

CHAPTER FOUR

THE MIND AT WORK: THE VISUAL REPRESENTATION OF CEREBRAL PROCESSES

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Images of the brain

The debate surrounding cerebral representation and the localisation of mental processes has become lively of late. Not that the discussion of the relation between the brain and the mind, which has been waxing and waning for a long time, has been enriched by any particularly original theoretical insights. Rather, the insights are visual, based on a number of imaging techniques that go beyond the scope of any visualisation techniques known so far in the neurosciences. In the history of the human sciences, innovations in visualisation technology have affected the perception of the physical and mental nature of man. Neuroimaging has transposed psychological phenomena into visual categories and thus changed their epistemic and cultural status. How profound and sustained these changes will be is not yet clear, but basically two scenarios are possible. Either images of the brain will come to play a fundamental role in determining our identity, at least in some areas. Or they will eventually lose their attractiveness, it being unproductive in the long run to contemplate pictures associating presumed mental states with certain regions of the brain if they fail to provide any kind of deeper understanding of how brain states and mental states relate. Even if I tend to assume that the fascination of these pictures will prove to have its limits, the subject of this article is to discuss possible consequences of an anthropology based on images of the brain.¹

¹ An earlier German version of this article was published in *Anatomien medizinischen Wissens*, C. Borck (ed.), 259–286. Frankfurt a. M.: S. Fischer 1996. In the mean time I have somewhat revised my opinion. When I wrote the first version of this text in 1995 under the impact of the technical potential of neuroimaging, I was pretty certain that it would fundamentally change the way we see ourselves. Meanwhile, I am no longer so sure. The images are new, but the interpretations that are being offered to make

Traditional x-ray technology did not provide any insight into the functioning of the brain. Nor did computer tomography, which was hailed as revolutionary when it was developed almost 40 years ago and can now probably be considered a transitional technology in the move from radiological to computer imaging. Although the development of computer tomography was closely linked to the dissatisfaction at the time with the radiological techniques for the representation of the brain (Blume 1992, 159–60), the hopes for it were limited to the domain of clinical medicine and hardly affected the cognitive neurosciences. With the new imaging techniques—fMRT (functional magnetic resonance tomography), PET (positron emission tomography) or SPECT (single photon emission tomography), to name only the most important—the situation has changed. Images of the brain produced by means of these techniques grace half or whole pages in glossy magazines and daily papers. They give the impression of opening a new window onto the functioning of the brain and hence also onto the mental life of man, an impression that captions and comments do their best to reinforce. Taken for itself, such rhetoric is not particularly noteworthy. In one way or the other it accompanies every technological innovation. The introduction of x-rays at the beginning of the twentieth century was also met with a great deal of rhetoric (Cartwright 1995; Dommann 2003). But the cultural perception and interpretation that has arisen in connection with neuroimaging is more than just a fashionable fascination with the new visualisation of cerebral processes. Assumptions, ideas and value judgements that have their origin in the nineteenth century and that, one would have thought, have long been laid to rest, are being mobilised to interpret these images. This revival is indicative of present-day anthropological sentiments and views, which the images may well be transmitting, but which are not reducible to the same.

For a clear understanding and assessment of these images, it is important that we place them within the larger context of another deep-rooted change that has affected image-making: the transition from ordinary photography, based on optical principles, to computer-supported images that are no longer based on the same. The technique known as BOLD-fMRT (BOLD=Blood-Oxygen-Level-Dependent) takes

sense of what they show are not. That is something I would not have expected at the time. Among the studies that have since been published on this subject, see Hagner 2002; 2004; 2006; Dumit 2004; Weigel 2004; Burri 2008.