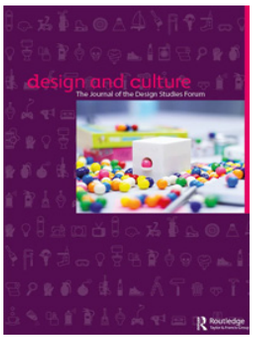

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The Idea Factory: Bell Labs and the Great Age of American Innovation, by Jon Gertner

John Harwood

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Book Reviews

The Idea Factory: Bell Labs and the Great Age of American Innovation, by Jon Gertner

New York: Penguin, 2012. 432pp., references, index. Hardcover, $29.95.

Reviewed by John Harwood
DOI: 10.2752/175470813X13705953612444

上来就人身攻击, 不过有点道理

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As a journalist, Jon Gertner is free of some of the burden of self-conscious historiographical meditation and methodological rigor that plagues the academic historian. This allows him to perform a neat narrative trick, which is what makes *The Idea Factory* at once an accessible and informative page-turner and a remarkably perverse historical account of the research and development (R&D) arm of (formerly) the largest corporation in the world: American Telephone & Telegraph (AT&T). Gertner's trick is to make the wide-ranging story about the people. Through painstaking research in archives, interviews with former Bell employees and family members, and a substantial amount of legwork crisscrossing the country, Gertner reanimates a shockingly large number of Bell Labs' key figures for a contemporary audience that has forgotten, if it ever knew, who was responsible for developing many of the technical media they use every day.

事后诸葛一样地调查

Gertner's focus on people leads to some eminently readable prose, and to lively portraits of the scientists and engineers who used the Bell monopoly to "revolutionize" modern communications technologies. His most impressive accomplishment is to produce a rigorous portrait of his central character, the enigmatic and almost omnipotent Mervin Kelly (1894–1971), who ran Bell Labs for a quarter of a century and oversaw the development of its most significant products: radar; the transistor (invented simultaneously by William Shockley and the team of John Bardeen and Walter Brattain); communications and information theory (Claude Shannon); and satellite telecommunications (Project Echo). Amazingly, Kelly left behind almost no record of his career or personal life; his personal archives are likely lost. Undeterred, Gertner patiently reconstructed his biography from his colleagues' archives, AT&T records, and secondary sources, including fellow Bell Labs executive John R. Pierce's extensive memoir of Kelly submitted to the National Academy of Sciences. The result is the fullest picture to date of one of the most important Americans of the twentieth century.

Gertner achieves similar coups with other characters, wisely focusing his account around the lives of crucial figures and their scientific and engineering accomplishments. The pair of chapters on Claude Shannon, for instance, paints a delightful portrait of a brilliant and deeply conflicted man, while still offering to laypersons a lucid introduction to the basic elements of information theory. Gertner has a gift for describing complex scientific and technical phenomena, and his account of the development of the transistor should be required reading for high school science and social studies students.

For all of Gertner's successes in bringing Bell Labs to life, the book is plagued by three significant problems. The first is that he makes mention of the corporation's "massive" office and laboratory buildings—including, of course, the "black box" and "largest mirror in the world," the Labs' outpost at Holmdel, NJ, designed by Eero Saarinen[1] – but neglects the army of managers and functionaries that made the vastly complex R&D undertakings possible. This would be an understandable error in judgment if the subject of the book was only the achievements of individual scientists; however, despite an evident bias in this direction, Gertner also makes it plain that he is interested in how "innovation" takes place – who makes it possible, manages it, nurtures it.

Gertner's focus on individual players also leads him to ignore crucial aspects of the larger picture of American science and technology from the Second World War to the present. For example, Gertner is either unaware of or deliberately silent about AT&T's (hot and cold) war profiteering. Far from being quasi-academic institutional functionaries removed from geopolitical concerns, Bell Labs' leaders and scientists were active participants in constructing the top secret post-Second World War security state.[2] Indeed, although Gertner mentions Eisenhower's farewell speech, he fails to note the single

格特纳要么不知道，要么故意对AT&T(热战和冷战)的暴利行为保持沉默

most relevant and memorable aspect of that speech: Eisenhower's immortal diagnosis of the United States' true disease, the "military-industrial complex." Gertner notes early and often that Bell Labs' astronomical budget came from AT&T's colossal profits, two-thirds of which were gleaned from telephone subscribers who had (almost) no other option – monopoly capitalism at its finest. Yet the reader hears next to nothing about the remaining third of Bell Labs' budget, which came from government research and development contracts, usually related either to signals intelligence (the connections between AT&T and the National Security Administration are not so much connections as they are homologies) or to "defense": military logistics systems, satellite surveillance systems, missile systems, and yet more missile systems. Bell Labs, with outposts from New Jersey to Kwajalein, was a crucial organ of the military-industrial complex, and its "innovations" were used to prolong for decades a senseless brinksmanship between the United States and the USSR. Yet Gertner scarcely mentions that all of Bell's major inventions were created to serve as war machines.

