A Machine to Make a Future: Biotech Chronicles. Paul Rabinow and Talia Dan-Cohen. Princeton University Press, 41 William Street, Princeton, NJ 08540, USA. 2005. 199 pp. Price not mentioned.

A Machine to Make a Future is an admirable literary work full of insightful and creative contributions – both scholastic and journalistic – to our understanding of contemporary genomics. The authors succeed in generating an outlook that is different from that prevalent in current scholarship on genomics and biotechnology, by 'experimenting' with the narrative genre and providing an account that is ethnographically rich and analytically open to a world whose structure, implications and outcomes are still unfolding.

The focus of the book is the formative work of the California biotech company, Celera Diagnostics, conducted during 2003. The central tenet of the company is that the emergent knowledge about the genome, with its profound implications for human health, can now be turned into a powerful diagnostic apparatus – one that will yield breakthrough diagnostic and therapeutic products (and, potentially, profit). Celera's efforts may fundamentally reshape the fabric of how health and health care are understood, practised and managed.

One of the authors, Paul Rabinow, is a professor of anthropology at the University of California, Berkeley, who studies molecular biologists as his research subjects. His recent books include *French DNA*, *Trouble in Purgatory*, *Essays on the Anthropology of Reason*, *and Making Polymerase Chain Reaction* (*PCR*). The second author, Talia Dan-Cohen, during the research phase of this book, was an undergraduate and research assistant to Rabinow. Rabinow, for quite some time, felt that an anthropological inquiry which utilized an innovative research method was vital in order to come to grips with the fast-moving actuality of genomics. One dimension of this novel experimental method was to include a co-observer. To optimize the benefit of having two researchers, Rabinow was designated the interviewer, while Dan-Cohen was to 'observe the observers observing'. In other words, the directed interviews between an experienced anthropologist and expert molecular biologists were themselves the objects of observation. While Rabinow and the informants conversed, Dan-Cohen observed. Since Rabinow was well-acquainted with many of the informants, Dan-Cohen's observations divulged dynamics not readily discernible by a researcher who is familiar with his subjects and could be otherwise blinded by a preoccupation with the interview and exchange of information. To Dan-Cohen's added perspective, Rabinow's relationship with many of the key actors in the context of this book for well over a decade has definitely helped the research, and especially the interviewing, to proceed at a remarkable speed by anthropological standards. 'He had previously written a book, *Making PCR: A Story of Biotechnology*, to which many of the same scientists had contributed their time and insights. This previous familiarity, confidence, and trust meant that many of the informants were already substantially comfortable with what this form of anthropological interview sought in terms of content, detail, and even tone'.

The expert molecular biologists interviewed were candid regarding their experiences, successes, issues, and resultant opportunities. They also were generous in lavishing appreciation for their colleagues who reached their goals and exceeded expectations in their performance. Their collegiality was impressive and their combined efforts and synergies were stellar. Since the formation of Celera Diagnostics and Celera Genomics, these scientists/entrepreneurs attained multiple goals they set for themselves in a record time and are still going strong. These self-motivated scientists steer themselves forward with no external enforcement or pressure.

This book presents aspects of diverse developments taking place at Celera Diagnostics, without seeking to force these events, technologies, scientific findings, business pressures, and interpersonal dynamics into a unified historical narrative. The narrative form has dominated almost all nonfiction writing for the last two centuries. Although this genre fulfils the reader's expectations of a progressive plot line, there are certain disadvantages such as unreal claims of opening and closure. Hence, the authors decided to steer forward with a form that would hopefully be more open, more tentative, and to that degree, closer to how things happened.

Being anthropologists of the contemporary, they do not want to lose their audience by discussing first causes and dragging on to a proclamation of morals. They would rather let the audience ponder upon possible solution alternatives than provide subjective resolutions. However, the chronicle does treat practices of ethics, understood as self-formation.

In a world where there is a growing phobia towards science and a foggy understanding of genetics, an anthropological chronicle of the current development of genomics and diagnostics has a strong hand in reducing the phobia and strengthening our understanding of the genetics. This book is a good choice for even a layperson to get a grip of the current developments in the world of genomics and how these diagnostics can help health and health care. The current status of the industry, in the words of Kathy Ordonez, President, Celera Genomics and Celera Diagnostics and Senior Vice President, Applera Corporation can be stated as follows:

'In fiscal 2004, we demonstrated our discovery leadership through our identification of important new protein and genetic markers that are improving our understanding of the biology of disease as well as producing new opportunities for creating diagnostic and therapeutic value. Newly forged strategic collaborations support the development of targeted therapies and diagnostic imaging agents against the proteins that Celera Genomics has inked to cancer.

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One example of Ordonez's predictions was announced on 9 March 2005

Applied Biosystems (NYSE:ABI), the third leg in the tripod of the Applera Corporation announced a collaborative research study with the National Center for Toxicological Research of the US Food and Drug Administration (FDA/NCTR), whereby Applied Biosystems will use its Expression Array System and Rat Genome Survey Microarray to investigate the toxicity of a common class of diabetes drugs using samples provided by the FDA/NCTR.

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