

OPEN BIOLOGY

Rebels or profiteers?

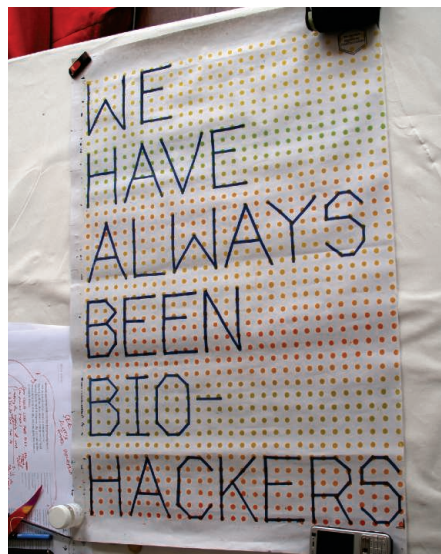
By Stefano Golinelli¹ and Luc Henry²

“Open,” the new black of political controversy, has become ubiquitous in contemporary debates surrounding scientific practices. Just as software activists managed to free information technologies from the realms of academia and industry, today some biologists believe their science would have a larger impact if carried out in the open. However, most scientists still have a narrow conception of where the “open revolution” comes from and what it means.

What does “open science” have in common with, for example, “open access,” “open-source,” “open data,” or “open innovation”? Probably less than what billionaire scientist-entrepreneur Craig Venter shares with Italian virologist Ilaria Capua or do-it-yourself (DIY) hobbyists who carry out biotech experimentations in their garage. In *Biohackers*, Alessandro Delfanti considers the activities of hobbyists, Venter, and Capua to explore the transformations that postgenomic biology has brought to scientific practices and the impact of information technologies on the life sciences.

Besides offering numerous tools for analyzing the ever-growing amounts of data, the digital universe and Internet have inspired new approaches to conducting research and disseminating scientific discoveries as well as spread competition and rebellion at an unprecedented scale and pace. It is in this context that biohacking was born. Biohackers may be “rebels” or “profiteers,” but they do not simply hack DNA to crack and manipulate the code of life. Delfanti, a sociologist and open-science advocate at McGill University, describes biohacking as a set of heterogeneous attempts to free biology from its closed contemporary socio-institutional context.

In their own ways, each of the three examples Delfanti chose personifies the figure of the biohacker: Capua, a rebel, challenged the World Health Organization policy on access to avian flu data and won her battle against this international institution. Venter,



a profiteer, financed spectacular open-access genomic initiatives while filing controversial patents for potential applications in synthetic biology. Members of the DIY biology movement, however, certainly provide the most interesting case. Half-rebel, half-profiteers, these self-identified biohackers participate in a highly diverse set of activities, all of which are aimed at translating open-source principles into the life sciences.

From his consideration of these examples, and in spite of his personal political commitment to openness, Delfanti elegantly dismisses dominant narratives that portray open science (in particular, open biology) as an up-to-date version of the traditional Merstonian norms now endangered by corporate neoliberalism. He suggests instead that the changes he discusses are actually a complex pollination of the life sciences by information technologies, emerging from what he calls a “cultural feedback.”

In other words, biohackers’ openness is much more than freely sharing information to challenge the tragedy of the anticommons induced by the increasing scope of intellectual property rights (1). These elements are further remixed with other distinctive, and sometimes conflicting, features of the hacker’s ethos, such as intense relations with the media, hedonism, creativity, entrepreneurial drive, communitarian spirit, and radical resistance to external interference (be that from public regulations, corporate interests, or academic institutions).

Biohackers
The Politics of Open Science

Alessandro Delfanti

Pluto Press, 2013. 168 pp.



Although in political terms, open science is often portrayed as a rebellion against neoliberal ideologies, Delfanti invites readers to think of it as an “a-capitalist” project (2), which may even extend the scope of capitalist exploitation. He warns us that “in a world in which openness, flexibility and freedom from bureaucracies and cooperation are elements that belong to a capitalistic mode of organising labour and production, we must rethink any easy commitment to open science as good per se.” Just as entrepreneurs of the sharing economy have amputated the reciprocity bonds of the Internet-based gift economy (3), companies such as 23andMe are recycling open practices to create value based on an asymmetric relationship with their customers (4).

Recent years have witnessed the emergence of many more important bottom-up life science initiatives, such as PatientsLikeMe, that would have surely enriched Delfanti’s portrait, which sometimes appears to excessively rely on interpretative frameworks developed with respect to the software hackers (5). Nonetheless, the book offers an insightful sociological account of recent scientific transformations and a compelling invitation to think of biology as a social system, in which technical issues are mediated by cultural paradigms and social, economic, and institutional interests.

By carefully avoiding making predictions about the future impact of open biology, Delfanti brings fresh air to an overpoliticized debate. *Biohackers* will likely be a source of disappointment for some naïve activists. But as an early account and interpretation of open-biology phenomena, the book certainly presents a neutral, dynamic, and convincing perspective. Their motivations may well be diverse and potentially conflicting, but it cannot be denied that Delfanti’s biohackers are playing constitutive roles in the ways science will be produced, disseminated, rewarded, and perceived in the 21st century.

REFERENCES AND NOTES

1. M. A. Heller, R. S. Eisenberg, *Science* **280**, 698–701 (1998).
2. www.choike.org/nuevo_eng/informes/2623.html.
3. www.salon.com/2014/03/14/sharing_economy_shams_deception_at_the_core_of_the_internets_hottest_businesses.
4. M. Levina, *J. Clin. Outcomes Manag.* **9**, A06 (2010); [http://jcom.sissa.it/archive/09/01/jcom0901\(2010\)A06](http://jcom.sissa.it/archive/09/01/jcom0901(2010)A06).
5. G. Coleman, *Coding Freedom: The Ethics and Aesthetics of Hacking* (Princeton Univ. Press, Princeton, NJ, 2012).

10.1126/science.1257253