

approach to the study of the HR function and its impact on the new employment relationship than the one used in *The Embedded Corporation*—precisely the perspective on industrial relations that Kochan (1980) proposed twenty-five years ago. Such a comprehensive theoretical and empirical approach still holds great promise for understanding the dynamics behind these varieties of capitalism and for explaining current corporate and government decisions determining the future of industrial societies. This is also crucial for predicting the consequences of such decisions on the prosperity of employers and employees.

Emilio J. Castilla

Management Department
The Wharton School
University of Pennsylvania
Philadelphia, PA 19104-6370

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The Development of Social Network Analysis: A Study in the Sociology of Science.

Linton C. Freeman. Vancouver: Empirical Press, 2004. 208 pp. \$15.99 (available as an Ebook, \$7.99, from www.booksurge.com).

There is plenty of evidence to suggest that social network analysis is a flourishing enterprise. Social network analysts have their own international organization, the International Network for Social Network Analysis (INSNA), which sponsors journals and organizes annual meetings for its burgeoning membership; the field has seen a steady accumulation of standard texts and software programs; there is a growing number of academic centers for network training and research; and the publication of social network articles has become almost routine across a range of elite scientific journals. These signs of vitality and respectability have given rise, naturally enough, to questions about the field's origins, its development, and the reasons for its apparent success. There are some fragmentary notes in circulation that speak to these questions, but to date there has been no comprehensive account of the origins and development of social network analysis. Nor, apparently, was it Linton Freeman's intent in this book to provide us with one.

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Freeman explains that his goal was not so much to delineate the intellectual history of social network analysis as to explore the field from the perspective of the sociology of science. Happily, the book manages to do both. Convinced that the “patterning of links among the people involved in the development of the field—its social network—is a key to understanding how the field emerged,” Freeman, in this engaging and unusual book, has given us “a history of social network analysis written from a social network perspective” (p. 9).

The course of the research paradigm that Freeman sets out to analyze is meandering and full of twists and turns. The narrative structure he adopts in making sense of this history is decidedly more linear. It starts with the pre-history of the field and brings us, chapter by chapter, up to the present. What the book may lack in compositional flair, however, it more than makes up for in clear prose and rich detail. Using a rare combination of personal interviews, published biographical material, photographs, and social network data, Freeman recounts the story of a research adventure spanning two centuries, three continents, at least seventeen different institutional centers, and brimming with dozens of intriguing characters. Along the way, he confronts, head-on, the messy but unavoidable task of tracing continuities and discontinuities in a long and complex chain of ideas that stretches from early “structural intuitions” to what is today, according to Freeman, a coherent and generalized research paradigm organized around four core features: a focus on the ties that link individuals rather than on attributes of the individuals themselves; a reliance on systematic empirical data; the heavy use of graphic imagery; and the use of mathematical and/or computational models.

Freeman divides the history of the social network paradigm into four distinct periods. The first, which lasted from the mid-nineteenth century to the 1920s, he labels “pre-history.” Freeman starts the story of social network analysis with none other than Auguste Comte, the first scholar he could find “that proposed a way of looking at society in terms of interconnections among social actors” (p. 14). But Freeman is careful not to make the mistake of suggesting that Comte was alone in forging the structuralist perspective. Georg Simmel, Pierre Huber, Lewis Morgan, John Almack, Elizabeth Hagman, John Hobson, Alexander MacFarlane, Sir Francis Galton, and the Reverend Henry Watson are only some of the others in the long list of names he credits with anticipating one or more of the core elements of the network paradigm. With the exception of Simmel, most of these people have not been previously acknowledged as intellectual ancestors by the network community. And there are, of course, other names yet that could have been mentioned but were not, such as, Leonhard Euler, the Swiss-born mathematician who came up with directed graphs almost sixty years before Comte was born. Why so many of the intellectual ancestors of social network analysis have gone unheralded in the network literature is a question that this book raises but leaves for others to answer. What the book does make clear is that it is one thing to anticipate an idea and quite another to

launch a paradigm. As Alfred North Whitehead observed, "Everything of importance has been said before by somebody who did not discover it."

