

The man who swears by popular science

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Body

Brain scientist Steven Pinker tells Vivienne Parry how cursing reveals the workings of the mind

What words ought one to use to describe Steven Pinker, the language guru, cognitive scientist and bestselling author, judged by Time magazine to be one of the world's 100 most influential people? Rock god?

Sitting in a hip London boutique hotel, with his blue eyes, taut jaw and an exuberance of grey curly hair, the 54-year-old academic looks more like the frontman of a hell-raising 1980s rock band than a scientist.

He is in London to promote his latest book, *The Stuff of Thought*, about how words relate to thoughts and what this tells us about ourselves. Somehow Pinker has become, along with Richard Dawkins, one of the antichrists for the American Religious Right. Pinker's belief is that evolution -a dangerous word to use in America -has shaped the brain and helps to explain how it works today. Dawkins, of course, was evolution's cheerleader long before he burnt every boat with his recent book *The God Delusion*.

Pinker's new book exemplifies his rigorous yet popular approach. It suggests that swearing opens a window into the workings of the brain, and asks why swear words to do with sexuality and excretion are so offensive. Why do phrases that are, objectively speaking, nonsense -such as "Holy s**t" -have meaning to us? Well, for a start, they show that words have an emotional connotation as well as a literal meaning. "Think about slender and scrawny," Pinker says. "They are synonyms but one has an emotional colouring."

SWEARING MAKES THE BRAIN PAY ATTENTION LESS THAN Pinker considers that words' literal meanings (denotations) may be concentrated in the thinking part of the brain, the neocortex, especially in the left hemisphere.

But their connotations are not just in the thinking area but linked to the amygdala, a primitive area of the brain that helps to give memories emotion. In scans of brain activity, the amygdala lights up when a person sees an angry face, or hears an unpleasant word such as a taboo swear word. These evoke emotional responses and even reading one causes the brain to do an involuntary boggle and pay attention. This is exploited by brands such as

The man who swears by popular science

FCUK. And every time you use a swear word, you are, in effect, landing an emotional punch on the person who hears it.

Growing up in Canada, Pinker was always interested in science, but it was in his teens -when the big debates about human nature were raging -that his fascination with psychology began. "I found it utterly exhilarating," he says. He knew at 17 that he wanted to be an experimental psychologist and went off to McGill University in Montreal to study it, and then to Harvard to do a PhD in visual imagery; the way in which our brains accompany a thought, of the letter P say, with a mental picture of what it looks like. The field attracted him because it was largely unexplored, with many questions still to be asked and answered, typical of Pinker's defining sense of curiosity.

For 12 or so years, he was an academic, working on visual imagery, but one day he found himself taking a seminar on language development in children and it changed his course for good. "The idea of injecting rigour into the field of baby talk was irresistible," he says. Twice married, the irony is that he has had no babies of his own to inform his work, although he has acquired some ready-grown ones through his partner, the philosopher Rebecca Goldstein. "If I did have children," he says, "they'd probably refute every hypothesis I've ever advanced." Bet they wouldn't dare.

Pinker's style in person is rather self-effacing, which is a surprise given the strength of opinion that his ideas and books generate. He is quietly spoken, neat and, much like his books, prone to wander into everyday anecdote to illustrate his science. This is what makes him such a great communicator.

His career has seen him bounce backwards and forwards between Harvard and the Massachusetts Institute of Technology (MIT), where he did his postdoctoral fellowship. He was heavily influenced in his twenties by Noam Chomsky, the celebrated professor of linguistics at MIT. During the 1980s, he wrote a number of textbooks, but wasn't widely known outside academia. Then his editor at MIT Press suggested that he should try writing a popular science book. His first, published when he was 40, was the bestselling *The Language Instinct*, a seductive mix of hot science shot through with Pinker's trademark humour. A slew of bestsellers followed, *How the Mind Works* (a dazzling introduction to the brain), *Words and Rules* and *The Blank Slate*. The boy can write.

The central thesis of *The Language Instinct* is that language and grammar are hard-wired into our brains like a set of specialised tools, and these allowed our ancestors to deal with the sort of problems they faced. Pinker believes that these tools have evolved by natural selection just like other body parts.

His books have led to numerous spats with other academics who dispute his theories. As well as the American Religious Right, he has had to contend with the Left, particularly over his book *The Blank Slate*, which suggested that we are all shaped much less by our upbringing than we think.

"I've had to negotiate shoals on either side," he says in a twinkly way, which suggests that he rather enjoys the intellectual workouts that such encounters provide. It seems that he and Dawkins are happy to slash and burn their way through cherished notions with their intellectual cutlasses like pirates let loose for an afternoon's pillaging.

The man who swears by popular science

Is he, then, like Dawkins, a cheerleader for science? "I'm not so much a cheerleader for science as a cheerleader for reason. Science is just an extension of reason." He says he doesn't object to criticism of his work. Criticism promotes intellectual growth. "We're all prone to overestimate the veracity of our own beliefs," he says.

SWEAR WORDS ARE STORED IN THE RIGHT BRAIN

It's likely that his latest pronouncements on swearing will not go without criticism; they certainly won't endear him to America's many Creationists but, for the rest of us, they makes fascinating and enlightening reading.

Pinker tells me that the emotional flavour of words seems to be acquired in childhood, that's why bilingual people swear best in their mother tongue. People with aphasia, which involves the loss of articulate speech, can still swear fluently. This suggests that swear words are stored as memorised chunks in the right side of the brain, which is more involved in emotion and which also stores other memorised chunks such as prayers.

The specific bits of the brain that have this task are the basal ganglia. Pinker cites the case of a man with damage to these, caused by a tumour, who was still able to speak fluently but not able to swear or to say prayers.

So why are so many swear words connected with excrement? Because the things that people think are disgusting are also the most notable vectors of disease. And the many swear words involved in sexuality tell of a past in which sex had high stakes -exploitation, illegitimacy and disease, for example.

Pinker says he swears less now that he has written this book, but the claim in his book that swearing engages the full expanse of the brain -left and right, high and low, ancient and modern, recruiting our expressive faculties to the fullest - is amply illustrated in print. Pinker opens a window to the workings of the mind, but he also makes me curse that I can't spend longer talking to him.

The Stuff of Thought (Allen Lane, £ 25) is available from Times BooksFirst for £ 22.50, p&p free: 0870 1608080 or visit timesonline.co.uk/booksfirstbuy

THE PINKER FILES

WHO IS HE?

Steven Pinker is an experimental psychologist and popular science writer. Born 1954, in Montreal, Canada, he found fame through the publication of his controversial 1994 book *The Language Instinct*. He is now a Harvard professor of psychology.

KEY THEORIES

He says human beings are not born as blank slates that are shaped by their environment, but they are instead shaped by their genes. He is particularly interested in language, and believes that we are born with the ability to speak and learn language. His outspoken comments fired up the nature versus nurture debate, and the British psychologist Oliver James described Pinker's theories as "utterly immoral".

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