

BOOKS & ARTS



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Hindu pilgrims pierce their tongues with metal skewers in a sacred ritual, apparently without feeling pain.

Overcoming agony

A broad account of the science of pain offers hope to patients but highlights how the culture of medicine needs to change, explains **Lucy Odling-Smee**.

The Pain Chronicles: Cures, Myths, Mysteries, Prayers, Diaries, Brain Scans, Healing, and the Science of Suffering
by Melanie Thernstrom

Farrar, Straus and Giroux: 2010. 384 pp. \$27

We all experience pain, yet it is surprisingly hard to describe. This inability to share the feeling makes chronic pain a double burden. To be in pain is, as journalist Melanie Thernstrom describes, “to imagine that no one else can imagine the world you inhabit”. That is, until you read her book.

Thernstrom writes for *The New York Times Magazine* and has covered war, murder, match-making and divorce. Years of unremitting pain in her neck, shoulder and arm — after merely swimming across a lake — took her into the top US pain laboratories and clinics. Weaving her own story with ancient myths, the history of anaesthesia, patient accounts and

recent research, she delivers a more complete picture of pain in *The Pain Chronicles* than most specialists would do.

Three paradigms have shaped attitudes to pain. Before modern medicine, pain was suffused with metaphysical meaning. Trial by ordeal, for instance, was practised for thousands of years — the accused were made to plunge a hand in boiling water or to walk on hot coals to see whether God would protect them from injury, and so prove their innocence.

The concept of pain as an evolutionary adaptation arose in the nineteenth century, when Charles Darwin’s theory of natural selection flourished, and still dominates. This second view sees pain as a signal of tissue damage — implying that if you treat the underlying disease or injury, the agony should go away. Yet such a reprieve eludes roughly 70 million people in the United States alone.

A third picture of pain has recently emerged:

the neuropathic model. It may explain why, for some, the stabbing, aching or burning stubbornly refuses to resolve itself long after the damage that caused it has healed. Much chronic pain — the kind that can worsen over months and years, and assume a life of its own — is now thought to be caused by changes in the brain and spinal cord, or in peripheral sensory nerves. Neurons transmitting pain become ‘hyperexcitable’; they begin firing spontaneously. And other nerves are recruited to help sound the alarm. Meanwhile, this state of excitability kills neurons that would normally dampen the pain signal.

Tricks in perception also play a part. A person’s genes, thoughts and culture all shape how these nerve impulses are interpreted. Neuroscientists now know that simply imagining that your pain will increase or persist for weeks revs up the activity of the central nervous system in a way that creates more pain. Likewise, by activating the parts of the brain that modulate

pain, a sugar pill can be as effective in some people as an opioid analgesic.

This latest picture may explain why different people have varied responses to pain and injury. For example, Thernstrom witnesses Hindu pilgrims piercing their cheeks and tongues with metal skewers in a sacred ritual, apparently without feeling pain. It also hints at why non-traditional approaches, such as hypnotism, can be successful in treating pain. Yet despite this wider understanding, the treatment of chronic pain remains woefully inadequate.

Anyone experiencing what Thernstrom calls the “misunderstood, misdiagnosed and under-treated disease” of chronic pain will be familiar with her years of bafflement, pointless expense on treatments that don’t work, and consultations with physicians who don’t understand. (I am among those whose pain did not go away, after a disc herniation three years ago; only in the past few months did I stumble across

a specialist who could explain why my pain persists.) Treatment is improving, but, even now, there is roughly only one pain specialist for every 25,000 patients in the United States. Meanwhile, chronic pain costs the country more than US\$100 billion a year.

Thernstrom argues that the problem is mainly one of disseminating new understanding. I disagree. Although she focuses on recent studies, the idea that pain can result from a damaged nervous system is not new. Many of the core concepts were laid out by psychologists Ronald Melzack and Patrick Wall in their 1982 book *The Challenge of Pain* (Penguin).

Anaesthetics were not widely used to treat pain until a century after their discovery because cultural preconceptions — for instance, about the virtue of suffering — needed to be overcome first. A similar shift in attitudes is necessary for medicine to properly embrace the science of pain. The belief that pain should

be borne as an unavoidable fact of life persists among some physicians. For many others, the possibility of curing a life-threatening disease probably holds more appeal than showing patients how to manage a non-threatening but incurable one.

