

In the last section, “Twelve Ideas to Avoid the Tragedy of the Shared Knowledge”, Ortega and Rodríguez outline some ideas for tackling what seems to be an inevitable and progressive abandonment of participation in collaborative ventures. The authors point towards several potential initiatives, such as: redefining the notion of work in our societies and reducing the time devoted to it; dedicating released time to the common, such as by creating shared knowledge; thinking differently and challenging the dominant ideas of production and economic growth; facilitating universal free accessibility to the Internet; encouraging, acknowledging and rewarding collaboration with symbolic capital that can be converted into other forms of capital; and organizing self-managed governance agencies to promote, monitor and evaluate the involvement. Finally, the authors include an appendix in which they provide an account of the methodology employed in the investigation.

Ortega and Rodríguez do an admirable job of attempting to understand how a collaborative endeavour like Wikipedia operates. This book could be very interesting for anyone aiming to understand the logics of collective action and those concerned with new ways to manage the public. Furthermore, it introduces new questions and touches upon issues of interest in different fields. This investigation of the hybrid assemblage known as Wikipedia could be a thought-provoking contribution not only to STS scholars, but also to historians wondering about the origins of practices, economists studying economic practices, sociologists dealing with communities of practice, legal scientists examining questions of property, anthropologists enquiring about the persistence of gift culture and even political scientists captivated with the rebirth of the public space. Lastly, the book is well documented and a valuable contribution to the scarce scholarly literature on Wikipedia in Spanish.

\* \* \*

**Claire Waterton, Rebecca Ellis and Brian Wynne**

*Barcoding Nature. Shifting Cultures of Taxonomy in an Age of Biodiversity Loss*

London: Routledge, 2013, pp. 212

**Giuseppina Pellegrino** *University of Calabria*

Making visible the density of the ongoing changes which articulate the relationship between (techno)science and society is not an obvious task. The three authors of *Barcoding Nature. Shifting cultures of taxonomy in an age of biodiversity loss* succeed in such an enterprise, being participant observers and engaged witnesses of a complex turning point in one of the En-

lightenment natural sciences, commonly perceived as a ‘dusty’ and old fashioned discipline (taxonomy). Waterton, Ellis and Wynne drive the reader into the crisis of reputation and identity of a scientific community and *episteme* in face of the encounter with the most promising and threatening of the life sciences (genomics). Such encounter produces and shapes the establishment of few interconnected projects aimed at extending the DNA barcoding to all animal life forms constituting nature, forms put at risk by the emergent and publicly alarming phenomenon of biodiversity loss.

However, *Barcoding Nature* is not only an accurate ethnographic account of the research fieldwork carried out at the Natural History Museum in London over a period of six years, which comprised a research on contemporary taxonomy as well as the dawning and development of the DNA barcoding for biodiversity, a project led by the University of Guelph (Ontario). The book is also, and especially, a multifaceted, sophisticated travel across ambivalences, ambiguities, (dis)continuities, and contradictions of a powerful and ambitious knowledge infrastructure, aimed at matching the quest for a new, more robust identity of the taxonomic discipline with the universalistic promises of classification and recording enabled by the DNA barcoding technique.

Drawing on both STS – especially the infrastructural approach of Bowker and Star as well as ANT and Fujimura’s do-able science – and anthropology of science – in light of Toulmin’s and Helmreich’s work – Waterton and colleagues investigate the controversies which from 2000 onwards shook the taxonomists’ scientific community with the model of a genomic taxonomy. This model was based on harnessing and enhancing indexes of the morphological Linnean tradition, through the construction of a “barcode library” organized “around the identity-differentiation exhibited by a single gene segment held constant across all species” (p. 34).

Both simplicity and complexity, recording and forgetting, detachment and re-attachment of information characterize the DNA barcoding project investigated by authors, known as BOLI (Barcoding of Life Initiative) and its main archiving infrastructure, BOLD (Barcoding of Life Data Systems). All of the above categories constitute the poles of a continuous oscillation, which conducts the project of genomic (or genomicsized) taxonomy to go beyond the promise of a revolution and the practice of a conciliation (cf. chapter 2) inside the scientific community. Therefore, BOLI and BOLD also embody and adhere to the endeavor of a therapeutic and salvatory vision of science, what authors name as “redemptive technoscientific innovation” (cf. chapter 7). Again, such a turn is neither univocal nor free from ambivalences.

While embodying the tension towards a new cosmology of connection between mankind and nature to confront with the uncertainty due to biodiversity loss and the intangibility of an appeased future, genomic taxonomy has been transformed through more local, user-oriented and commercial applications (e.g. environmental bio-monitoring) enabled by bioinformat-

ics. Such applications, however, seem to put at risk the primacy of taxonomy as *the* discipline devoted to investigating and archiving diversity of life forms.

