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—Los Angeles Times Book Review

Small Things Considered: Why There Is No Perfect Design

Henry Petroski

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Why has the durable paper shopping bag been largely replaced by its flimsy plastic counterpart? What circuitous chain of improvements led to such innovations as the automobile cup holder and the swiveling vegetable peeler? With the same relentless curiosity and lucid, witty prose he brought to his earlier books, Henry Petroski looks at some of our most familiar objects and reveals that they are, in fact, works in progress. For there can never be an end to the quest for the perfect design.

To illustrate his thesis, Petroski tells the story of the paper drinking cup, which owes its popularity to the discovery that water glasses could carry germs. He pays tribute to the little plastic tripod that keeps pizza from sticking to the box and analyzes the numerical layouts of telephones and handheld calculators. **Small Things Considered** is Petroski at his most trenchant and provocative, casting his eye not only on everyday artifacts but on their users as well.

Small Things Considered: Why There Is No Perfect Design Details

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Author : Henry Petroski

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From Reader Review Small Things Considered: Why There Is No Perfect Design for online ebook

Mike says

Good read on how common things in life have been designed and continue to evolve in design with improvements. The author states that all things created are designed, but designed with constraints and therefore require compromise. It is an easy read...the stories flow well.

Picked this book up at a small bookstore on Emerald Isle while we were on vacation!

Lonsdale Koester says

Several fascinating stories of invention and design...but ultimately didn't add up to much or have a narrative arc.

Daniel says

I learned about:

- The development of bottled water.
- The invention of the paper bag.
- The development of duct tape.

I skimmed:

- Everything else.

I am not joking: at one point, Petroski gives a long-winded account of ordering dinner from a design perspective. He talks about "designing" your dessert.

"To Engineer is Human" was a good book; this is not.

Cheryl says

Bleah. I'm not a student of design, but still I am familiar with almost every example discussed. And the constraints he harps on are obvious; for example of course a toothbrush isn't one size fits all, but yet it wouldn't be practical to sell them in sizes, either.

I did not know that, at least in some rewired houses, "all upper receptacles are controlled by the room's light switch, so that lamps plugged into them can all be turned on with the single flick.... lower receptacles are hot-wired...." Maybe this will help me understand some hotel rooms that I've been in, at least.

And I do want to try to use cloves instead of garlic in spaghetti sauce once, because he erred that way when young and his guests liked it. (An acorn-size scoopful seems like too much, though!)

So, 1.5 stars rounded up.

Scott Johnson says

I greatly enjoyed the concept, something that has constantly fascinated me for years (things in our world do not exist by accident or simply occur in nature, someone had to have had an idea, someone had to approve that idea, and so on until the seemingly mundane thing before you existed.....and why does it even need to exist?)

However, the execution was lacking. A few chapters were fabulous, I particularly enjoyed a later one about toothbrushes and the tale of home remodeling, but it was rather repetitive. This is not itself a cardinal sin, but each iteration failed to add any new information, perspective, or understanding.

Points for concept and being accessible, but many lost for wasting a great premise with an ultimately flat and boring book.

dejah_thoris says

Not my favorite Petroski book, quite possibly my least favorite, because the author beats you over the head with his theme that design is about compromise. Not that his theme isn't a good one to build a collection of essays around but Petroski isn't subtle about what he is trying to explain and the repeated emphasis throughout the book does get annoying. The chapters themselves aren't bad but there's also lots of fluff mixed in with real design analyses, such as how cooking dinner is a good demonstration of designing within constraints. A good book for light reading if you like learning specific case histories, like how toothbrush handles suddenly became too large for toothbrush holders, but beware the repetitiveness of the author's theme.

Carl Gauger says

This is an entertaining book, even though I thought Petroski's point was made some distance before the end of the book, and that he goes on a little too long. His point is that even the most mundane of human activities involves design, at least after a fashion, because design is about decisions. And decisions are about trade-offs, constraints, & compromise, and this is why no design is--or ever can be--perfect. Mr. Petroski is always the charming representative of engineering culture to those outside, not only charting the differences between cultures but also their points of contact. He has a gift for identifying and articulating those intriguing little questions that seem to beg to be asked--how, for example, did door knobs come to be placed at 36" above the floor? And why are light switches not placed at the same height? He's a good historical inves

tigator as anyone knows that has read a few of his books. How did telephone keypads and calculator keypads come to be different? His answers to these questions provide the background to his investigation of how constraints affect design decisions. His conclusion? That it is precisely the compromises and trade-offs

shaping design decisions that steer towards good design. Because design cannot--and need not--be perfect, it can be truly good.

