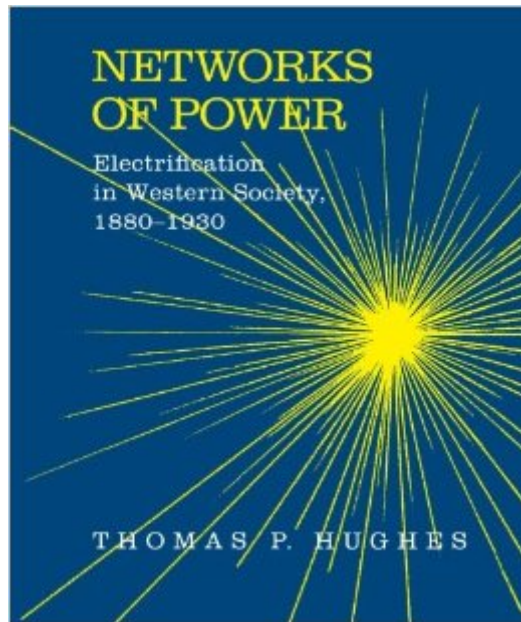


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Networks Of Power: Electrification In Western Society, 1880-1930 (Softshell Books)



Synopsis

Awarded the Dexter Prize by the Society for the History of Technology, this book offers a comparative history of the evolution of modern electric power systems. It described large-scale technological change and demonstrates that technology cannot be understood unless placed in a cultural context.

Book Information

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Customer Reviews

Thomas Hughes is professor emeritus at the University of Pennsylvania, and has been the Distinguished Visiting Professor at the Massachusetts Institute of Technology, Stanford University, and the Royal Institute of Technology (Stockholm). He is a member of the Royal Swedish Academy of Engineering Sciences, a Fellow of the American Academy of Arts and Sciences, and a member of Phi Beta Kappa. In 1985 he was awarded the Leonardo da Vinci Medal of the Society for the History of Technology for Networks of Power. In addition to Networks of Power, he has also published *Rescuing Prometheus* (1998) and *Elmer Sperry: Inventor and Engineer* (1993). With Agatha Hughes he edited *Lewis Mumford: Public Intellectual* (1990). Dr. Hughes completed his graduate work in European history at the University of Virginia. In *Networks of Power: Electrification of Western Society, 1880-1930*, Thomas Hughes outlines his seminal theory of "Complex Systems." Hughes argues that "the most impressive patterns imposed on the world by men impelled by the force of constructive instincts [are] systems, coherent structures comprised of interacting,

interconnected components." Hughes thoroughly investigates the development of electrical supply systems; in doing so, he exposes the "ordering, integrating, coordinating, and systematizing nature of modern human societies." In exposing these social and cultural influences, Hughes nails shut the coffin that is technological determinism. Several elements are key to Hughes' theory. Hughes introduces "reverse salients," "technological style," and "momentum." A reverse salient is a problem that defies solution, while other (possibly related) problems in the system advance; the reverse salient is more descriptive than its technological equivalent-bottleneck.

Electrical power is one of the key components, along with chemicals, steel and petroleum, of the second industrial revolution. Hughes focuses on complex electrical supply networks and the impact of society, or culture, on shaping technology. The title of his book is brilliant in its dual imagery of large electrical distribution systems and the social, economic, and political interplay necessary to create them. Hughes begins by describing an element of Thomas Edison's inventive genius not commonly recognized by historians. Edison not only invented marvelous machines, he also invented what may be his most significant contribution, the electrical power system. Edison, an inventor-entrepreneur, saw that it was not enough to only have electric lighting. Electricity must be made widely available. He built the first network capable of distributing electrical power to the public. Generating power at the Pearl Street station, Edison introduced the concept of a central-station supply system electrifying a square mile area in New York City. Hughes' model shows how electrical systems developed in general and then, expanding on his theme, he discusses regional variations in Berlin, London, and Chicago. The model begins with 1, an invention and its development at one site, then, 2, the technology transfers and expands into a larger system, which, 3, grows despite "reverse salients." A "reverse salient" is a problem of uneven systems growth which threatens the entire system. An example is the uneconomic transmission of direct current over long distances which was eventually solved by the use of alternating current. (A "reverse salient," however, does not have to be technical in nature.

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