

Book Reviews

Medicine and Health

KELLY A. JOYCE, *Magnetic Appeal: MRI and the Myth of Transparency*. Ithaca, NY: Cornell University Press, 2008. 208 pp. 7 halftones, 1 table, 4 charts/graphs. Cloth \$62.95; Paper \$21.95. ISBN: 978-0-8014-4489-0; 978-0-8014-7456-9.

Magnetic Resonance Imaging (MRI), after some initial skepticism in the 1970s and the early 1980s, quickly transitioned into, as Kelly Joyce forcefully argues in her book, *Magnetic Appeal*, a 'cultural icon'. Its iconic status could be discerned not only from its superfast proliferation in clinics all over the US (e.g. in the mid-1980s Los Angeles had more MRI machines than the whole of Canada), but also in its cultural framing in the media. A reporter for the *Saturday Evening News* described MRI in the following way in 1987:

The magician's act of sawing a person in half is, of course, only an illusion. No illusion is the new 'Star Wars' technology known as Magnetic Resonance Imaging (MRI). When aimed across the abdomen, it can give physicians a picture as if the body were actually cut in two. The 'knife' can cut through the body and give a picture of all the insides just as they are.

One can argue that the reporter, constrained by his lay knowledge of a cutting-edge medical technology, was mythologizing its potentiality. This would not be an uncommon response: cultural constructions of science are often judged through the categories of true/false and science/non-science. A focus on judging the role of society or culture in these terms often harks upon a *two cultures* thesis, wherein the concern is that those who are not natural scientists do not understand science. What is however lost in such a response is the intricate and intrinsic relationship of cultural constructions with the practice of science. Had it not been for the framing of MRI as a cultural icon, MRI may not have developed the way it has. Moreover, natural scientists played a key role in this process. The issue therefore is not how and to what extent society impacts science as an external agent. Rather, as *Magnetic Appeal*, in line with recent science and technology studies, nicely shows, is that we need to understand the co-constitution of science and society.

The achievement of Kelly Joyce's book has to be seen within this broader context. The reference to myth in the subtitle of the book should not be narrowly understood as an attempt by the author to simply debunk or falsify MRI's claim of transparency. The term myth is used here in the sense that the eminent anthropologist Claude Lévi-Strauss deployed it – to signify a 'communicative system' that embodies 'a bundle of relations'. *Magnetic Appeal* offers a kaleidoscopic view of an age of visuality by analyzing MRI 'within economic and symbolic systems of exchange'. Joyce states at the outset, 'the development of MRI technology and our desire to use it must be understood in relation the broader sociotechnical turn toward visualization' (p. 6). In six lucidly written chapters, she forcefully illustrates this claim.

Chapter 1, 'MRI as a Cultural Icon', describes the analytical focus as well as reach of the book. Joyce's intention is to take the reader beyond the commonly accepted explanation for the MRI boom that 'draws on the "it is the best technology" line of reasoning' (p. 5). She argues that it is 'the social, material, cultural, and economic factors that transform MRI technology into a desirable knowledge producing technique' (p. 6). MRI's acceptability, as she further argues, is inseparable from historically and culturally attributed value of the visual in the claims of truth: 'For something to be true, it must be seen' (p. 10). Nevertheless, other social, economic, and technical factors contributed to the emergence of MRI as a cultural icon. Chapter 2, 'Painting by Numbers', provides an analysis of the context of MRI's emergence in greater depth. Joyce not only throws light on the early history of magnetic resonance imaging, but also analyzes how the changing status and role of the radiologist had an impact on the development of MRI. 'Changes within radiology and medicine provided institutional support' to make MRI a part of radiology. The consequence was that the radiologists started to 'shape machine output and design'.

The next chapter shows how MRI examinations become authoritative knowledge. Joyce throws light on three rhetorical strategies that have been used in the public domain as well as by the radiologists (though not in the same way) in this regard: (i) Image as transparent knowledge ('positions the anatomical picture as interchangeable with the part of the body being scanned'); (ii) MRI as progress (clinical examinations and patient histories are positioned as subjective and inaccurate and MRI as 'a better, more objective, neutral technique'); and (iii) MRI as agent (e.g. 'The MRI showed the jury where cerebral spinal fluid had leaked'). These rhetorical strategies, which combine the visual and the technological to 'equate the MRI exam with transparency and objective knowledge', however make other aspects of image making invisible (p. 76). Joyce carefully shows how for example institutional practices and policies have been crucial in defining the quality of MRI examinations. Chapter 4, 'The Image Factory', takes us deeper into the social production of MRI exams. It analyzes the hierarchical roles of the radiologists, technologists, nurses, and the patients in the process of MRI radiological examinations. Joyce shows how the MRI examination is commodified and converted into an assembly line in which roles, status, as well as economic benefits for the technologists, nurses and radiologists vary dramatically.

The chapter that follows, 'The Political Economy of Magnetic Resonance Imaging', analyzes MRI within the medical imaging business. The marketing of MRI, as Joyce shows, involves not only big MRI manufacturing companies such as GE Healthcare, Seimens, or Hitachi, but also the Radiological Society of North America, insurance policies and government initiatives such as The Human Brain Project. The last chapter revisits the making of MRI as a cultural icon with the purpose of reframing the dialogue over visual knowledge in medicine. Joyce questions the sanctity of the visual and points towards the techniques and practices that remain invisible as a result.

Overall *Magnetic Appeal* is a lucidly written, well researched, and cogently argued book that is a must read for anybody interested in understanding the 'bundle of relations' that lie behind the myth of transparency of sophisticated medical imaging technologies such as MRI.

AMIT PRASAD, *Department of Sociology, 312 Middlebush Hall, University of Missouri, Columbia, MO 65211-6100, USA*