



Humans are surprisingly adaptable: Philippa Smeed, who was born without arms, supports a mug with her foot.

TECHNOLOGY

Beyond the body

Ewen Callaway finds immersion in human enhancement to be both unsettling and uplifting.

Superhuman, a provoking and discomfiting exhibition at the Wellcome Collection in London, projects equal parts Clark Kent and Superman. An exploration of human enhancement, it starts with early-nineteenth-century tortoiseshell spectacles and an ancient bronze Icarus to remind us that the concept is neither inherently high-tech nor particularly new.

Curator Emily Sargent takes a broad view of technological improvement. Vivienne Westwood platform heels, Viagra pills and news clippings of the first child born as a result of *in vitro* fertilization are displayed beside cochlear implants and an ivory dildo. Sex is everywhere in *Superhuman*.

The exhibition explores the tensions between replacement and improvement, form and function. Should technological aids — be they pills or prostheses — restore ‘normality’ (whatever that means) or transcend it, like Icarus’ wings? Is fidelity more important than utility?

The ancients favoured form. A perfectly sculpted big toe made of a composite of linen and gesso was found alongside an Egyptian mummy dating to the sixth century BC. Historians believed at first that it was meant only as a replacement in the afterlife, but the prosthesis fit snugly on the feet of other people missing their big toes, suggesting that it may have found a use in the real world, too. Similarly, a silver prosthetic nose welded to spectacle frames is testament to attempts by a well-heeled woman of the Victorian era to avoid social stigma after losing her nose to syphilis.

Yet too much emphasis on assimilation can have heartbreaking consequences. Between 1957 and 1962, many pregnant women took the drug thalidomide to ease morning sickness and improve sleep, until doctors realized that it caused severe limb deformities in the developing fetus. The UK government funded the design of prosthetic arms and legs for children born without them. The disturbingly lifelike limbs were so

heavy and clunky that some had to be powered by pneumatic pumps, and they were mostly useless. In one

of a series of haunting videos in the exhibition, a child describes using the prostheses as a weirdly dreamlike experience: “It was like somebody else touching [things] and I was merely an observer.”

Beside the display of videos is a black-and-white photograph of an 11-year-old girl, Philippa Smeed (now Verry), who was born without arms, lounging on a sofa and sipping from a mug that dangles from her toe. Her eyebrows are arched, and the mug seems to conceal an impish grin. “When I look at this photograph I realise what a wonderful, confident and happy childhood I had,” Verry says.

Examples of the extravagant and strange abound in *Superhuman*. There are cyborgs with limbs and faces cobbled together from workshop tools. There is athlete and double-amputee Aimee Mullins, made up as a cheetah with prosthetic hind legs: a still from artist Matthew Barney’s film *Cremaster 3*, which will screen at the exhibition. And there is the Whizzinator, a combination penis and bladder prosthetic, designed to help male athletes to evade anti-doping tests.

Aptly, *Superhuman* opened days before the start of the London Olympics. Sport is a study of human enhancement, by means

Superhuman
Wellcome Collection,
London.
Until 16 October
2012.

both honourable and underhand. South African sprinter Oscar Pistorius, who was born with missing leg bones, is running in both the Olympics and the Paralympics. His carbon-fibre Cheetah prosthetic blades, fitted with running spikes, look nothing like human limbs, but they perform so well that the International Association of Athletics Federations appealed (unsuccessfully) against Pistorius's participation in races against able-bodied athletes, claiming that he had an unfair advantage.

At the start of the twentieth century, Olympic marathon runners were allowed to train intensively for only four weeks in the year before the Games. They used strychnine as an endurance enhancer to help them to complete the gruelling course of about 42 kilometres (26 miles). A blurry photograph, on display in *Superhuman*, shows a dazed Tom Hicks, winner of the marathon in the 1904 games in St Louis, Missouri, being helped to the finish line by his two trainers.

Like other exhibitions at the Wellcome Collection, *Superhuman* leans heavily on historical and contemporary objects, and primary documents such as newspaper clippings. But the few fine-art displays are high points. South Korean artist Hyungkoo Lee's photograph *Enlarging my Right Hand with Gauntlet* depicts a pump resembling an udder.

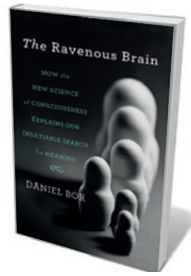
In her tongue-in-cheek short film *I Need a Hero*, Charlotte Jarvis imagines a reality-television show in which amputees compete for body modifications and enhancements. The most powerful film is Regina José Galindo's *Recortepor la Línea* (Cut Through the Line). In it, the artist stands naked and taciturn in a public park in Venezuela — home to the world's third-highest rate of cosmetic surgery per capita — as a plastic surgeon uses a marker to chart the changes he would make to her body.

