

serve? While Wald lays out the problems with the current outbreak narrative, there is nothing in her history that suggests *why* these narratives came into being, so that this concluding call to change narratives of global health feels empty.

That said, one of the implicit—and quite fascinating—elements of Wald’s arguments is the growing sense of change that underscores the fabric of this text. Wald’s repeated claim that the outbreak narrative fails to function in the post-national, global context of contemporary disease is interesting, but I question if that is truly what is going on in the discourse she studies. Even the earlier, America-centered accounts she offers hinge on global networks of capital and the contact of distant populations. For that matter, the bubonic plague in Europe most likely entered the continent through a Genoese trading post on the Black Sea. Thus, it could be argued that, disease has always been a product of global capital. If that is the case, why does the argument—that nationalistic disease response (quarantine, ‘us’ versus ‘them’ rhetoric) no longer works—materialize at this moment? One could argue that earlier epidemics could just as easily highlight the dissolution of the nation-state. Part of the interest in Wald’s research has to lie in the moments where she, I think unintentionally, uncovers an emerging global consciousness (or, at least, a global awareness). She writes that: ‘the routes traveled by communicable disease light up the social interactions—the spaces and encounters, the practices and beliefs—of a changing world’ (p. 9). At another point in the work, she discusses the way that a visualization of disease transmission actually manifests, for viewers, the high degree of connectedness present in the contemporary, global economy. Part of the issue with her conclusions, though, is this rhetoric of ‘the changing world’. While I agree that this question of visualization, of lighting up social interactions, is an important issue, the history of disease being spread by the networks of capitalism renders the idea of a changing world problematic. Instead, it could be argued that what has changed is our ability to visualize these networks in a more effective manner. In this regard, what has changed is not the world but ourselves and our perceptions, and it is on those new perceptions that we must act.

Sadly, this change in global awareness is not addressed in Wald’s book. Instead, the rhetoric of

‘the changing world’ is substituted, which seems increasingly empty as a signifier. In any case, whether what she observes is the result in a shifting awareness of the global nature of humanity and consciousness, or whether the rules of capital are in some way changing, Wald’s account of the outbreak is definitely tapped into the potential for change inherent in the present moment. One of her concluding thoughts suggests that ‘the emerging stories can exacerbate or begin to change the inequities’ (p. 270) of the global, human condition. Although crafting these new, emerging stories about the world, about our place in it, and about the future of humanity may not be as easy as Wald’s conclusion would suggest, we live in an era in which attention to global matters is increasing and in which, as she rightly observes, the old rules and old stories no longer function. The possibilities for re-writing the script, not only of global health but also global humanity, along terms that deny ‘population’ and enhance individuals and communities, seem to be undoubtedly at hand. In raising these possibilities through a carefully crafted account of the construction of previous narratives of disease, *Contagious* raises important issues about the future of science and policy in this new era of global awareness. It serves as an interesting catalyst to further thought and, hopefully, action.

The Place of Art in the Age of Biotechnological Reproducibility

A review of Beatriz da Costa and Kavita Philip (Eds.), *Tactical biopolitics: Art, activism, and technoscience*. Cambridge, MA: MIT Press, 2008.

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Immersed in the cultural anxieties and events that preceded the Jewish Holocaust, philosopher Walter

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Benjamin reflected on the theoretical and material implosions that the work of art was facing with the emergence of new technologies, to emphasize its effects on the lay public and the framing of social struggle. In his well-known essay 'The work of art in the age of its technological reproducibility', Benjamin envisioned that: 'as soon as the criterion of authenticity ceases to be applied to artistic production, the whole social function of art is revolutionized. Instead of being founded on ritual, it is based on a different practice: *politics*' (Benjamin, 2003 [1939]: 256–257). Benjamin's convictions about the political potential of the work of art continue to be relevant and inspiring in our efforts to frame and reflect on the contemporary artistic appropriations and critiques of new scientific developments in the field of biotechnological research. *Tactical biopolitics* takes off as a collective exploration of the multiple ways in which such potential for politics is being used and misused.

Through this ambitious edited volume Beatriz da Costa and Kavita Philip put in dialogue 31 authors, a group of independent artists and a cyberfeminist collective of cultural producers, in order to collectively reflect on the contemporary intersection of life sciences research, art and activism. The backgrounds of the authors participating in the book could not be more eclectic: art, biology, critical theory, cultural anthropology, biological anthropology, genetics, literature, media studies, political science, science and technology studies, sociology, veterinary, and women's studies. Their contributions are articulated by the editors around eight major knots of techno-scientific tension: ideology in the practice of biology, biology and art, laboratories for the public, race, gender, realms of expertise, biological threats and, finally, human/animal translations. Da Costa and Philip—the first an artist and engineer, the second a science studies scholar—present *Tactical biopolitics* as being inspired but not limited by the intersection of resistant cultural creative practices, and materialized by *tactical media* and a long assemblage of intellectual conversations on Michel Foucault's 'fertile' ideas on power over life itself.

