

A Machine to Make a Future: Biotech Chronicles

by Paul Rabinow and
Talia Dan-Cohen

Reviewed by Michelangelo
D'Agostino



Scientists can be a strange tribe. They've been known to cloister themselves in the lab for days on end, and outsiders often accuse them of having a fashion sense all their own. Furthermore, it only takes a brief glimpse at a specialist journal to notice that scientists have developed unique languages and customs as well.

It's not such a conceptual leap then to understand the narrative structure of *A Machine to Make a Future: Biotech Chronicles* by Paul Rabinow and Talia Dan-Cohen. Rabinow, Professor of Social and Cultural Anthropology at UC Berkeley, and Dan-Cohen, a former Berkeley undergraduate anthropology student, have very self-consciously chosen to play the part of the post-modern anthropologists observing an isolated, undiscovered tribe of biotech researchers and managers. Slightly tongue-in-cheek, they conclude that their "job as anthropological chroniclers of the contemporary is to tell the tale of these days in an appropriate fashion—find a form for the natives' points of view, leave things in an appropriate state of irresolution." Fortunately, there was "no problem of access to informants"—no jungles to cross—and "no language barrier"—no ancient, undocumented tongues to learn (though the glossary of genetic terms at the end of the book might beg to differ).

The book centers on a series of lengthy interviews conducted by Rabinow and Dan-Cohen in 2003 at Celera Diagnostics, a biotech company based in nearby Alameda. Celera Diagnostics was founded in 2001 to capitalize on the success of its sister company, Celera Genomics, the well-known private competitor to the public Human Genome Project. Since its inception, Celera Diagnostics has been scanning the genome on an unprecedented scale, looking for mutations in single base pairs of DNA that lead to functional differences in proteins and that are correlated with disease. Its goal is to discover, standardize, and produce genetic tests for these various diseases.

Celera Diagnostics, the authors contend, is thus constructing a "machine to make a future." If it succeeds, life in the future will be drastically different than it is today: common tests will scan people's genomes for telltale signatures of diseases and for the markers that will reveal how responsive they will be to various treatments. The task of the book then is to pry this machine apart and to examine its constituent pieces—the scientists, technicians, managers, lawyers, and even executive assistants that make the company hum.

Rabinow and Dan-Cohen let the interviews speak for themselves, with very little authorial synthesis. What results is a snapshot of an engaged company-in-motion that isn't shoehorned into a linear narrative. The interviews explore a number of themes: the emergence of Celera's business and scientific strategy, the

design and implementation of the colossal robotic machinery that runs the genetic tests, and some of the ethical and social issues surrounding such research (though these interesting issues tend to be underemphasized).

The most interesting parts of the book explore the relationship between commercial, corporate science and science as it's practiced within the academic community. The conventional view is that the rise of corporate science has eroded both the disinterested nature of research and the sense of trust and openness between researchers. Closed, secretive, corporate science, on the one hand, is out to make a profit, while open, academic scientists, on the other, are out for the good of humanity.

Of course, as anyone involved in science could have guessed, the picture that emerges from the interviews is quite different and more complicated. Researchers at Celera often work side by side and openly with other companies and with outside academic researchers. And academic researchers often serve as paid consultants, receiving considerable amounts of cash and lab equipment. University scientists just as often act in their own self-interest—that choice *Science* or *Nature* publication—as much as they try to advance knowledge. The views of those at Celera run the gamut—from the patent attorney who admits that "if it was entirely up to me, I'd say, 'Never publish anything! Never talk to

"If it was up to me, I'd say, 'Never publish anything! Never talk to anybody!'"

anybody outside until we get the work done!" to the technician who genuinely feels that his research should be open to the community "in order to better mankind" to the consultant who worries about the fact that "across the globe hundreds of millions and maybe billions of people would have no access" to any of Celera's findings.

As informative as these parts are, the good bits of the book come like a needle in a haystack of biological and strategic jargon. One has to ask whether the post-modern concerns about form and narrative structure take away from the book as a whole. The lack of a strong authorial voice means that it's sometimes hard to keep track of the shifting alliances of companies and senior managers. The discussions of patenting genetic discoveries and of the relationship between corporate science and the academy do warrant giving the book a glance though, especially since it's a quick read. But while it might serve as useful source material for future anthropologists seeking to reconstruct the machine that made their future, for those non-anthropologists in the present its obsession with form and its insistence on the authors receding into the background leave the reader looking for something more.

MICHELANGELO D'AGOSTINO is a graduate student in physics.