Fraser Sherman says

The basic problem with designing and engineering things, Petroski says, is that it's never going to be perfect. There are always trade offs, such as financial (cost vs. perfection), individual (even the best design won't fit everything) and practical: wherever cup holders go in a car, there are drawbacks.

Petroski looks at various examples of design, including chairs, toothbrushes, doorknobs, light switches, supermarket bags and cupholders and shows how they evolved from a mix of constraints, needs, manufacturer convenience and consumer wishes. It's instructive and makes me aware of how many design issues there are around me. However it felt like a stretch to include the way we organize our days or our meals under the same topic of "design."

Derek says

Less Than Perfect

Designing real things inevitably creates flaws

Reviewed by Stephen Cass
IEEE Spectrum, March 2004, pp. 56

I own an Oral-B toothbrush. I like it, especially its fat, curving handle, which fits my hand much better than the narrow straight handles of normal toothbrushes do. But there's a problem with the Oral-B: its distinctive handle is too big to fit into the holes of the toothbrush holder above my sink, so I end up balancing the toothbrush across the holder and regularly knock it into the sink or onto the floor.

In his latest book, the thoughtful and insightful *Small Things Considered*, Henry Petroski looks at the Oral-B toothbrush and other everyday objects to see what lessons they can teach us about the nature of design and the constraints that all engineers must face when bringing a new idea to fruition.

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SMALL THINGS CONSIDERED: WHY THERE IS NO PERFECT DESIGN By Henry Petroski Alfred A. Knopf, New York 2003, 288 pp., US \$25 ISBN 1-4000-4050-7

The designers of the Oral-B toothbrush were faced with a constraint that had influenced toothbrush design for decades: the placement in millions of homes of holders with one standard size and shape that manufacturers of bathroom fixtures had long since settled on. In the end, the Oral-B toothbrush people simply ignored the constraint, developing a toothbrush that, while perfect in one context (gripped in my hand when in use), is decidedly imperfect in another (the 99 percent of the time it sits in my bathroom).

Indeed, it is the external context in which a design must operate as much as its inherent merit that determines how perfect or imperfect it is. Petroski examines the paper cup, a staple of office water coolers and deli

coffee stands. It became commercially successful only when the general public began to worry in the early 20th century about germs being transmitted by shared glasses and cups, which were far more durable and, at the time, easier to manufacture.

And without a doubt, it is context that drives the final nail into the coffin of perfect design. While the compromises demanded by the physical limits of materials, their cost, and how well the new design interacts with existing objects can all cause a gadget or process to fall short of perfection, the fact is that sooner or later, the evolving world in which an object exists will inevitably doom it to imperfection.

Petroski uses the humble telephone as an excellent example. When the rotary-dial telephone was introduced, it finally let callers connect to a phone number themselves instead of speaking to an operator. It reduced the costs and increased the reliability, privacy, and ease of use of the phone.

But—based in part on the utility of the rotary dial—as the telephone became more embedded into our daily lives the bloom went off the rose. Rotary dialing is slow, difficult for users with limited dexterity, and difficult to integrate with the advanced telephone services we take for granted today. The modern push-button touch-tone telephone allows us to store frequently used numbers, connect via digital networks, and do everything from checking our voice mail to booking airline tickets through automated systems.

It's not that the rotary-dial telephone had a bad design, but our expectations have changed, even of something as humdrum as a phone.

While some engineers may get depressed at Small Things Considered's depiction of the impossibility of perfection, fearing that their profession is eternally doomed to failure, those who know what side their bread is buttered on will rejoice in the Sisyphean task. For one thing, it guarantees future employment for designers, and for another, it means that however great the achievements of the past, there will always be room for improvement—something to ponder while you're brushing your teeth.

Andy says

Makes me seriously reconsider my anti-book-burning stance.

