

Prentice, Rachel. 2013. *Bodies in Formation. An Ethnography of Anatomy and Surgery Education*. Durham, London: Duke University Press. xi + 295 pp. Pb.: \$24.95. ISBN: 9780822351573.

Bodies in Formation offers powerful insight into the training of medical students and surgeons and the evolution of medical education. Prentice's work reflects on the relations between anatomy students and the cadavers they dissect, the bodies of surgeons and their patients, and the influence of technological innovation on these interactions.

The book begins with two descriptive glimpses into the clinical setting. In the first, a trainee surgeon narrowly misses a large artery and is guided past the accident by his supervisor, who remarks on the consequences evaded. In the second, a discussion is generated between three surgeons regarding the correctness of allowing students to kill their virtual patients in a simulated tool for laparoscopic surgical teaching. These two events set the premise of the book, in which Prentice establishes an understanding of the ontological duality of the human body in the minds of medical professionals: the body being a physical, anatomical construct for which pathology has a locational, organic existence, and the body as a manifestation of personhood and identity. Prentice describes the development of a 'perceptual syntax,' (p. 18) that allows physicians to discern between causes of symptoms by differentiating between a huge variety of pathological objects in their anatomical context; this is described as "object formation" and the author argues a fundamental difference between *object formation* – the biomedical understanding of disease as objects – and *objectification*, according to which the patient becomes amalgamated with their pathology and is ultimately dehumanised (pp. 16–19). The book demonstrates that object formation is a foundational part of biomedical training, especially in surgical training, where the practitioners learn to use their senses to identify pathology through vision, tactility, audition and olfaction. Surgeons navigate the body by shifting between a fixed "canonical" model of the human body (i.e. the standard textbook representation of a typical body) and a developed understanding of the "instantiated" body, meaning the body in its real diversity, accounting for the near infinite variations that exist from person to person. The use of both models contributes to the contention regarding the relevance of cadaver dissection in medical schools. (pp. 95–100)

The first two chapters of the book comprise nearly half of the text and focus on anatomy teaching through dissection in medical education; this reflects the pertinence of Prentice's fieldwork in anatomy to her central arguments. The decline of anatomy as a substantial core of the medical curriculum coincides with the disproportionate obsolescence of cadaveric dissection as the last remaining laboratory experience medical students receive. (pp. 69–77) What makes the author's perspective so insightful is her hands-on participation in anatomy classes; she reflects on the value of learning through such emotionally charged experiences and through the practice of exploration, '... as years have passed, I remember the tactile feel of sharp bone and thick muscle more clearly than I remember the smells.' (p. 55) Prentice discusses the shift in the culture of anatomists to acknowledge the poignancy of using cadavers and the encouragement of students to respect their cadavers' humanity as a lesson to develop the same regard for their patients' bodies.

The sensory, immersive and explorative values of dissection are contrasted with the benefits of modern problem-based teaching models and computer simulations, which provide the ability to manipulate the anatomy and practice repeatedly. (pp. 91–95) Prentice scrutinises the controversies in anatomy and the broader changes to medical curricula that cannot capacitate for dissection to be carried out as methodically and usefully as it should be. Anatomy is no longer a field of discovery or ‘productive research science’; however, it remains an important ‘basis of medical cultures and communications’ (p. 83) and many anatomy proponents argue its relevance and persisting importance. Throughout the book the author makes reference to the bias that technological representations and simulators can introduce to teaching resources through the need to disassemble and construct the human body with mathematical algorithms and pixels: ‘technology designers build their own assumptions about bodies, actions, and practices into their machines, assumptions that are changing medical practice.’ (p. 20) The discussion is on-going between traditional anatomists and those hoping to innovate with technological development, which at this point remains idealistic as such accurate simulation software does not yet exist to provide a substantial replacement for cadaveric dissection. ‘The epistemic anxiety that occurs when physicians sense that technologies are leading them away from the “real” body explains a significant tension in biomedicine that promises to become larger as treatment regimes such as decision protocols and evidence-based medicine, which aggregate and abstract information about bodies, become more powerful.’ (p. 99)

The third, fourth and fifth chapters examine the formation of the behaviour of medical professionals in relation to their practice, their interactions with patients and the culturing of their bodies to perform in their field and establish themselves within the profession. There is a clear image of the immersion of surgical residents in the clinical setting and the hierarchical framework to which juniors must orientate themselves in order to successfully pool together technical information, skills and demeanour from their seniors to meet an expected standard; much of this valuable teaching is informal and passed down in fleeting moments between corridors or after surgery. (pp. 122–123) Residents must develop an intuition that cannot be conferred without first climbing a notional hierarchy of knowledge and experience to acquire and embody ‘higher-level skills’ such as judgement, perception, emotional discipline and ethical reasoning. (pp. 117–118) This is in the context of increasingly bureaucratised restraints on working hours, which have protected patients and residents from exhaustion-induced errors, but have compromised the ‘surgical ethos’ of dedication and ‘constant availability’, leaving residents with less experience in the operating room. (pp. 123–127)

The final two chapters consider technological innovation within medical training with regards to the representation of the body by virtual means. Prentice also discusses the transferability of the articulatory skills gained from simulators and the potential limitations these methods of training have in relation to haptics and the use of other senses in surgical practice. The discussion surrounding the ability to make mistakes on simulators highlights the transformation of the learning experience as a ‘form of exploration,’ (p. 263) but the emotional connotation when working directly with human tissue makes for a more powerful learning experience as the residents are more compelled to refine their

skills and ‘embody an ethic of doing no harm.’ (pp. 259-263)

Bodies in Formation is an exhaustive ethnography of medical education and the surgical world, exploring many complex challenges faced by the rapid advancement of a field that is tenaciously rooted in tradition. Prentice has acquired a wealth of data from students, educators, researchers, surgeons, engineers and designers, as well as having directly participated in dissection and surgery. As a medical student with a special interest in medical anthropology, this reviewer has been able to identify strongly with the author’s own first-hand experiences, which have also made the text accessible and fascinating to readers from non-medical backgrounds. Prentice has made evident that the dichotomy between traditional versus modern teaching remains unbalanced, as no technological advancements have yet adequately eclipsed the teaching of an embodied art.

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