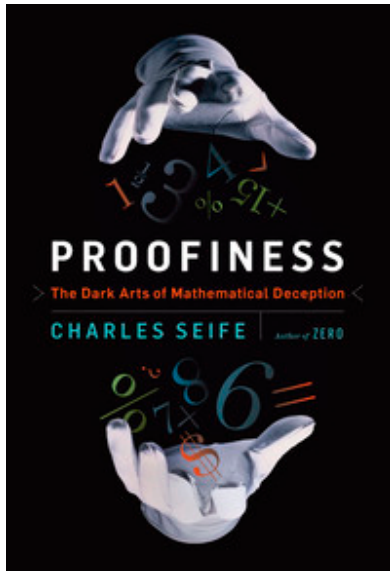


Lies, Damned Lies, And 'Proofiness'

by NPR STAFF



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Sen. Joseph McCarthy famously brandished a list of 205 known Communists in the State Department. Or was it 207? Or 57? Or maybe 81? No one really knew, mostly because McCarthy himself didn't know. He made those numbers up, because he knew that numbers have power. And those 205 nonexistent Communists made Tail Gunner Joe into a household name.

Author Charles Seife has written a new book — *Proofiness: The Dark Arts of Mathematical Deception* — about the dirty tricks people can play with numbers. Seife tells NPR's Mike Pesca that McCarthy's list of Communists is a good example of proofiness.

"Numbers communicate how far you can trust them," he says, "and a nice round number is signaling, well, you know, I'm in the area, that it's not a very precise number."

Proofiness: The Dark Arts of Mathematical Deception

By Charles Seife
Hardcover, 304 pages
Viking Adult
List Price: \$25.95

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But an exact number, like McCarthy's 205 Communists, is easier to believe.

"People know that that means exact, exact numbers, and that it has some real basis in reality, and it's to be trusted," Seife says.

But trusting a number too much can be dangerous, the author says. It's a phenomenon he calls 'disestimation,' and it happens when people take a number far too seriously.

Seife recalls the story of a docent at the American Museum of Natural History in New York, who gave the age of a dinosaur as 65 million and 38 years.

"The guide says, well, when I started at this museum 38 years ago, a scientist told me it was 65 million years old. Therefore, now, it's 65 million and 38." Seife says the docent was placing far too much value on the 65 million figure, "when in fact, the error involved in measuring the dinosaur was plus or minus a hundred thousand years. The 38 years is nothing."



Sigrid Estrada

Author Charles Seife

And speaking of error, Seife has some choice words about opinion polls and the way they're reported.

"When journalists report polls, they just don't know better that they shouldn't take these results literally," he explains.

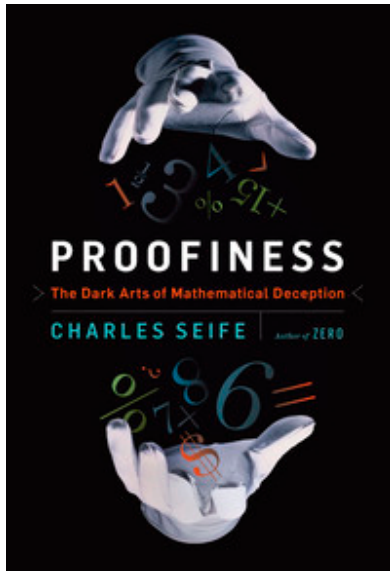
Seife says the margin of error you see attached to a poll is only measuring one specific kind of error: taking too small of a statistical sample.

“But in fact, when polls go wrong,” he says, “it’s due to a completely different type of error, called a systematic error.”

That means the poll hasn’t been set up correctly or the questions are misleading, or simply that people answering the poll are lying — which Seife says happens quite frequently. “So when journalists report polls, most of which aren’t worth the paper they’re written on, I think they’re kind of innocently performing an act of proofiness.”

Excerpt: 'Proofiness'

by CHARLES SEIFE



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“In my opinion the State Department, which is one of the most important government departments, is thoroughly infested with communists.”

This was not the sentence—delivered to a small gathering of West Virginia women—that catapulted the little-known Wisconsin senator into the public spotlight. It was the next one.

As he held aloft a sheaf of papers, a beetle-browed Joe McCarthy assured his place in the history books with his bold claim: “I have here in my hand a list of 205—a list of names that were made known to the Secretary of State as being members of the Communist party and who nevertheless are still working and shaping policy in the State Department.”

