

**Johansson, Mikael. 2009. *Next to nothing. A study of nanoscientists and their cosmology at a Swedish research laboratory.* Gothenburg: University of Gothenburg. 146 pp. ISBN: 978 9 17346 646 2.**

In this easy to read, compact and well-structured ethnographic study, Johansson gives a descriptive account of the life world of nanoscientists at MC2, a research facility at Chalmers University of Technology in Gothenburg, Sweden. His objective is to explore 'cosmological notions of the nanoscientists and how these are created, maintained and strengthened through their conceptualization of nature and self as expressed in the everyday practice of being a scientist' (p. 3). Johansson begins his exploration by investigating the differences in understanding of nanoscience between 'lay' people and nanoscientists. Interestingly, he found that the majority of his informants didn't feel compelled to correct 'lay' views nor to participate in discussions about nanoscience's potential impact on society. His explanation for this is that informants saw nanoscience as 'science as usual' that, therefore, didn't warrant special attention. Chapters 3 and 4 focus in more detail on the life world of nanoscientists. In chapter 3 Mikael describes how the nanoscientific community is transnational. The MC2 scientists have diverse nationalities and cultural backgrounds, but, according to informants, nanoscientific practice is not influenced significantly by these factors. They claim that nanoscience is essentially the same all over the world, based on the argument that nationality, cultural background and gender don't matter at the nanometer level. This Johansson calls the culture of no-culture; differences between members are understood as individual traits that do not impinge significantly on research practices. To reinforce this idea, members of the MC2 facility are expected not to draw attention to themselves with their dress, haircut, talk, beliefs. In particular over-emotive behaviour is discouraged. These norms mirror the paradigm that human agency should not interfere with science outcomes. After all,

nanoscientists pursue universal laws of nature. Chapter 6 is the most detailed chapter of the thesis and, in my opinion, the most interesting. It deals with the heart of the nanoscientific community at MC2: the cleanroom, a technospace where experiments are conducted. The cleanroom is also the place where the norms of the community are most stringently enforced, and more importantly, make the most sense. Nanoscientists work with atoms and molecules. Nanoresearch therefore requires a hygienic, particle-low environment. To counter (human) pollution, nanoscientists are trained to wear special cleanroom suits and to move and behave in a way that minimises contamination. For example, in the cleanroom one should move as slowly and as little as possible and avoid leaning over samples: skin fragments may fall down on samples and ruin them. The complementarity of the requirements inside the cleanroom and the norms of MC2 as a whole are remarkable. For instance, the active discouragement of emotive behaviour in general makes sense when one takes into account that informants view emotional utterances such as tears and gesturing as potentially volatile or 'polluting'. Unfortunately, in his epilogue Johansson doesn't completely fulfil his promise to explicitly connect the different chapters. For example, he hardly uses his rich description of the cleanroom to persuasively tie together his ideas on codes of conduct and the role of gender in the community. This may be partly due to the fact that Johansson's description of MC2 is not very specific; initially one only learns the nationalities in numbers of the 203 scientists that work there. When Johansson discusses gender and religion he adds that, in general, 10% of the nanoscientist population is female and that some informants consider themselves Muslims or Christians. However, it remains unclear how many informants are practising a particular faith and whether 10% of MC2 is also female. The paucity of detail makes it difficult to establish how representative MC2 is of nanoscientific communities and, with that, to what extent Johansson findings are generalisable to other

nanoscientific communities. Hierarchical differentiation in numbers, especially relevant for the discussion of gender, is notably absent. Lastly, Johansson doesn't elaborate on his fieldwork activities. Initially, the reader is informed that the researcher went to MC2 almost daily for the period of one year and that he depended mostly on unrecorded, informal conversations. Later, in between descriptions and discussions, the reader learns that Johansson participated in Muslim religious practices on campus, followed an undergraduate course in nanoscience and that he had cleanroom clearance (something that is not easily obtained). To conclude, Johansson's ethnography could have been strengthened if characteristics of his research population and his main fieldwork activities were not 'hidden' but carefully described at the beginning. Such attention to detail would have made his interesting ethnography more than 'next to nothing'.

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