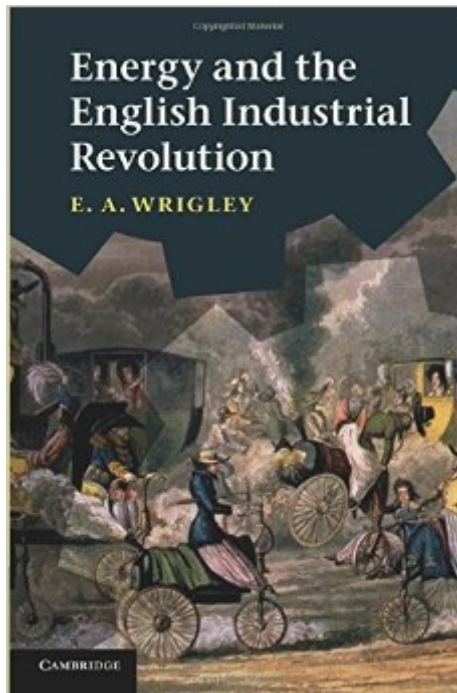


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# Energy And The English Industrial Revolution



## Synopsis

The industrial revolution transformed the productive power of societies. It did so by vastly increasing the individual productivity, thus delivering whole populations from poverty. In this new account by one of the world's acknowledged authorities the central issue is not simply how the revolution began but still more why it did not quickly end. The answer lay in the use of a new source of energy. Pre-industrial societies had access only to very limited energy supplies. As long as mechanical energy came principally from human or animal muscle and heat energy from wood, the maximum attainable level of productivity was bound to be low. Exploitation of a new source of energy in the form of coal provided an escape route from the constraints of an organic economy but also brought novel dangers. Since this happened first in England, its experience has a special fascination, though other countries rapidly followed suit.

## Book Information

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## Customer Reviews

Apparently written to bring his work and thought before a broad public, this book is a concise and interesting summary of a large body of work and thought from this distinguished economic and demographic historian. The use of coal in industrializing Britain is core of this book. The importance of coal use in the Industrial Revolution is known well and has been commented upon by virtually every historian or economist who has dealt with this topic. Wrigley has a novel and interesting view of this crucial phenomenon. Wrigley contrasts the limited growth potential of an "organic" economy where productivity will be eventually constrained by negative feedbacks due to the limited resource

of wood as an energy source with an "inorganic" economy where this energy bottleneck is absent. In contrast to many other scholars who have focused on how the Industrial Revolution started, Wrigley examines why it didn't sputter out. Wrigley covers a number of interesting aspects of this concept. He points out the significant growth potential of pre-industrial, "Smithian", capitalist growth and discusses interesting ways in which this occurred in England. There are nice discussions of improvements in agricultural productivity, urbanization, the velocity and volume of trade, and rising consumer demand. All of these interacted in interesting ways to enhance economic growth. But, negative feedbacks due to limited land and limited wood production would eventually have curtailed many of the processes. The employment of coal, both for domestic heating and industrial production, prevented these negative feedbacks from operating. His counter-example is the 17th century Netherlands, where considerable economic modernization occurred but ultimately stagnated.

Mr. Wrigley has written a very impressive book on the English industrial revolution. Actually this book is a trailblazer for economic history and the importance of energy and energy development in economic growth. Mr. Wrigley begins with the concept of an organic economy. In the organic economy land is the source of all food, natural resources, and energy. Quoting Mr. Wrigley "All industrial production depended vegetable or animal raw materials. This is self-evidently true of industries such as woollen textile production or shoemaking but is also true of iron smelting or pottery manufacturing, although their raw materials were mineral, since production was possible by making use of a source of heat and this came from burning wood or charcoal. Thus the production horizon for all organic economies was set by the annual cycle of plant growth." The amount of energy absorbed by plants from the sun from photosynthesis set the ceiling for productive capacity. Thus economic production was limited. Most people lived in squalor and poverty without luxuries or much medical care. When populations grew living standards fell due to the production constraint. Then malnutrition and disease reduced population to a supportable level. The English industrial revolution, by developing the coal industry, and obtaining greater and greater quantities of energy from coal broke free from the constraint of plant growth and escaped the organic economy. From greater quantities of energy it was possible to build better transportation, develop new industries, and provide better lives for the populace. Low cost and available coal energy made possible the steam engine, the railroad, and many other labor saving innovations.

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