I made it 32 pages in. This book is so mind numbing that it's condescending. I'm going to quote a "paragraph" verbatim. When you can't stand it anymore, skip to the end of this review.

(Context: Henry is describing a glass of water)

"With imperfections of manufacture, however subtle, detected in its bottom, I am now looking even more closely at the glass that just yesterday I had so admired for its seeming perfection of form. With the glass full of water, its sides had appeared to be of uniform thickness. How empty and dry, the glass more readily reveals its true dimensions, refracting as it does the text of the manuscript page on which it sits. Rather than seeing the text distorted in a uniform way through the sides of the glass, I see it bent like a current flowing around boulders in a river. Rotating the glass in place on its base, I find that I can change the degree of distortion that I see, eliminating it completely when the glass is in a certain position. In other orientations, the nature of the distortion changes to one in which strata of text are inclined linked bands of color and texture in the rock cliffs beside a highway. With the glass in my hand, I feel no irregularity on the outside surface, but the thickness is clearly not uniform, as I can tell by running my thumb and index finger

simultaneously up and down the inside and the outside of the glass, as if using a micrometer. The irregularity that I feel indicates that the thickness of the sides is quite variable from bottom to top. Furthermore, this variation is different at different locations around the glass, explaining why I get different effects as I rotate it in places. The sides of the glass are, in fact, a continuum of lenses. Once noticed, these consequences of the manufacturing process are magnified."

I'm not joking, this is an exact quote. Henry writes uninspired, boring, obvious, verbose language, published without editing. What kind of ego leads you to write like this? To explain simple concepts condescendingly, thinking you're profound?

Henry also uses inane fourth-person subjunctive inverted-transductional english, with phrases like "Artists might be said to be designers."

Maybe one day I'll go back again and try to finish this book, but I don't see the point. If I want to learn how paper cups are designed I can read a Wikipedia page and get just as little insight.

Mark Isaak says

I enjoy Petroski's smooth writing style, but this book's content was meager. The point of the book expressed in the subtitle was quickly and effectively made in the first chapter. Other chapters included interesting elaborations of the design decisions which go into such things as paper bags and toothbrushes, but Petroski several times carries out that elaboration to the point of spending paragraphs or even pages stating the obvious. I believe this book would be valuable to people with little formal design experience, but even then they could skim quickly over parts with no real loss.

Christopher Obert says

Every time I read a Henry Petroski book I never see the world the same way again. If you find the natural world exciting and enjoy reading about the wonders of our planet, you should try reading Henry's books. He does the same for those unimportant items (pencils, paper cups and door knobs) lying around your home or office as the nature writers do for eagles, flowers and mountains. Henry can make you see the beauty and drama in a toothbrush! Just as studying nature gives us a glimpse into the mind of God, studying engineering and design gives us a glimpse into the mind of man...

Claudia says

Some good examples, buried amidst infuriating piles of repetition. Design faces constraints; I know. I get it. Stop telling me. Seriously, move on. Enough already!

I really liked learning about the history of the mix tap (the lack thereof being a peeve of mine, from living in England), but I actually found myself skimming the ends of the chapters, when he'd move from the specific to the general. Yes, designers face limits...tell me again, I dare you.

Honestly, I've read other books by this author that were much better. Either he had a better editor then, or his

years as a professor have gotten to him. This book reads as though he's taught a few too many intro classes with really, really slow students.

Jessica says

Overall this was an interesting book and a topic I had not previously read about at length. There were many fascinating stories of inventions and improvements to products we use and take for granted every day. At times he was very repetitive, taking longer than necessary to hammer home a point that had already been successfully delivered. And a few of the things he talks about are now dated and have moved far beyond the version he references, but the principals remain the same and it did make me think about things in a different way. Basically many compromises must be made to fit the aesthetic, function, price, multi-user differences and other constraints that go into the considerations for everything we use such as a cup-holder in a car or a numeric keypad on a phone.

Anna says

An exploration of design in real life, this book addresses a bunch of commonplace objects (e.g. paper cups, paper bags, calculators) and discusses their evolution. Since so many items are addressed, it's not terribly comprehensive, but it's a nice compendium of the flotsam and jetsam of trivial knowledge I enjoy so well, like where Dixie cups got their name.
