

## 1 Pain in the Brain

A startling scene unfolded in Leicester Royal Infirmary early in 1995.

A builder aged 29 came to the accident and emergency department having jumped down on to a 15 cm nail. As the smallest movement of the nail was painful he was sedated with fentanyl and midazolam. The nail was then pulled out from below. When his boot was removed a miraculous cure appeared to have taken place. Despite entering proximal to the steel toecap the nail had penetrated between the toes: the foot was entirely uninjured. (Fisher et al. 1995)

It would seem that the builder's brain had told him he should experience pain, and experience pain he did, even though the body part supposedly affected had not suffered any physical trauma.

'Pain has become one of the most challenging medical mysteries of modern times', remaining 'enigmatic, mysterious, and frustrating' (Boddice 2017, 1–2). It has been studiously avoided (a response now deemed normative), embraced (as in medieval Western Christianity), exploited and monetized (by the modern pharmaceutical industry). Contemporary neuroscientists have freely admitted that it is 'one of the most poorly understood of all sensory experiences'; 'very little is known about [its] physiology' (Ramachandran & Blakeslee 1998, 52; Ramachandran & Hirstein 1998, 1065). What does seem to be the case is that 'pain is not just a message from injured tissues'; there is no simple and 'direct hotline from pain receptors' in the body to 'pain centers' in the brain. And it is abundantly clear that there is 'no pain without brain' (Ingraham 2020). To be more precise, 'The brain does more than detect and analyze inputs; it generates perceptual experience even when no external inputs occur. We do not need a body to feel a body' (Melzack 1992, 126).

That scarcely credible principle, which in relation to the Leicester builder and an abundance of comparable occurrences may even seem laughable, is of exceptional cultural importance. It has been considered, challenged and confirmed across the centuries in a variety of ways by physicians, philosophers and poets – whatever terminology they may have used in considering the determining, tantalizing, elusive relationship between the *sōma*/body and the *psyche*/soul/mind/brain. The following Element brings together and discusses some of those moments, in a way which reveals their similarities while respecting their singularities. Fundamentally a study in the history of emotions and senses within Western culture, it seeks to harness some of the energy of and synergize some of the varied technical discourses that come from the different critical

perspectives of neuroscience, bioethics, medical humanities, literary and cultural criticism, and medieval studies.<sup>1</sup>

The two main protagonists of my narrative are the most intellectually daring of all medieval European poets, Dante Alighieri (d. 1321), and a fictional character, ‘George Dedlow’, who was created by Silas Weir Mitchell (1829–1914), the ‘father’ of medical neurology in the United States. A distinguished Civil War physician, Mitchell’s intense involvement with amputation surgery and its aftermath inspired him to give ‘phantom limb pain’ (PLP) the name which has persisted into the twenty-first century and helped drive a substantial literary *oeuvre* which displays a subtle sensibility and remarkable storytelling gifts. An author with a very different sensibility, Owen Wister (1860–1938), who did much to inaugurate the idealizing genre of the cowboy novel, testified to Mitchell’s seared conscience by remarking that the experience of treating ‘mutilated soldiers’ had infused his writing with ‘a hideous panorama of the flesh, the mind and the soul’ (Herschbach 1995, 187).

The last decades of the twentieth century saw a dramatic reversal in the fortunes of PLP. The celebrity neuroscientist V. S. Ramachandran pronounced it the ‘Holy Grail’ of neurology and neurobiology: if only a complete vision of PLP could be achieved, its mysteries uncovered, we could peer ‘intently and with awe into the cortical processes that are considered constitutive of human experience and the very essence of our humanity’ (Crawford 2014, 158–9). What was once a marginal, suspect and often derided syndrome – a mere ‘ghost’ in the sense of a fantasy or something ‘made up’ by unreliable witnesses – became of central importance, offered as the skeleton key to understanding human wholeness, our desire for completeness, our sense of personhood.

Amputation and prosthesis, the lack of limbs and the creation of substitutes for them, will feature prominently in the discussion that follows, as I range from missing body parts to missing complete bodies, from what the brain makes of the lack of a limb to what the soul makes of the lack of all the limbs entrusted to it. Does the principle that ‘we do not need a body to feel a body’ apply even here? Throughout the Middle Ages, that was a matter of intense intellectual debate, with several types of answers in the affirmative being offered, even as the issue of what constituted a body was confronted. Angels and demons, who lacked physical bodies, will make their presences (or, rather, non-presences) felt in this discussion, since theorizing about their occasional embodiment to enable human perception includes some of the best examples of medieval psychosomatic thinking. Discussion of those unfeeling phantoms helped scholars ascertain what it meant to feel distinctly, individually, human.

<sup>1</sup> An exemplary illustration of how the history of medicine can synergize with medieval studies has been afforded by the work of Irina Metzler (2006, 2016).

