Tools for Thought: The History and Future of Mind-Expanding Technology

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In a highly engaging style, Rheingold tells the story of what he calls the patriarchs, pioneers, and infonauts of the computer, focusing in particular on such pioneers as J. C. R. Licklider, Doug Engelbart, Bob Taylor, and Alan Kay. The digital revolution did not begin with the teenage millionaires of Silicon Valley, claims Howard Rheingold, but with such early intellectual giants as Charles Babbage, George Boole, and John von Neumann. In a highly engaging style, Rheingold tells the story of what he calls the patriarchs, pioneers, and infonauts of the computer, focusing in particular on such pioneers as J. C. R. Licklider, Doug Engelbart, Bob Taylor, and Alan Kay. Taking the reader step by step from nineteenth-century mathematics to contemporary computing, he introduces a fascinating collection of eccentrics, mavericks, geniuses, and visionaries.

The book was originally published in 1985, and Rheingold's attempt to envision computing in the 1990s turns out to have been remarkably prescient. This edition contains an afterword, in which Rheingold interviews some of the pioneers discussed in the book. As an exercise in what he calls "retrospective futurism," Rheingold also looks back at how he looked forward.

Tools for Thought: The History and Future of Mind-Expanding Technology Details

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From Reader Review Tools for Thought: The History and Future of Mind-Expanding Technology for online ebook

Tony says

Howard Rheingold is a little bit of a nut. But that makes him a very interesting writer. If you're looking for a dry, staid, boring book about computers, you will be VERY disappointed by this book, or by another of his books, Virtual Reality.

Most people view computers as number-crunchers or database systems. Indeed, in Scandinavian languages, the usual term for computer translates as "data machine." It's all about numbers and data.

Right?

Uhh, no. Not so much.

As is amply demonstrated in this book, what makes a programmable computer different from a desktop calculator isn't just scale of how many numbers it can crunch per second. A programmable CPU also has the ability to compare values, make decisions based on them and alter behavior based on those decisions. This doesn't sound like a big deal. I mean, we do that all the time.

Stop for a moment and reconsider the last three sentences.

A programmable computer can do certain things that we do all the time.

Is this thinking? Is this intelligence? It would appear that the scale of thinking that we do is much more than what a computer can do. But so many of our "complex" decisions are based on multiple, smaller, simpler decisions. And, insomuch as a programmable CPU can make the smaller, simpler decisions, they can also demonstrate some degree of "emergent" decision-making behavior.

When I was studying for my degree in Computer Science, we were introduced to a theoretical construct known as a Turing Machine, named after one of the gods of the Computer Science pantheon, Alan M. Turing. A Turing Machine doesn't really exist in the real world, but it demonstrates a theoretical model of what a programmable CPU can do. If a Turing Machine is capable of doing this, so is a real computer. For us in the class, it was all theory. The professor was hard pressed to demonstrate a full model of one, doing something. In one of the chapters of this book, Rheingold succeeds in this. And a relatively simple machine, in this description, exhibits some surprisingly sophisticated behavior.

Couple that with languages which manipulate symbols, instead of just numbers, and you start to develop mathematical proofs with a complexity which human minds alone would be unable to come up with. You start to take "meta" steps back from simple decisions, creating much more sophisticated mechanisms for evaluating information and making more intelligent decisions.

It's not just about crunching numbers. It's what that number-crunching, data sorting and program-ability allow you to do with that crunching and sorting.

I read this book years ago. More recently, I've read "The Tale of the Big Computer" by Hannes Alfven. In "The Tale," it is posited that human society poses problems which are so big and so complex that human minds are unable to posit solutions to them, at least in a time-scale that they're still useful (society changes all the time, and the problems change at a pace faster than we can solve them; by the time we posit a

solution, the problems have changed and the solution is no longer relevant). Computers, however, are able to blast through very large amounts of analysis and, demonstrating the complex analysis and behavior-changing characteristics illustrated in "Tools for Thought," big computers end up succeeding in solving societal problems on a useful time-scale. "The Tale" is a fictional story, originally written in the 1960s, but much found within those pages is proving prescient. With my CompSci degree, I found "Tools for Thought" to be a very useful setup for trying to understand "The Tale."

Dwight says

This is a solid history of computing from its beginnings to 1985. The last few chapters are "where things are going from here" which leads to sections where you whip from "Hey, that's about what we have now (30 years later)" to "Hey, that's at least 30 years in the future" to "Hey, no one really pursued THAT."

It is actually pretty amazing how few huge misses the author had.

This is a pretty good follow up read to Turing's Cathedral because the first few chapters cover the same material and the rest pick up where Turing's Cathedral left off.

Bing Gordon says

Well organized and written overview of the giants who wrestled personal computing into shape. Best book I have read about the " founding fathers" of the PC.

Dave says

A fun collection of stories about some of the visionaries of computing, but it's ultimately frustrating to read yet another giddy account of how revolutionary NLS and Doug Englebart's work was (to pick one of many examples from those heady days of the sixties and seventies) without actual concrete descriptions of the system and its actual effects on how people work.

Dogsandbooks says

Very very good. History and forecast of personal computer industry from perspective of 1985. Quite right about most of it. Outline of chapters in Simplenote

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