Indeed, ambitions of a universalistic approach to classify nature via a technology imagined and designed as ubiquitous, pocketable and freely accessible (p. 66) represent a recurrent discursive frame in sociotechnical innovation – the so called ‘ubiquitous computing paradigm’ is a clear example of such a frame in the design of information infrastructures, which are very much part of the DNA barcoding project. In this project, the pursued universalism of a global access to all forms of life through a micro fragment of the DNA code materializes itself into technological artifacts shaped by the mission of archiving diversity, which as usual, “enacts a very particular kind of memory and indeed a particular kind of forgetting in making data available and accessible for its potential users” (p. 109).

While analyzing negotiations and conflicts, translations and misunderstandings in the making of these technological artifacts, authors trace a fascinating path to the expert reader – clarity of language stands out, but the book is undoubtedly targeted to a specialized audience. They depart from the microsequence of DNA barcoding which materially mobilizes and purifies knowledge through extraction and amplification of a short fragment of the genetic code (chapters 1-2). The path goes on detecting reactions, uncertainties and aspirations of a relatively small, greatly disoriented, scientific community (chapters 2-3), then deepening the redesign of taxonomic culture via the BOLI/BOLD projects (chapters 4-5) as well as their care and support to biodiversity archiving (chapter 6).

As the ethnographic account proceeds depicting the multiple and diverse – often contradictory – faces of the encounter between ‘the old’ (taxonomy) and ‘the new’ (genomics), the sight and the focus of the narrative broaden, embracing the issue of the public role of science and the ambivalent motives and tensions of a universalistic cosmologic mission (chapter 7), though sensitive to more mundane and utilitarian values (chapter 8 – again, a detachment and re-attachment of reach to the barcoding nature project).

This path ties together the very small to the very big, articulating the micro and the macro as dimensions of a *continuum*, drawing on a STS perspective which combines, borrows and recounts philosophy (Benjamin and Foucault), anthropology (Strathern and Verran), history of science (Bowker). Such an integration constitutes the hallmark of Waterton and colleagues’ STS vision and ethnography.

As a final note, the STS reader could be surprised by a missing reference in the bibliography. Given that the research carried out by Waterton and colleagues took place at the Natural History Museum in London, the connection with Star and Griesemer’ analysis of Berkeley’s Museum of Vertebrate Zoology which baptized the concept of Boundary Object is not extravagant. Ideally, a *fil rouge* ties the historical analysis of translation and cooperation among Berkeley Museum’s scientists carried out by Star and

Griesemer to the taxonomists, bioinformaticians and molecular biologists followed by Waterton, Ellis and Wynne at London Natural History Museum.

In the end, the need for classification and standardization of knowledge is a *master or grand narrative* of science and goes hand in hand with the resilience of infrastructures of and for science. Forms and networks which comply with this need can be very diverse. This diversity is vital for knowledge infrastructures, as much as biodiversity for life survival and development. But more often than not, “what are really continuities in practice can appear and be claimed as dramatic innovations” (p. 39).

This infrastructural inversion a la Bowker goes straight to the book final concerns about knowledge ethics and politics. These concerns substantiate the call for a modest, responsible and relational thinking on technoscience, based on the awareness that the shifting boundaries and apparent inconsistencies of genomic taxonomy can serve - and become - different technoscientific articulations. These can functionally enroll scientists and their disciplinary scientific communities, but also embrace and enable public “poetic sensibilities” (p. 177) towards the crucial and ambivalent relevance of ‘treating’ and ‘caring’ about global biodiversity.

Indeed, the book final reflections go far beyond taxonomy and genomics, or genomic taxonomy: the current hype on ‘Big Data’ infrastructures ‘in an age of consistency and coherence loss’ (to suggest an echo of the book subtitle) makes even more urgent the quest for new sensibilities, to see contradictions embedded in the making, use and maintenance of emergent sociotechnical arrays devoted to archiving and using myriad of sensitive information set.

\* \* \*

### **Jonas Löwgren and Bo Reimer**

*Collaborative Media. Production, Consumption, and Design Interventions*  
Cambridge MA: The Mit Press, 2013, pp. 198

### **Federica Timeto** ‘Carlo Bo’ University of Urbino

This book is based on the fifteen-year collaboration between an interaction designer (Löwgren) and a media scholar (Reimer) at the School of Arts and Communication and the Medea Collaborative Media initiative at Malmö University in Sweden. Combining interaction design with media and communication studies, Löwgren and Reimer’s approach draws connections back to the main assumptions of cultural studies about cultural artifacts, and to Stuart Hall in particular, while showing an affinity with the recent materialist turn of social sciences and its interest in the generativity