That number—205—was a jolt of electricity that shocked Washington into action against communist infiltrators. Never mind that the number was a fabrication. The number went up to 207 and then dropped down again the following day, when McCarthy wrote to President Truman claiming that “we have been able to compile a list of 57 Communists in the State Department.” A few days later, the number stabilized at 81 “security risks.” McCarthy gave a lengthy speech in the Senate, giving some details about a large number of cases (fewer than 81, in fact) but without revealing enough information for others to check into the matter.

It really didn’t matter whether the list had 205 or 57 or 81 names. The very fact that McCarthy had attached a number to his accusations imbued them with an aura of truth. Would McCarthy make such specific claims if he didn’t have evidence to back it up? Even though White House officials suspected that McCarthy was bluffing, the numbers made them doubt themselves. The numbers gave McCarthy’s accusations heft; they were too substantial, too specific, to ignore. Congress was forced to hold hearings to attempt to salvage the reputation of State Department—and the Truman Administration.

McCarthy was, in fact, lying. He had no clue whether the State Department was harboring 205 communists or 57 or none at all; he was making wild guesses based upon information that he knew was worthless. Yet once he made the claim public and the Senate declared that they were going to hold

hearings on the matter, he suddenly needed some names. So he approached newspaper magnate William Randolph Hearst—an ardent anti-communist—to help him compile a list that. As Hearst recalled: “Joe never had any names. He came to us. ‘What am I gonna do? You gotta help me. So we gave him a few good reporters.’”

Even the assistance of half a dozen Hearst reporters and columnists to couldn't give much substance to McCarthy's list. When the hearings began in March, 1950, McCarthy couldn't produce the name of a single communist working for the State Department. It didn't make any difference. McCarthy's enumerated accusations had come at just the right time. China had just gone communist, and as the hearings finished, North Korea invaded the South. America was terrified of the rising tide of world communism, and McCarthy's bluff turned him, virtually overnight, into a symbol of resistance. An obscure back-bench junior Senator had become one of the most famous and most divisive figures in politics. His line about 205 Communists was one of the most effective political lies in American history.

As McCarthy knew, numbers can be a powerful weapon. In skillful hands, phony data, bogus statistics, and bad mathematics can make the most fanciful idea, the most outrageous falsehood seem true. They can be used to bludgeon enemies, to destroy critics, and to squelch debate. Indeed, some people have become incredibly adept at using fake numbers to prove falsehoods. They have become masters of proofiness: the art of using bogus mathematical arguments to prove something that you know in your heart is true—even when it's not.

Our society is now awash in proofiness. Using a few powerful techniques, thousands of people are crafting mathematical falsehoods to get you to swallow untruths. Advertisers use these techniques to forge numbers to get you to buy their products. Bureaucrats fiddle with data to try to get you to reelect them. Pundits and prophets use phony math to get you to believe predictions that never seem to pan out. Businessmen use bogus numerical arguments to steal your money. Pollsters, pretending to listen to what you have to say, use proofiness to tell you what they want you to believe.

Sometimes, people use these techniques to try to convince you of frivolous and absurd things. Scientists and other have used proofiness to show that Olympic sprinters will one day break the sound barrier and that there's a mathematical formula that determines who has the perfect butt. There's no limit to how absurd proofiness can be.

At the same time, proofiness has extraordinarily serious consequences. It nullifies elections, crowning victors that are undeserving—both Republican and Democratic. Worse yet, it is used to fix the outcome of future elections; politicians and judges use bogus mathematical techniques to manipulate voting districts and undermine the Census that dictates which Americans are represented in Congress. Proofiness is largely responsible for the collapse of our economy—and for the great sucking sound as more than a trillion dollars vanishes from the Treasury. Prosecutors and justices use proofiness to acquit the guilty and convict the innocent—even to put people to death. In short, bad math is undermining our democracy.

When you learn to shovel proofiness out of the way, some of the most controversial topics become simple and straightforward. For example, the question of who actually won the 2000 presidential election becomes crystal clear. (The surprising answer is the one that almost nobody would have been willing to accept: not Bush, not Gore, and almost none of the people who voted for either candidate.)

Understand proofiness, and you can uncover many, many truths that had been obscured by a haze of lies.

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