

historical rise in human reasoning ability, which he believes may provide a counterweight to parochialism and intergroup hostility.

Any thoughtful reader of this wide-ranging treatise will find nits to pick. I am not persuaded that because 1960s counterculture glorified selfish impulsiveness ('just do it'), it was responsible for a small increase in the US homicide rate. The counterculture was largely about forsaking violence ('make love, not war'). Neither am I persuaded by Pinker's explanations for the decline in US homicide in the 1990s; in my view, he too hastily dismisses the possible relevance of demographic changes, and too credulously accepts that increased police presence and incarceration were important.

Pinker's biggest slip, in my view, concerns the relevance of income inequality, which has been the most successful predictor of variability in homicide rates between different places. Pinker gives it one brief paragraph, waving it off on the grounds that the standard index of income inequality was going up during the 1990s in the United States while crime rates were falling, and was at a nadir in 1968 when crime was "soaring". The trouble with this argument is that there is no reason to expect simultaneous short-term vicissitudes of income inequality and homicide; any effect of the former on the latter is surely mediated by people's cumulative experiences over their lifetimes. And it is ironic that despite Pinker's dismissal, the big historical story he tells — stressing the decline of despotism and marauding and the rise of democratic governments — is itself a tale of decreasing inequality.

Pinker closes with a rousing defence of modernity. Ultimately, his explanation for the decline of violence is Elias's — that the synergistic impacts of *Leviathan* and gains from trade have created a civilizing process that has diminished the utility of violence and, hence, its appeal. But he elaborates on this with an engaging game-theoretical twist (the "Pacifist's Dilemma"), and more-up-to-date psychology than Elias would have been able to muster. *The Better Angels of Our Nature* is a lively, fascinating read and a remarkable scholarly achievement that deserves to be studied and debated by many social scientists, concerned citizens and policy-makers. ■

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A biology graduate's back carries a reminder that DNA gave rise to all the biodiversity on Earth.

SOCIOLOGY

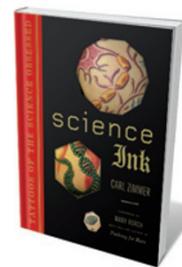
The illustrated scientist

Margo DeMello is fascinated by the evocative tattoo culture among different 'tribes' of scientists.

Tattoos were taboo until recently in the West — seen by most as the barbaric practice of marginalized or underworld groups. Now, tattooing is undergoing a renaissance. Almost mainstream in Europe and North America, tattoos are becoming ever more artistically sophisticated and personally meaningful.

Carl Zimmer's beautiful new book, *Science Ink*, focuses on tattoo culture among scientists, both amateur and professional. Zimmer, himself a tattoo-free science writer, began asking researchers to send photographs of their science-related tattoos to The Loom, his blog for *Discover Magazine*, in August 2007. These, and the stories behind them, evolved into *Science Ink*.

The book is broadly organized by discipline, featuring photos of tattoos themed to each — astronomy, chemistry, evolution, natural history, neuroscience and palaeontology. The scientists are using their body art to mark their standing as members of these 'tribes': so you see stars on astronomers, bacteria on biochemists, insects on entomologists and equations and symbols on mathematicians. And



Science Ink: Tattoos of the Science Obsessed

CARL ZIMMER
Sterling: 2011. 288 pp.
\$24.95, £16.99

there are molecules of every type, including pages of double helices.

Some designs are iconic, such as $E=mc^2$; or personal, like the chemist's tattoo of the molecular structure of phenobarbital, a drug he gives to his cat to control its seizures. One Loom reader sent in a sequence of zeroes and ones — the name of his daughter Lain in binary code. Some of

the tattoos are simple line drawings. Many are colourful and stunningly detailed — such as the elaborate picture on a mathematician's back of a microscope and the usually hidden world it reveals.

These decorated scientists join a tradition that is both venerable and near universal. The earliest evidence for tattooing dates back to Neolithic Eurasia. From there it probably spread from the Middle East to the Pacific

Islands, and later to the Americas, by way of India, China and Japan. By 3,000 years ago it was found almost everywhere, and today remains rare only in sub-Saharan Africa.

As permanent body art, similar to scarification, tattoos typically marked permanent or semi-permanent aspects of social position, such as rank or marital status. Today, they still serve this purpose, among others. As I wrote in *Bodies of Inscription* (Duke University Press, 2005), when the middle classes began getting tattoos, they also began to create “tattoo narratives”: stories relating why they got the tattoo, how long they had thought about it, the genesis of the design and its meaning, the tattooing experience and what the tattoo means to them now.

For professionals, these narratives are particularly important. As trailblazers in their class, they need to create new meanings for their tattoos; underworld or working-class narratives are not relevant to them. New narratives are important for personal as well as social and ‘tribal’ reasons — the scientists don’t want their choices to seem random or impulsive.