Revital Cohen's room-sized installation *The Immortal* is the most ambitious artwork: a closed loop in which air and water flow between a respirator, an incubator, a dialysis unit and other medical machinery, in an attempt to simulate a living organism. It will run for just one hour a day, so plan your visit accordingly.

The exhibition ends with a series of video debates on topics such as cognition-enhancing drugs, life-span extension and transhumanism — the idea that humans can transcend their bodies through technology. My favourite is a meditation by bioethicist John Harris on the obligation to enhance. Humans, he argues, must get over their squeamishness if they are to outlive climate change, global pandemics and eventually the destruction of Earth itself. Sounds like a job for Superman. ■

Ewen Callaway is a news reporter for *Nature* in London.

Books in brief



The Ravenous Brain: How the New Science of Consciousness Explains Our Insatiable Search for Meaning

Daniel Bor BASIC BOOKS 352 pp. £18.99 (2012)

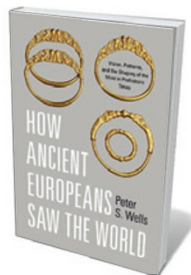
As scientific enterprises go, cracking consciousness is up there with deciphering dark matter. Neuroscientist Daniel Bor dives into the conundrum with relish. He begins by defining consciousness as the ability to gather knowledge, then works his way from a history of the brain and the “neuroscience of awareness” to an exploration of severe brain damage. Intriguing arguments abound — not least, Bor's recasting of mental conditions such as schizophrenia and bipolar disorder as ‘disorders of consciousness’.



Some Remarks: Essays and Other Writing

Neal Stephenson ATLANTIC 336 pp. £20 (2012)

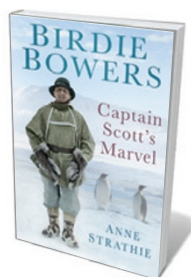
From *Snow Crash* (Bantam, 1992) to *Reamde* (Atlantic, 2011), Neal Stephenson's novels range over a dazzling array of disciplines — including metaphysics, gaming, nanotechnology and the history of science. Here, he assembles an entertaining sampler of cyberpunkish treats. Among freshly edited essays, interviews and other short works on topics such as geek cool and the mainstreaming of science fiction are two previously unpublished pieces. ‘Get Up’ is an essay on sitting; the other is a work of fiction one sentence long. Prepare to be amused.



How Ancient Europeans Saw the World: Vision, Patterns, and the Shaping of the Mind in Prehistoric Times

Peter S. Wells PRINCETON UNIVERSITY PRESS 304 pp. £24.95 (2012)

Look at a pot predating the Roman Empire, or a Bronze Age burial site, and your interpretation of form and pattern will be vastly at variance with that of their makers. So says anthropologist Peter Wells, who argues that in late prehistoric Europe — a world that lacked the written word and was thin on ‘stuff’ — people's perceptions were very different from our own. Wells ‘reads’ tools, vehicles, ornaments, textiles and buildings to reveal a neurobiological map of profound changes in ancient society.



Birdie Bowers: Captain Scott's Marvel

Anne Strathie THE HISTORY PRESS 224 pp. £18.99 (2012)

Scott of the Antarctic was surrounded by strong characters. One, Henry ‘Birdie’ Bowers, emerges as grounded, courageous and ferociously well organized. He handled landing, navigation and more for the 1910–12 Terra Nova expedition, and took part in the penguin-egg quest immortalized in Apsley Cherry-Garrard's memoir *The Worst Journey in the World* (1922). He was also the youngest to die with Scott in the doomed ‘party of five’. Built on research in Antarctica and at the Scott Polar Research Institute in Cambridge, UK, Anne Strathie's biography includes previously unpublished material.



Drawn From Paradise: The Discovery, Art and Natural History of the Birds of Paradise

David Attenborough and Errol Fuller COLLINS 256 pp. £30 (2012)

Some dance; some are dubbed superb or magnificent; many sport ruffs, streamers or elaborate headgear. Birds of paradise — found in New Guinea and Australia and comprising about 40 species — are celebrated here by broadcaster David Attenborough and artist Errol Fuller. The authors trace the natural history of these beauties, known to Europeans since the sixteenth century, with copious illustrations by artists from Peter Paul Rubens to Jacques Barraband.