

## **The Idea Factory: Book Review**

by Manjil Saikia - Saturday, June 11, 2016

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One of the most important question that technologists, policy makers and governments ask nowadays is: What causes innovation? What are the motivating factors that create innovative products? These are the basic question that **Jon Gertner's** book '[The Idea Factory: Bell Labs and the Great Age of American Innovation](#)' seeks to answer. Gertner in the process of answering these questions gives us a very illuminating history of Bell Labs, named and founded after Alexander Graham Bell, the inventor of the modern telephone and subsequently managed by AT&T and its sister concerns, Western Electric in particular. The question is a difficult one and Bell Labs is one of the best places to look for an answer.

Our modern lifestyle is permeated with innovations that have roots in the Bell Labs, be it the telephone, or the cellular network we access or even the fast internet that is being used to read the content here. Everything has a piece of Bell Labs in it. Beginning in the early 20th century, Bell Labs wanted to create a transcontinental telephone line, which nowadays we take for granted. This endeavor sparked the decades of innovation that sprung from the lab and its scientists. One thing led to another, and the whole fabric of modern day communications was woven in part due to the miraculous inventions and innovations that took place at Bell Labs.

Gertner in each chapter of his book, devotes considerable attention to one of the major players in the Bell Labs system. He describes in details the success of transistors that were developed by Shockley, Brattain and Bardeen for which they won a Nobel Prize in Physics; the development of information theory by Claude Shannon, the design and implementation of radars during World War II and much more. Not only these, but the book describes many other innovations that Bell Labs has had a hand in. The complex network of scientists working in unison to create good and tangible ideas is what drives the book forward. It is very hard not be inspired by this book. We get to meet the scientific who's who of the 20th century in the pages of this book. Stories about how scientific innovation is carried on and what makes great ideas tick are amply explained with examples ranging from transistors to solar cells to the cellular network.

The rise of Bell Labs throughout the first half of the 20th century and its near God-like stature after the World War II is portrayed very efficiently in the book. However, its demise and lapse due to political, administrative and judicial reasons is only given a passing reference. A more detailed history of the Labs in the last part of the 20th century would have made the treatment a much more complete and scholarly one. But needless to say, the material presented is extremely well researched and unbiased. For a serious scientific reader the book needs to be supplemented with some of the references listed in an almost exhaustive bibliography. For instance, very little is said about the development of UNIX and the C programming language, or the important mathematics that continued to come out of the Labs even after the Shannon era.

The most important aspect of the book that stuck me was how a good administration could work wonders. Principal among these administrators was Marvin Kelly who has a significant amount of material written about in this book. The question that we began with about how innovation comes about is answered not

only by Kelly's example but also begets to ask further questions about why there is a very limited Bell Labs type of scenario in the present day. The book also contains enough material about the successors of Kelly and their relationships with each other. One important lesson that this induces into the reader is that hard work always pays and even if you start from a lowly desk job, with your skill and competence you can always rise into the echelons of power and prestige.

The example of America inventing the modern world with considerable help from the Bell Labs is a good one to be emulated by other nations, where innovation is now a crying need. This book should also be an essential read for every entrepreneur, scientist and mathematician to know how the greats of the past worked and innovated. It would be a very long review to write everything that one can write about this book. What would be much more interesting is to grab a copy of the copy and spend a joyous time going through it.

Title: [The Idea Factory: Bell Labs and the Great Age of American Innovation](#)

Author: Jon Gertner

Publisher: Penguin Press (2012)

Rating: 4.5/5

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