

ASK Bookshelf

Here are descriptions of some books that we believe will interest ASK readers.

***An Engineer's Alphabet*, by Henry Petroski (Cambridge University Press, 2011)**

Author of *The Evolution of Useful Things* and *The Pencil: A History of Design and Circumstance* among other books, Henry Petroski has long been an astute and eloquent explainer of how engineering works and why it matters. His *An Engineer's Alphabet* is an entertaining and thought-provoking collection of anecdotes, facts, quotations, and brief essays on subjects ranging from abbreviations and acronyms in engineering to *Zen and the Art of Motorcycle Maintenance*. Along the way, Petroski writes about calculators, peer reviews, pocket protectors, skunk works, the Tacoma Narrows Bridge disaster, useless things, and hundreds of other topics of interest to engineers.

The many entries represent, as Petroski says, “the distillation of decades of writing, talking, and thinking about engineers and engineering.” There is trivia here—for instance, a list of universities whose sports teams are nicknamed “engineers”—but also serious food for thought. Under “Hubris in engineering,” Petroski writes:

It took Galileo, who opened his treatise on two new sciences with stories of well-considered things that did not work, to explain how physical considerations that may be ignored on a small scale can dominate the behavior of a larger but geometrically similar design. Unfortunately, what Galileo knew in the Renaissance was not always remembered in subsequent centuries.

Discussing the commercial failure of supersonic airliners later in the same little essay, he offers this wisdom: “The designs of engineers must be more than just strong enough and fast enough; they must also be compatible with the existing physical, social, and political infrastructure.”

And what engineer would disagree with this, from “Scientists vs. engineers”:

It is a common lament among engineers that all too often in the news media successful technological endeavors and achievements are attributed to science and scientists, whereas technological problems and failures are blamed on engineering and engineers. Thus, landing astronauts on the moon was hailed as a scientific achievement, but when a test rocket exploded on the launch pad it was described as an engineering failure.

***Mastering the Leadership Role in Project Management*, by Alexander Laufer (FT Press, 2012)**

The former editor-in-chief of *ASK Magazine* argues persuasively that sound management skills—mainly the ability to plan, control, and measure risks and results—are not enough to ensure the success of challenging projects. Those projects require leadership: that is, the capacity to inspire others, willingness to challenge the status quo when necessary, and, above all, the ability to analyze and adapt to the changing circumstances that are inevitable in today’s complex and uncertain world of work. Routine tasks can be managed but ambitious, one-of-a-kind projects—like most of what is done at NASA—need to be led.

To demonstrate his points, Alexander Laufer tells the stories of eight demanding projects in aerospace, construction, and the military. He depends on the power of stories to suggest the human as well as the technical complexity of the projects and their contexts and to show rather than tell what project leaders think and do, and the effects of their actions on team members. Stories (like leaders) have the power to inspire as well as instruct. Laufer hopes these stories will help readers not only learn how to be better project leaders, but also unlearn some outdated and more mechanical ideas about project management. He does not suggest that management, in the traditional sense, has no role to play in complex projects, but it



functions effectively in the context of leadership dealing with issues that are literally unmanageable.

These stories provide examples of project leaders challenging the status quo with courage and creativity. The U.S. Air Force project leader who changed the government's relationship with contractors from adversarial oversight to trusting partnership and the manager of a large construction project who motivated procrastinating designers by beginning construction before their plans were complete faced strong opposition and incurred a lot of personal risk, but they believed that radical action was the only way to succeed. They were very much rebels with a cause: Laufer emphasizes the importance of fighting the status quo only when and where it is necessary.

Many of the stories—the air force story mentioned above is one—are partly about culture change: developing new ways of working and new ways of thinking about work. Although the exact nature of that change varies from story to story, in all cases its foundation is trust. And trust is developed by working together—by demonstrating trustworthiness—and through constant, honest communication. The fact that leadership and project success depends on good communication in all available forms (and especially traditional person-to-person conversation) is an underlying theme of all these stories.

Note: Ed Hoffman, Larry Prusak, and Don Cohen (all of us currently associated with ASK) have contributed in various ways to this book, but it is very much Laufer's accomplishment.

***The View from Here: Optimize Your Engineering Career from the Start*, by Reece Lumsden (Illumina Publishing, 2011)**

Reece Lumsden, an experienced aerospace engineer, has written a book primarily for young engineers and students considering a career in engineering. The topics he covers range from the qualities that make a good engineer to the value of

co-op programs and mentoring to the importance of systems thinking and good communication skills. He also offers some sound advice on job hunting and what to expect—and how to succeed—once you find an engineering job.

The View from Here offers engineering students some of the benefits of mentorship, providing down-to-earth advice from an older, experienced professional about many of the possibilities and pitfalls of their chosen profession. Managers of young engineers will find value in the book, too, as a guide to their role in helping those new hires develop and flourish. ●