The political convictions of *Tactical biopolitics* are multiple. To start, it calls for interdisciplinary dialogues that hopefully end as un-disciplinary exchanges among artists, activists and intellectuals, and where the participation and collaboration of scientists increase. Its goal is not a polite, passive performance where everyone sits at the same table

listening in a very politically correct manner and not taking anything from it. On the contrary, this performance needs to be engaged, controversial and problematic in order to dis-establish the boundaries that reify our distinctions between nature and culture, practice and theory, art and science, invention and discovery. Here again, the recognition of these problems does not constitute the intervention, but is just the starting point of an effort to come up with creative tactics to motivate the participation of diverse publics in the understanding of our ethical and political experiences of the discourses and practices of the life sciences. The role of art in contemporary techno-scientific worlds, this book suggests, lies in being a generator and facilitator of new grammars of collective action to face the economical, political and bioethical issues that emerge from the intersection of venture capitalism, mass media and bioscientific accounts of the world. The array of authors present in the volume gives us a taste of the challenges and obstacles that such intellectual enterprise entails.

Two major topics seem to circumscribe the multiple politics arising from *Tactical Biopolitics*: first, the de-territorialization of knowledge and expertise—understood as an engaged effort to overcome disciplinary boundaries that prevent collaboration among scientists, theorists, artists and activists—and the ultimate comprehension of their motivations, products, actions and expectations; and, second, the acknowledgment that, in order to generate effective interventions into scientific practices, it is necessary to motivate the participation of multiple publics in these collective projects.

De-territorialization of knowledge(s) and expertise

Artists and scientists have been using each others' works for data, support and inspiration since the dialogic relationship between objectivity and visual representation emerged in the discourse and practice of science. Despite this long kinship, the possibility of inhabiting the territory of art, science and activism at the same time has been perceived as lacking sophistication or efficacy, based in part on the discourse of specialization of knowledge. This is no longer the case.

Beatriz da Costa, herself an activist and artist, has worked with pigeons to reflect, among many

things, on environmental issues. She offers a fascinating genealogy of the engagement of interdisciplinary artists with techno-scientific enterprises, and of the shifting condition of their role as engaged intellectuals (ch. 21). Drawing from her own and others' experiences, she affirms that the politically oriented artist:

[...] has to be versatile within the theoretical framework developed in disciplinary areas such as science and cultural studies, acquire the technical and/or scientific skill base needed in her chosen area of investigation, and develop an artistic language appealing to peers in her field while remaining accessible to a nonexpert audience. (p. 366)

Such an ambitious positioning seeks awareness of the ideological mesh in which artist creations can end up reinforcing, unintentionally, genetic determinism. This can be the case both for life-science art that represents living matter, and for work that involves manipulation of and intervention into living matter—or bioart, as conceptualized by artist Eduardo Kac.

The production of art that addresses life cannot elude the interaction with floating bioethical signifiers, and with the patronizing structure of some bioart—museums, art brokers, the sponsorship of biotechnology firms, etc. It is the artist-activist responsibility to transcend the admiration of a scientific discovery and reflect on the kind of impact the work of art produces on the publics that experience it first-hand—in exhibitions—or second-hand—through catalogues, the internet, books, articles, etc. Political scientist Jacqueline Stevens offers an account of how aspects of some major bioart exhibitions can be considered as symptoms of biotech corporate strategies to improve public relations (ch. 4): 'No one is going to believe Monsanto when it tells people to trust it, but if its message comes across through an art gallery or prestigious museum, then the public will be convinced' (p. 53). In order to impact the concentration of power and sources that Monsanto represents, Claire Pentecost (ch. 7) argues that under neoliberalism the work of an artist must 'creatively refigure both scientific and artistic practice' (p. 121). For her, being political is not the end of creativity. Other alternative projects relied on subversion, mucking, and contestation of the authoritative place of genetic knowledge as it is appropriated by governmental apparatuses

in their efforts to manage future biological threats through preemptive measures against nationalized, racialized and gendered bodies (see the reflection by Critical Art Ensemble on the emergence of bio-paranoia, collective subRosa's pedagogic criticism of cultural understanding of sexuality, and Gwen D'Arcangelis's reading of media coverage of the SARS epidemic in 2005). Some of the artistic interventions included in the book can be considered more successful than others in reaching multiple audiences; nonetheless, as a group, all of them provide invaluable insights to unlearn and destabilize territories of knowledge and explore collective forms of action.

