
While few scholars write definitive books that will stand the test of time, it is hard to believe that any future writer can substantially alter or add to what Louis Hunter has said about direct-drive waterpower. The treatment of hydroelectric power is briefer and the terminal date of 1930 comes before a large expansion of this energy source. For hundreds of years the design of waterwheels changed very little, partly because the demand for mechanical power remained much the same. Then starting in the late eighteenth century the rise of industrial mechanization and need for buildings to house expanding populations turned the attention of mechanics to improving wheels. Hunter presents detailed descriptions, with diagrams and extensive footnotes of each new type of waterwheel during the ensuing years of rapid change that culminated about 1850 in the water turbine. At mid-century water was still the chief source of power in the United States, and it was concentrated in the northeastern states from Maryland to Maine. This energy was far more abundant than water power in all of Britain, or any single area of Continental Europe. While waterwheels were more expensive than steam engines to install, they produced power at only a fraction of the cost.

The account of the various inventors or mechanics who developed the water turbine in America and France is particularly interesting as a contrast in cultures. In France Benoit Fourneyron and others were educated engineers or scientists who presented their ideas in learned papers, while their contemporaries in the United States, such as Zebulon Parker or Samuel B. Howd, were master mechanics who exhibited their products rather than explained the underlying theories. As a result, earlier historians recorded the published ideas of the French rather than the practical achievements of the Americans. It took the latter, however, to adapt turbines to the large-scale needs of mills such as those at Lowell.

In one respect the book may unintentionally mislead the less informed reader. It is not sufficiently emphasized that this is a history of water power not of industry. Chapter 5, for example, is called "The First Industrial Cities," when it is really about cities built around
water power sites. The nationwide survey of the advances of water power gives an impression of scattered industry that obscures the fact of concentration of the most dynamic developments in industrial technology in major metropolitan areas along the East Coast. The advances that were to create the modern industrial nation — iron machinery, steam engines, and railroad equipment — were concentrated in the Baltimore to New York area with Philadelphia the chief early center. These cities, however, were also centers of finance and trade, so they lacked the high percentages of factory workers that appeared in the mill towns, particularly those specialized in the labor-intensive textile industry.

These matters of emphasis will no doubt be altered in Hunter's subsequent volumes on other sources of power, and for the knowledgeable they only produce argument over definitions. For what it aims to cover, this book, like Hunter's earlier Steamboats on the Western Rivers, should never be superseded.

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