Two sorts of intersection between narrative and prosthesis will be addressed. In the first instance, accounts of literal prosthetic activity (whether by men or angels) will feature prominently, with special attention being paid to Dante's highly original development of the core idea, his description in *Purgatorio* XXV of *ombre*. This is a profound Christianization of the *umbrae* of Virgil's underworld: the shades of the dead, mere shadows, as diaphanous as 'the light breath of a breeze or vanishing dream' (*Aeneid*, VI, 290–4; VI, 700–2). Dante presents his phantoms as eagerly self-prothesizing, shaping bodies from pliable air, as they long for full embodiment. Beyond that, the metaphorical prospect of a narrative itself enacting prosthesis or refusing to do so will be explored, with reference to Mitchell's uncompromising presentation of the fate of George Dedlow – a tale which offers its reader no consoling scenario of the hero's rehabilitation within 'normal' society.

A major medieval source of psychosomatic thought addressed what happens when the *sōma*/body and the *psyche*/soul/mind/brain are separated by death (a situation sometimes described as being foreshadowed in dreams and other auto-scopical, out-of-body experiences, or OBEs). Medieval Western Christianity insisted on the continuous existence of the soul. That was not to be questioned. But how did the lack of its body – a temporary situation, to be sure, for it would return (better than ever) at the General Resurrection – impact on that existence? Another non-negotiable requirement was the occurrence of pleasure in heaven and pain in hell (and purgatory): could phantoms enjoy or suffer without corporeal organs? Here phantom limb pain (and pleasure, for that does exist, according to current neuroscience) takes on a whole new dimension.

My *terminus a quo* consists of writings by Saint Augustine of Hippo in the late fourth century. One of the greatest medieval theologians (arguably *the* greatest in the Western tradition), he devised and deployed an idea of 'body schema' which in certain ways anticipates some of the hypothesizing of contemporary neuroscientists. However, within late-medieval scholasticism, it came under attack; the idea was controversial even then. But before traveling back all that way, I must stop at a few helpful staging posts, to pick up essential conceptual supplies and indicate the high stakes of an inquiry into the pains of phantoms.

First, a fundamental etymology. The term 'psychosomatic', defined by the *Oxford English Dictionary* as 'involving or depending on both the mind and the body', is a compound of the Latin term *psyche* (itself derived from the Greek term *psukhē*), meaning breath, life, mind, soul or spirit, and another Greek term, *sōma*, meaning 'body' (*OED*, s.v. 'psychosomatic'). The compound adjective holds out tantalizing possibilities for the study of what the mind can do when compounded with the body. However, it has become quite toxic among members of the general public (as well as many doctors), who see a diagnosis of

psychosomatic illness (or, more commonly, of psychosomatic factors as accentuating an existing bodily illness) as an accusation of malingering, making things up, fakery and lying.

The persistent notion that the body is a sort of machine (which owes a lot to Descartes) means that people expect a material ‘fix’ for all their ills. Little wonder, then, that the move from organic to psychological diagnosis is so hard to comprehend and so hard to bear for patients presenting with symptoms relating to chest pain, blurred vision, hearing loss, itches and rashes, chronic fatigue and irritable bowel syndrome (to cite examples of illnesses which, in certain cases, have resisted physical explanation). Being told one has a psychological disorder is at times experienced as a humiliation, and patients will go to extraordinary lengths – including having ill-advised surgery – to avoid that slur. All of this has memorably been brought out in a recent popular book by Irish neurologist Suzanne O’Sullivan, which records how she has ‘shared’ her ‘patients’ struggle to accept the power of the mind over the body’, interacting with people whose lives have been destroyed by ‘medical disorders like no others. They obey no rules. They can affect any part of the body’ (O’Sullivan 2016, 16, 6). She estimates that ‘on an average day perhaps as many as a third of people who go to see their general practitioner have symptoms that are deemed medically unexplained’. Worldwide, the disorders in question ‘occur in twenty per cent of patients’. The problem, then, is of massive and global proportions. Humanity is experiencing ‘disorders of the imagination restricted only by the limits of the imagination’ (7, 6).

## 2 In Search of Phantoms

No disorder of the imagination has challenged comprehension and strained credibility more than phantom limb syndrome (PLS), whereby patients with a missing limb or some other body part perceive it as being still present, and a source of sensations, particularly pain (PLP) of a kind ‘characterized by throbbing, stabbing, electric shock sensations, and even cramped and painfully immobile limb sensations’ (Collins et al. 2018, 2168). As George Riddoch (1888–1947) nicely puts it, ‘Such a state of affairs was beyond reason and it would not be surprising if the unfortunate patient was regarded as an obstinate, lying fellow or even possessed of the devil. In fact, it was a matter that was better left alone’ (Riddoch 1941, 197). He expresses surprise concerning the ‘frequent refusal of medical men’, ‘in these days of advanced physiological knowledge’, ‘to believe that phantom limbs are anything more than psychological abnormalities’ (198).<sup>2</sup>

<sup>2</sup> Riddoch is credited as being the driving force behind British treatment of spinal injuries during the Second World War.