军工复合体

天文预算来自AT&T的巨额利润
其中三分之二来自(几乎)没有其他选择的电话用户:垄断资本主义的最佳状

剩下1/3的预算来自政府和军方

贝尔所有的重大发明都是为了充当战争机器而创造的

The third problem is Gertner's persistently uncritical valorization not only of the inventions, but also of "innovation" itself. The title, "The Idea Factory," is meant to naturalize the phenomenon of innovation, which of course goes undefined. We are simply meant to understand that "ideas" are good, and that more of them is better. Indeed, much of the last third of the book is dedicated to long digressions, often peppered with the musings of Bell's own employees, about how "innovation" ought to be promoted. Should we return to monopolies? (Gertner's answer is no, but a qualified no.) How should we organize the workplace in order to get more ideas? (It is, apparently, important that people interact with one another and exchange their ideas.)

All of this musing is, of course, fitting in its way. Bell Labs, which in large part produced the so-called information age, the digital age, globalization, and so on, also helped to produce a fatuous, triumphalist neoliberalism that forestalls serious attempts to understand the social, economic, and political consequences of technical media and the organizations that produce and market them. As cases in point, one might cite any number of Bell Labs' leading figures as indicative of the profound irrationality that emanated from the supposedly rational halls of techno-science. William ("Bill") O. Baker, the president of Bell Labs from 1973 to 1979, held a post as scientific advisor to five presidents, all while still on AT&T's payroll. He was a Republican ideologue who favored getting government out of science; that is, as long as it continued to foot the bill. The aforementioned Bill Shockley eventually turned entirely away from solid-state physics research in order to promote eugenics and even run for the US Senate on a eugenicist platform.

Although Gertner's journalistic narrative is in many respects both an informative and enjoyable read, he is not nearly critical enough of Bell Labs' and its leading scientists' ethically questionable roles

道德方面上的批判思考远远不够

in the Cold War and in American politics. An academic historian, in contrast, might have attempted a more even-handed account, one that noted that when you "reach out and touch someone," you can do it with a telephone call or with a radio-guided missile. And that either way, it is going to cost you dearly.

Notes

1. On the Holmdel labs, see Reinhold Martin, *The Organizational Complex: Architecture, Media, and Corporate Space* (Cambridge, MA: MIT Press, 2003), chapter 6.
2. See Seymour Melman, *Pentagon Capitalism: The Political Economy of War* (New York: McGraw-Hill, 1970).

Design Things, by A. Telier (Thomas Binder, Giorgio De Michelis, Pelle Ehn, Guilio Jacucci, Per Linde, and Ina Wagner)

Cambridge: MIT Press, 2011. 256 pages, 97 halftones, references, index. Cloth, $30.00.

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> What matters is not the enclosure of the work within a harmonious figure, but the centrifugal force produced by it.
>
> Italo Calvino, *Six Memos For The Next Millennium*

Calvino's quotation fits perfectly my response to the meaty collaborative book *Design Things* by A. Telier. The work is "harmonious" – so harmonious that it is hard to believe it has been written collaboratively by a team of six design scholars. The work, more importantly, is filled with fresh analyses that seem likely to reshape notions about the ways in which theory and practice converge.

Readers must first traverse the comparatively glib biography that introduces A. Telier, a pseudonym for authors Thomas Binder, Giorgio De Michelis, Pelle Ehn, Guilio Jacucci, Per Linde, and Ina Wagner. *Design Things* builds on the authors' pan-European pedagogical research project, Atelier (Architecture and Technology for Inspirational Living, hence the pseudonym). In Atelier, the authors generated ethnographic studies of their students' studio work in order to investigate design things and processes as socio-material systems that both act on and are acted upon by a host of factors.

Rather than using *Design Things* as a vehicle to explain their findings from the Atelier project, the authors instead take the