Having traced the pre-history of the network approach, Freeman fast-forwards to the 1930s, the period when social network analysis was born, not once, but twice (you'll have to read the book for more on this simultaneous birth). A major force behind the full-fledged emergence of network analysis was Jacob Levy Moreno, a psychiatrist who immigrated to America from Vienna in 1925. Five years later, the "wildly creative" Moreno (p. 31)—with significant help from Helen Jennings, who was then a graduate student studying psychology at Columbia—had published two books on network analysis and had launched the journal *Sociometry*. Social network analysis had the attention of some of the most prominent psychologists and sociologists of the time (e.g., Kurt Lewin, Paul Lazarsfeld, Gordon Allport). Yet, somehow, the paradigm failed to take off. Why? The answer, according to Freeman, is to be found in the "dark side . . . of Moreno's character." It was Moreno's "bombastic personality and his megalomania [that] drove most of his early supporters away. These features of Moreno's persona were too much for the academic community to bear . . . people simply backed off from Moreno the man and in so doing they refused to recognize the importance and generality of Moreno's approach" (p. 42). Freeman finds it "remarkable that it took a psychiatrist, Moreno, and a psychologist, Jennings, to reintroduce a perspective that was distinctly structural" (p. 36). I find it equally remarkable that Freeman, in his structural analysis of the field, has to fall back on the tools of the psychologist to make sense of why the social network paradigm failed to take off despite a highly favorable social context. His paradigmatic allegiance notwithstanding, Freeman seems to appreciate that to analyze the development of a paradigm, one must not only unravel the changing community structure of its practitioners but also "the features of individual personality and biography that differentiate [its] members" (Kuhn, 1970: 185).

The period stretching from the 1940s up to the 1960s Freeman dubs the "Dark Ages." This was a time when social network analysis largely disappeared from view but was kept alive, and in some cases independently (re)discovered, by groups of scholars who were working on problems in different academic disciplines (e.g., geography, biology, anthropology, social psychology) and who were located in a number of different institutional settings (Freeman counts fourteen). The overall pattern through the Dark Ages was "one in which each succeeding contribution introduced a segment of the social science community to the structural perspective" but failed for a variety of reasons, including death and the dismantlement of academic centers, to diffuse it beyond their immediate discipline (p. 120). Social network analysis remained fragmented and localized.

It was only in the 1970s, during a period Freeman describes as "the Renaissance at Harvard," that social network analysis finally became a generalized paradigm for research. The man most responsible for this turn of events was Harrison White. Armed with Ph.D. degrees in both physics and sociology,

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White produced work that provided "a model for research in social network analysis" (p. 125). White's greatest contribution to the network paradigm, however, may have been in the role he played as teacher: "He indoctrinated a whole generation of Harvard students with a structural perspective" (p. 125). Today, the list of his students is "a virtual Who's Who in social network analysis" (p. 127).

By the end of the 1970s, the field was composed of two distinct cliques, one an "eclectic hodgepodge made up of anthropologists, geographers, social psychologists, communication scientists, political scientists, historians and mathematicians," the other made up almost exclusively of sociologists. Freeman argues that these cliques could have led to a splintering of the field, but that did not happen. In the 1980s and 1990s, the period he labels "Getting Organized," the two cliques apparently came together and formed an integrated community of researchers, thanks to the motivated efforts of a number of institutions, such as the University of California, Irvine, which regularly brought together faculty from a variety of disciplines who were interested in social network analysis, and individuals, such as Barry Wellman, who upon reading Mullins and Mullins' (1973) account of paradigm development, "decided to do some organizing" of his own and founded the INSNA (p. 148). Other notable integrative forces were the movement of scholars from place to place, which linked social network research centers, and the development of standardized social network software that took advantage of the rising availability of cheap computing power.

I believe this book will find a broad and appreciative audience. It is a timely guide to the history of the network paradigm as well as an incisive analysis of the development of the field from the perspective of the sociology of science. I plan to use it in both the social network seminar and the philosophy of science seminar I teach to graduate students. The greatest strength of this book, however, may lie in the portrait it paints of science in action: an adventure of ideas, crowded with fallible people, hot in pursuit of problems that cut right across the borders of any subject matter or discipline.

Ajay Mehra

Department of Management
University of Cincinnati
Cincinnati, OH 45221-0165

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