Regardless of what sustains the divide between the lab and the clinic, *The Pain Chronicles* should narrow it. I hope that Thernstrom’s industrious survey of the latest research, treatment biases and patient and physician perspectives will prompt some health-care givers to rethink their approach. And patients who read her book will no longer have to remain in the dark or feel so alone. Thernstrom’s descriptions of what it is like to live with “a broken alarm that rings continuously, signaling only its own brokenness” give a voice to millions of people whose lives are blackened by something that no one else can see. ■

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An embellished tale of Pluto’s discovery

Percival’s Planet: A Novel

by Michael Byers

Henry Holt: 2010. 432 pp. \$27

Eighty years ago, the hunt for a mysterious Planet X culminated in the discovery of Pluto. Lying beyond Neptune in the Solar System, the orb was named after the Greek god of the underworld and became part of our family of nine planets. In 2006, having completed just one-third of an orbit around the Sun since its detection, Pluto was declared a mere ‘dwarf planet’, an interloper from deep space, and was cast out of that family.

Percival’s Planet is novelist Michael Byers’s fictionalized history of the discovery. Interweaving real people and events with imagined ones in a pastiche of the United States in the late 1920s, he tells the (real) tale of Planet X — an unseen planet at the Solar System’s edge that had been predicted by wealthy businessman-turned-astronomer Percival Lowell to explain anomalies in the orbits of Neptune and Uranus. Into the search for the putative planet steps Clyde Tombaugh, working at the Lowell Observatory in Flagstaff, Arizona, which Lowell had endowed. After Tombaugh’s efforts pay off, Planet X is renamed Pluto by a schoolgirl who wins a competition.

Tombaugh’s story of serendipity frames the novel. A farmer’s son from Kansas, he was a skilled technician and a self-taught maker of telescopes. In the novel, he shares the stage with a bewildering array of characters,

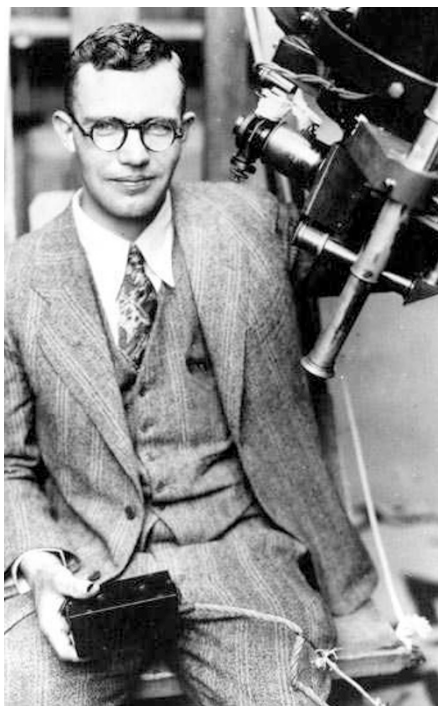
from Harvard astronomers to fading boxers, confused heirs and beautiful women, both sane and insane. All these actors orbit ever closer to the Lowell Observatory, perturbing each other more and more until they collide. Byers’s portrayal of the United States on the cusp of the Great Depression is meticulous; glimpses of

inner dialogue and period details help build an immersive world.

The true story of Pluto’s discovery is here, but it is slow to come to the fore. And the mix of fact and fiction can be unsettling. Fabricated characters crucial to the story coexist with real people such as Tombaugh, his fellow astronomer Vesto Slipher and Lowell’s widow. Many readers will find themselves turning to Google for information about what is true and what is not.

Byers’s choice of embellishment over historic accuracy is understandable because the search for Planet X involved countless hours of drudgery: meticulous astronomical observation, long periods staring at photographic plates and uneventful book keeping. In real life, cool discoveries are often made by normal people who then just go home and have tea. By adding flesh and blood to the true story of Pluto, Byers reinvigorates its history.

Like witnessing men walking on the Moon 40 years later, finding Pluto was a milestone in the lives of a generation. It came at a pivotal moment when human horizons expanded. The discovery coincided with the birth of modern cosmology, when the vast scale of the Universe was revealed, and when improved global communications meant that a crash on Wall Street reverberated around the world. Science was changing too, becoming more professional. Yet the pace of investigation remained genteel: researchers could take their time on speculative projects such as the hunt for Planet X. This wider context makes Byers’s imagined tale of



Clyde Tombaugh rose from humble origins to discover Pluto.

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