fruitful look at the price of the most important input, coal. The price per ton of best coals at the ships side in London, subtracting duties, also fell between the end of the Napoleonic wars and the middle of the century (see B. Mitchell, *Abstract of British Historical Statistics*, Cambridge, 1962, 482. I am aware of the difficulties in using this figure). It fell so far, in fact, that the ratio of the price of coal to that of bar iron rose only about 12 per cent between the years 1814–1823 and 1844–1849. In physical terms, the amount of bar iron obtained from a ton of coal rose only 12 per cent rather than, as the book's interpretation implies, 100 per cent. The historical point that this simple application of arithmetic and economic theory suggests is that the hot blast was of little importance to the changes of the industry's supply conditions. In other words, productivity change was small in the iron industry.

The fruits of new methods were modest in the early nineteenth century iron industry, but they can be great in economic history itself. This book's antique technology, the tool of a long and valuable tradition in economic history, needs renovation.