De-territorialization, as an interdisciplinary approach, comes along with major challenges, among them, the need to observe and reflect on emerging vocabularies and metaphors moving among several publics—both drawing from biology, techno-science, art and, of course, science fiction. The exploration of these vocabularies and metaphors—from 'pop-genes' to passionately public debates about the promising or threatening dimensions of stem cell research—seems to be key in transcending misinterpretations and polite encounters towards engaged co-productions where activists, artists, public opinion, scientists and theorists truly engage in transdisciplinary discussions about controversial topics such as bioethics. Bioethics discourse is being shaped in universal terms in the emergent vocabularies around life sciences. Its specific historicity in Western philosophical traditions seems to be taken for granted. In Chapter 22, anthropologists Paul Rabinow and Gaymon Bennet argue that such a notion needs to be revisited ethnographically without essentializing it. This is another necessary de-territorialization that invites bioethicists, for example, to reflect on the multicultural layers informing the situated experience of being a patient, object and subject of reflection.

Understanding publics in the making and un-making of science

The attention that biotechnological research receives from media and public opinion generates excitement and fear. From the extravagant promises of disease control, genetic engineering and gene therapy, to the crude reality of bioethical transgressions in clinical trials, we find a rationality driven by capitalism and operating as a common background shaping

rationalities, public health policies and self-governance practices. One of the crucial threads of *Tactical biopolitics* is the urge to disrupt the supposedly ontological distinction between the centers of scientific knowledge production and the public sphere. Achieving such disruption is essential in order to explore the co-production of scientific knowledge and its use, and to learn from situations in which lay people implement strategies of 'scientific self-education' to challenge the political economy of access to health attention and diagnosis. Mark Harrington's account of AIDS activism in the United States during the 1980s, and Gabriella Coleman's anthropological reflection on the questioning of medical practices and pharmaceutical rationale by psychiatric patients are powerful illustrations of such processes.

Richard Levins remembers that, on his first day in primary school, his grandmother urged him 'to learn everything they could teach me—but not to believe it all'. He continues:

She was all too aware of the 'racial science' of 1930s Germany and the justifications for eugenics and male supremacy that were popular in our own country. Her attitude came from her knowledge of the uses of science for power and profit, and from a worker's generic distrust of the rulers. (p. 26)

According to Levins, such awareness informed much of his politics in academic life. Nonetheless, distrust does not seem to be enough to promote different and better public engagement with science. This seems to be the case also for scientific public education, and even scientific journalism, as tools to produce better informed citizens—biological citizens.

Dissemination of science, in this case biological research, cannot be understood only as the translation of hard, abstract content into 'down to earth' digestible pills of information. Such an approach emphasizes a hegemonic route of expertise - science/abstraction-lay public/common knowledge—that relegates public opinion to a passive and submissive role. Oron Catts, artist, and Gary Cass, scientific technician, both members of SymbioticA (an art and science collaborative research laboratory) present an interesting reflection on ethical issues as they emerged in a series of workshops for artists and non-biologists interested in molecular biology and the manipulation of living systems

(ch. 9). This unique way of engaging audiences in the daily activities of a biotechnology laboratory seeks to 'demystify and democratize some aspects of biotechnology by direct engagement with its fundamental processes. [...] It introduces participants to concepts and techniques relating to contemporary art practices dealing with manipulation of life. Emphasis is placed on developing critical thought, discussing ethical issues, and exploring cross-disciplinary experimentation in art' (p. 144). In addition to offering the experience of a new world (the laboratory) to non-biologists, the hands-on experimentation during the workshops generated productive conversations that can be seen as steps towards both the de-territorialization of spaces for the production of biological knowledge and their opening to audiences that are otherwise typically segregated.

Tactical biopolitics is an ambitious and productive destabilization of the idea of the human and a provincialization of its agency. It is a reformulation—not a redefinition—of Foucault's reflection on power over life under the concept of biopolitics (see Rabinow and Rose, 2006: 198). Exploring the projects offered by the authors of *Tactical biopolitics*, it becomes clear that biotechnology is not only producing changes on how people inquire about the meaning of being human, but also enabling novel concerns about what it means to be *biological*, in a global context where stem cells, genes, mice and the formation of new subjects (human and non-human) are newly entangled. We therefore confront the necessity of acknowledging that what we thought of as boundaries between bodies and individuals, between species, and between organic and artificial life are in fact highly permeable and fluid borders. *Tactical biopolitics* is a very suggestive interconnection of hybrid pathways to explore the contemporary specificities and challenges of governing life itself. It offers a powerful reminder of Donna Haraway's plea to keep firmly in mind: 'that we might have been otherwise, and might yet be' (Haraway, 2000: 151).

If we think of this book as an experimental event, as a rare but overdue happening, then *Tactical biopolitics* shows its timeliness in engaging a wide audience (scientists, scholars, intellectuals, graduate students) with a rich set of multi-sited ethnographic experiences of emergent social worlds; of practices brought to life by the intersection of art, activism and science.

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