Book Reviews/Comptes rendus

AMANDE M'CHAREK, The Human Genome Diversity Project: An Ethnography of Scientific Practice. Cambridge: Cambridge University Press, 2005; x + 185p + glossary + references + index.

The Human Genome Project is well known for its first complete sequencing and mapping of the biochemical basis of human heredity. Although less well publicized than the Human Genome Project, another genomic project was announced in 1991. Unsatisfied with the narrow sample of people whose genome researchers wanted to decode, some scientists, led by Allan Wilson and Luca Cavalli-Sforza, a biochemist and a population geneticist, conceived a different project called the Human Genome Diversity Project. Instead of relying on a few examples of the human genome, taken from four or five Eurocentric individuals to represent the whole human species, the diversity project had much broader aims and wanted to tackle the diversity of the human species in its genetic make-up. Unfortunately, launching the Human Genome Diversity Project was done only with great difficulties.

This story forms the background of the fine book written by Amada M'charek, who teaches both in political science and biology at the University of Amsterdam. Although the Human Genome Diversity Project was not successful, human genome diversity research, as opposed to a coordinated international project, was never abandoned.

This book belongs to laboratory studies as an approach to the sociology of science and technology. It looks closely at the research objects and practices chiefly inside two European laboratories, though other laboratories were visited. All try to tackle basic and practical problems in genetics and population biology. We know that many linguistic groups are fast disappearing; scientists believe that isolated linguistic groups are also isolated genetic groups. They may have a unique combination of genes that may help to understand human evolution and to develop medical therapies. But the Human Genome Diversity Project, by wanting to concentrate on isolated populations and rare groups of genes, could not avoid public scrutiny and deep criticisms, even accusations of disguised or suspected racism.

Four cases are studied. All but one are closely related to the diversity of the human genome. M'charek's investigations are focused on laboratory practices. The book's main thesis is that objects and concepts, such as

genetic markers or population, are the results of the ways in which scientists select their procedures and technologies, manipulate them in a two-way process of elaborating ideas and representations and acting on biological material with particular technologies, built for the tasks at hand. This process is called by M'charek "enactment," a concept she borrows from laboratory studies in the tradition of Knorr-Cetina and Annemarie Mol and from the Actor-Network approach as developed by Latour, Callon and Law.

The different studies are rich in detail and varied in the work and tasks scientists do as a matter of daily activities. M'charek describes how she became familiar with laboratory procedures. She was initiated by willing scientists and technicians and learned her skills by doing. In her study of a Dutch forensic laboratory, she met a particular problem raised by the tribunal during the trial for murder of a suspect of Turkish origin, whose conviction was based on DNA identification. In order to reach a verdict of culpability the state prosecutor had to prove beyond any reasonable doubt that the defendant's DNA was rare and could not have come from any other possible suspect who may have been close to the scene of the crime. In her detailed analysis of how scientists and technicians come to link individuals to populations, she encountered up to six definitions of human population. These definitions are closely linked to the problem at hand and to the methods, practices and technologies used to isolate among a large number of DNA combinations the proper genetic group to which an individual belongs.

The other case studies deal with issues that have more bearing on basic questions about human populations, their genetic make-up and the evolution of the species. M'charek's method of investigation follows a similar pattern, that is, she focuses on the interplay between objects, or facts, and technologies. No scientific object is permanently out there to be discovered and revealed by the scientists. The objects are constructed through complex processes in which technologies play a great part. Scientific ideas do not develop internally, through a process of sequencing, so to speak, but are generated by practical activities and choices of techniques. The process is highly local so as to raise the question how can scientists arrive at reliable and universal knowledge if everything they do is context-dependent and highly contingent. Sociologists of science have on the whole given two answers to this question. For Harry Collins identical replication is not really possible since results are locally produced by technologies and especially skills that are difficult to export to other laboratories. Latour has provided a different answer, which M'charek employs approvingly. Objects are immutable mobiles: techniques, models, inscriptions (graphs, tables, figures on which data appear) travel between laboratories and research teams. M'charek has, however, observed that there are also mutable mobiles, objects that are modified in order to be used and be locally meaningful.

The book concentrates on technologies and methods of scientific investigation, primarily things rather than ideas. M'charek is, however, less

attentive to social interactions in laboratories, to the negotiations that take place between scientists and technicians, either belonging to the same or to different labs. Despite what she says, her focus on technologies and their use tends to reify the tools leading to results. Negotiations between actors are taken for granted and tend to be black-boxed. The complex interplay among people, ideas, often in the form of papers read and discussed in a group, and methods and technologies is not always readily visible.

The book is a well-conducted ethnographic study of empirical cases which reveal science in action. Moreover, the problems these laboratory cases investigate are also concerned with the social use of molecular biology and genetics technology. Although they have not given rise to public controversies on the same scale as the genetically modified food debate, the Human Genome Diversity Project has not been free from moral concerns. M'charek is well aware of the political context and implications of human genome diversity research. For instance, she asks whether it is possible to do a non-racist science of human "races." If the concept of race was abandoned by many people and banished from the policy arena, the idea has not wholly disappeared from the vocabulary of scientists, for whom it is worth investigating groupings of human beings relatively homogeneous in genetic material for the new knowledge science can acquire. However, whether we, or scientists, need the concept of race to do this work is debatable.

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