

Communicating with and Understanding Engineers

1) **The Civilized Engineer (Paperback)** by [Samuel C. Florman](#) (Author)

Editorial Reviews

From Publishers Weekly

Civil engineer Florman (*The Existential Pleasures of Engineering, Blaming Technology* here indulges in sufficient autobiography to reveal how, instinctively, he reached out for a well-rounded education in the arts and humanities, which he now sees as crucial to human survival. This lends a charming informality to his book's undisguised mission: to drive home to the young the necessity of avoiding too-narrow specialization, noting that technology seems to have become the obsession of the success-minded. He presents his case for the cultural development of today's youth, using examples as current as the Challenger tragedy to suggest that technological minds tend to downgrade human risks and responsibilities. "If I were king," writes Florman, he would require major courses in history and literature at all engineering schools.

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Review

"Essential reading . . . [Florman's] lucid prose is readily accessible to anyone who wants to know more about the profession most influential in shaping the 20th Century."—*Philadelphia Inquirer*

"With *The Civilized Engineer*, Florman has written his most substantial book to date . . . Enjoyable to read . . . The book is a useful aid for focusing one's own (often unexamined) views on what it now means and what it should mean to be an engineer."—*Technology and Society*

"Florman is the man we've been looking for. Incredible as the combination may appear, he is both a practicing engineer and a truly gifted writer."—*Fortune*

"*The Civilized Engineer* is remarkable simply because there is no other engineer author who talks to engineers the way Florman does. Any intelligent engineer who doesn't want to think like a frog in an enclosed pond would do well to read this book."—*Engineering Times*

"Mr. Florman is a respected professional engineer and a man of wide cultivation. He writes with beautiful clarity and his wit springs from his material; it is not applique. The reader is never in doubt about what Mr. Florman is saying. in an age of murky prose. this quality alone would win him an enthusiastic readership."—*The New York Times Book Review*

Engineering and the Mind's Eye (Paperback)

by [Eugene S. Ferguson](#) (Author)

Book Description

In this insightful and incisive essay, Eugene Ferguson demonstrates that good engineering is as much a matter of intuition and nonverbal thinking as of equations and computation. He argues that a system of engineering education that ignores nonverbal thinking will produce engineers who are dangerously ignorant of the many ways in which the real world differs from the mathematical models constructed in academic minds.

To Engineer Is Human: The Role of Failure in Successful Design (Paperback)

by [Henry Petroski](#) (Author)

Editorial Reviews

Amazon.com

The moral of this book is that behind every great engineering success is a trail of often ignored (but frequently spectacular) engineering failures. Petroski covers many of the best known examples of well-intentioned but ultimately failed design in action -- the galloping Tacoma Narrows Bridge (which you've probably seen tossing cars willy-nilly in the famous black-and-white footage), the collapse of the Kansas City Hyatt Regency Hotel walkways -- and many lesser known but equally informative examples. The line of reasoning Petroski develops in this book were later formalized into his quasi-Darwinian model of technological evolution in **The Evolution of Useful Things**, but this book is arguably the more illuminating -- and definitely the more enjoyable -- of these two titles. Highly recommended.

Houston Chronicle

Reading Petroski's fine book is not only a delight, it is a necessity

The Existential Pleasures of Engineering (Thomas Dunne Book) (Paperback)

by [Samuel C. Florman](#)

This is a book for all engineers (and many scientists) who have ever had a crisis of faith in their work. It's a reminder, if one is needed, that engineering is human, humane work, and profoundly fulfilling in itself.

Florman gets off to a slow start, though. The first third of the book is apologetic, acknowledging the many social and environmental ills in which engineers have taken part. "Forgive us," he seems to say, "for not being better than the masters who command our work and the clients who demand it." The next third of the book takes on a shrill tone, an answer to the neo-Luddites of the 1960s and 1970s. Florman spends time answering their anti-technological absurdities and self-important elitism. Only in the last third of the book does Florman make the central point of this book.

Engineers, as a stereotype, seem boring, but perhaps that's because we lack so many of the stereotypical failings of other professions - avarice, personal arrogance, or violence. Engineering is no less creative than any of the "creative" arts, and is a

profound expression of all that sets us apart from animals. It's part of the tradition of Homer and the Old Testament, where the ability to create was god-given, and the tradition of Chartres, where engineering skill was an offering to God. Florman notes that putting one's skills to the service of human needs is a living expression of the communal sense. I felt that myself when I acquired a breast cancer microarray dataset in the course of my work. It was the realization that those blank case numbers were real women, some now dead, and that I had a duty towards them (or their memories), their futures, and the futures of others. But most of all, Florman reminds us that engineering is fun. It answers personal, social, and even spiritual needs in ways that outsiders may never understand. I assure you, the greatest awareness of the world and its glories comes from direct involvement with it, and an engineer's life is about involvement with the physical world.

Issues have changed since Florman wrote this in 1976; it sometimes answers questions that aren't commonly asked any more. Still, it's the finest statement I know of what there is about engineering that makes a practitioner proud, even happy, to be a part of it.

Peopleware: Productive Projects and Teams (Paperback)

by [Tom DeMarco](#)

Summed up in one sentence, Peopleware says this: give smart people physical space, intellectual responsibility and strategic direction. DeMarco and Lister advocate private offices and windows. They advocate creating teams with aligned goals and limited non-team work. They advocate managers finding good staff and putting their fate in the hands of those staff. The manager's function, they write, is not to make people work but to make it possible for people to work.

Why is Peopleware so important to Microsoft and a handful of other successful companies? Why does it inspire such intense devotion amongst the elite group of people who think about software project management for a living? Its direct writing and its amusing anecdotes win it friends. So does its fundamental belief that people will behave decently given the right conditions. Then again, lots of books read easily, contain funny stories and exude goodwill. Peopleware's persuasiveness comes from its numbers - from its simple, cold, numerical demonstration that improving programmers' environments will make them more productive.

The numbers in Peopleware come from DeMarco and Lister's Coding War Games, a series of competitions to complete given coding and testing tasks in minimal time and with minimal defects. The Games have consistently confirmed various known facts of the software game. For instance, the best coders outperform the ten-to-one, but their pay seems only weakly linked to their performance. But DeMarco and Lister also found that the best-performing coders had larger, quieter, more private workspaces. It is for this one empirical finding that Peopleware is best known.

(As an aside, it's worth knowing that DeMarco and Lister tried to track down the research showing that open-plan offices make people more productive. It didn't exist. Cubicle makers just kept saying it, without evidence - a technique Peopleware describes as "proof by repeated assertion".)

Around their Coding Wars data, DeMarco and Lister assembled a theory: that managers should help programmers, designers, writers and other brainworkers to reach a state that psychologists call "flow" - an almost meditative condition where people can achieve important leaps towards solving complex problems. It's the state where you start work, look up, and notice that three hours have passed. But it takes time - perhaps fifteen minutes on average - to get into this state. And DeMarco and Lister that today's typical noisy, cubiced, Dilbertesque office rarely allows people 15 minutes of uninterrupted work. In other words, the world is full of places where a highly-paid and dedicated programmer or creative artist can spend a full day without ever getting any hard-core work. Put another way, the world is full of cheap opportunities for people to make their co-workers more productive, just by building their offices a bit smarter.

A decade and a half after Peopleware was written, and after the arrival of a new young breed of IT companies called Web development firms, it would be nice to think DeMarco and Lister's ideas have been widely adopted. Instead, they remain widely ignored. In an economy where smart employees can increasingly pick and choose, it will be interesting to see how much longer this ignorance can continue.

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