

PSYCHOLOGY

The scarred self

Anthony King reviews an exhibition on the horror, and hope, posed by trauma.

Less than a month after the terrorist attacks in Paris, Trauma, the latest show at Science Gallery Dublin, feels unnervingly relevant. Exploring, among other things, the surprising role of trauma in emotional resilience, this collection of objects and ideas ranges from haunting photos from Northern Ireland's Troubles to a room-sized instrument crafted by a composer with tinnitus (see J. Hoffman *Nature* 505, 159; 2014) and photograms of plant specimens from Chernobyl.

Trauma, from the Greek word meaning 'wound', is profoundly personal: the sufferer is sealed off within the mental or physical experience. Katharine Dowson's *Memory of a Brain Malformation*, a delicate laser etching of a brain tumour in glass, emphasizes this isolation. Dowson — who often works with scientists and physicians — portrays the growth as a discrete entity inside a nest of sinuous veins. (The actual tumour was successfully removed from her cousin's brain by laser treatment.) The work evokes both the emotional trauma of diagnosis and the energy of a positive outcome.

External trauma to the head can be just as damaging, and the neurological problems arising from it in sport are the focus of intense research. The installation *Impact* examines the design of helmets for sports such as American football and Irish hurling, sparked by such studies. Mechanical engineer Ciaran Simms at Trinity College Dublin, for instance, examines the body's response to high-force impacts in rugby; Stefan Duma at the Virginia Polytechnic Institute and State University in Blacksburg

Trauma: Built to Break
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uses real-time sensors in the field and lab to rate commercial helmet design.

A darker realm of trauma is explored on the gallery's ground floor in *The Interrogation of Detainee 063*, an infographic detailing 50 harrowing days in the interrogation of Mohammed al-Qahtani at the United States' Guantanamo Bay camp in Cuba. The exhibit underlines the extreme suffering triggered by torture. Colour-coding shows the duration of interrogation, loud music and inhumane and degrading treatments, such as being forced to wear a muffling hood or humiliating signs, or to write letters of apology to victims of the terror attacks of 11 September 2001.

Upstairs, *Stressed Body, Stressed Brain* investigates one physiological response that is central to the notorious torture technique waterboarding. This response, the diving reflex, is triggered when the face is immersed in cold water. The exhibit invites viewers to lie down and have a damp cloth placed on their cheeks to gauge how this upsets memory recall and slows heart rate by as much as one-quarter. Its curators are physiologist Áine Kelly and neuroscientist Shane O'Mara, author of *Why Torture Doesn't Work* (Harvard University Press, 2015; see L. T. Harris *Nature* 527, 35–36; 2015).

O'Mara has shown elsewhere how stress and trauma can trigger the creation of false memories. *Memory Laundering* — essentially a large cabinet holding dozens of deposit boxes — plays with this mutability. Created by makers Design-Goat, it is inspired by the work of neuroscientist Susumu Tonegawa and the team at the RIKEN–MIT Center for Neural Circuit Genetics at the Massachusetts Institute of Technology in Cambridge, who collaborated with the gallery. You are asked to write down one good and one bad memory, and place them in one of the boxes. When

Katharine Dowson's laser etching *Memory of a Brain Malformation* records her cousin's brain tumour in glass.

you return to retrieve them, the details have been edited by a gallery mediator concealed behind the cabinet.

The most graphic of the exhibits is a series of photographs of an operating theatre in Afghanistan's Helmand Province. *Sightlines I/Supernumerary* by installation artist David Cotterrell is a record of his stint as an embedded photographer with the UK Joint Forces Medical Group. During it, he created diptychs and triptychs of the visceral business of emergency medicine — containing and controlling trauma. The images reference the dramatic chiaroscuro of painters such as Caravaggio, evoking horror yet suggesting sublime beauty. Alongside the bloody collage stands *XSTAT 30 Hemorrhage Control Device*, an innovative syringe contain-

“Trauma is something that life can profit from, enhancing resilience.”

ing 92 miniature cellulose sponges, designed to control severe bleeding.

“Trauma is the ultimate insult,” says co-curator and neuroscientist Daniel Glaser. It is about not the moment, but

the aftermath, he adds — a truth easily observable among victims from Syria to France. Dublin has had its own share of trauma. Next year sees the centenary of the Easter Rising, when Irish republicans proclaimed independence from Britain. Six locations across the city will be stamped with a bandage symbol on a map available at the gallery as part of artist Sarah Bracken's *Bandage*, marking hidden scars from pitched street battles, arrests and executions by the British military during the rising.

At base, this is a show about recovery. The tumour is excised; the blood flow is staunch; life goes on. From mental wounds to psychological damage — historically viewed as inevitable aspects of the human condition — the message in Trauma is ultimately positive. O'Mara explains why. Between 30% and 70% of traumatized people experience post-traumatic growth, he writes: their suffering opens up “new perspectives not previously available to them”. As he notes, “trauma is something that life can profit from, enhancing resilience, and providing lessons to us all”. ■

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