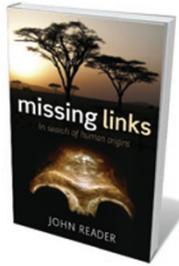
Many of the scientists’ designs are not easily understandable without knowing the story behind them. For example, the tattoo that inspired Zimmer’s quest was a double helix acquired by one of his friends, a neurobiologist. But it isn’t just any DNA: it also spells out the name of that friend’s wife. Another couple featured in the book have matching tattoos of chromosomes splitting during meiosis; those with no basic understanding of biology would have a hard time grasping the literal or metaphorical meaning of their squiggles without a narrative.

Science Ink is packed with fascinating stories. One of the most moving is Abigail’s. A chemistry student, she sent in a photo of her tattoo — the word ‘entropy’ inked on her back. A few months later, her mother sent Zimmer a note saying that Abigail had died in a car accident and that she was getting her daughter’s tattoo replicated on her own body. That blog post and the comments it generated became a memorial for Abigail, and eventually led to a posting by a woman whose mother had received Abigail’s lungs after her death.

We call tattoos permanent, but they last only as long as the body that wears them survives. Abigail’s tattoo has a life beyond her own: the design now adorns the headstone marking her grave. And it is there in the pages of *Science Ink* — one of many signs of an enduring fervour for science, and a new chapter in the age-old history of body art. ■

Margo DeMello is a cultural anthropologist and author of *Bodies of Inscription: A Cultural History of the Modern Tattoo Community*.
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Books in brief



Missing Links: In Search of Human Origins

John Reader OXFORD UNIVERSITY PRESS 350 pp. £25 (2011)

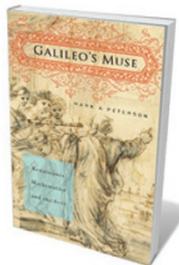
The cast of ancient superstars in palaeoanthropologist John Reader’s book has grown significantly in the 30 years since the first edition. Neanderthal Man, Lucy and other early hominin fossils are joined by finds from *Homo floresiensis* to *Ardipithecus* in a stunningly illustrated update. Powered by enthusiasm and peppered with controversy, the search for human origins is laid out clearly and succinctly, from the first fossils and Victorian revelations, to frauds such as Piltdown Man and triumphs such as the ‘world’s oldest child’: the *Australopithecus afarensis* fossil unearthed in Ethiopia and called Selam (‘peace’).



American Madness: The Rise and Fall of Dementia Praecox

Richard Noll HARVARD UNIVERSITY PRESS 390 pp. £33.95 (2011)

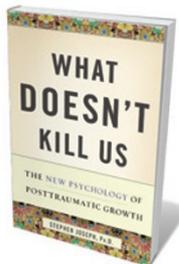
Between 1895 and the 1930s, tens of thousands of Americans were diagnosed with dementia praecox — an ‘incurable’ psychosis described by German psychiatrist Emil Kraepelin. The diagnoses then petered out. Psychologist Richard Noll traces the trajectory of this near-forgotten disorder, showing how it became the first specified disease of psychiatry, legitimizing that field’s place in medicine. Noll also shows how the debates today around the successor to dementia praecox, schizophrenia, are leading to a trend in psychiatry towards diagnoses that could fit better with genetics.



Galileo's Muse: Renaissance Mathematics and the Arts

Mark A. Peterson HARVARD UNIVERSITY PRESS 336 pp. £21.95 (2011)

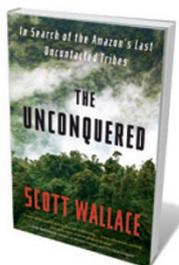
The great scientist Galileo Galilei was also a gifted draftsman and accomplished musician, steeped in Renaissance poetry. But art was no side interest for Galileo, physicist Mark Peterson claims. The mathematical inspiration for his findings, such as four of Jupiter’s moons, was fished from the humanist stream then flowing so powerfully in Italy. So it was Dante’s *Inferno*, Filippo Brunelleschi’s great domes and artist-innovators from Piero della Francesca to Leonardo da Vinci, not the medieval tag ends of science, that inspired Galileo and ignited the Enlightenment, Peterson argues.



What Doesn't Kill Us: The New Psychology of Posttraumatic Growth

Stephen Joseph BASIC BOOKS 288 pp. \$26.99 (2011)

Tsunamis, assault, near-death accidents: such experiences are popularly imagined to scar victims ‘for life’ and leave them in thrall to post-traumatic stress disorder. After two decades of research, positive psychologist Stephen Joseph argues that, for many, these traumas can become an “engine for transformation”. Backed by case studies, he covers trauma’s emotional toll, the underlying biology, the realities of resilience and the array of therapies on offer, such as trauma-focused cognitive behaviour therapy. This is a thorough and common-sense look at the psychology of survival.



The Unconquered: In Search of the Amazon's Last Uncontacted Tribes

Scott Wallace CROWN 512 pp. \$26 (2011)

Conquering civilizations have ebbed and flowed through Latin America, but uncontacted tribes such as the *flecheiros* (or Arrow People) still survive deep in the Amazon rainforest. Now their home and culture are threatened by deforestation, epidemics and marginalization. Journalist Scott Wallace takes us on a journey through a warzone where irreplaceable habitats and the knowledge of traditional peoples are the casualties.