

Wylie, S A. *Fractivism: Corporate Bodies and Chemical Bonds*. Duke University Press. 2018. 403 pages, ISBN 978-0-8223-6902-8. \$29.95 (paperback)

Fractivism: Corporate Bodies and Chemical Bonds

As unconventional forms of fossil fuel extraction transform landscapes and communities, what becomes necessary are unconventional forms of scholarship that can follow these effects across boundaries between nature and culture, our bodies and the environment, state and corporate actors, and different zones and sites of extraction. In *Fractivism*, Sara Wylie makes critical inroads on this urgent project. Wylie's ethnographic study of the fracking boom in the US not only addresses the devastating socio- environmental and health problems involved with fracking; in exploring the technologies of knowledge production at the heart of these entrenched and expanding regimes of extraction, she offers critical perspective and analysis to address the question: *what can we do about it?* Beyond exposing and documenting the unequal distribution of environmental human health consequences of fossil fuel extraction, how might critical social science play a transformative role?

Wylie begins with a classic ethnographic vignette: an afternoon spent with a rancher turned 'fractivist' that connects the reader to the struggles of communities silenced and sickened by the intrusion of unconventional gas drilling. In sharp contrast to the carefully constructed and ubiquitous PR images that link domestic energy production to national security and white middle class idealism, the stories of gas patch residents detail the loss of health, livelihood, and loved ones. Informed by a broader literature on the socio-political relationships that take shape around extractive industries (Appel et.al. 2015; Ferguson 2005; Mitchell 2011), Wylie's study contributes to a growing body of qualitative research that has begun to document the impacts of petro-chemical intensive fracking operations on the bodies, environments, and wellbeing of people who live and work in proximity to the industry (Paladino and Simonelli 2013; Perry 2013; Willow and Wylie 2014). Wylie's contribution goes beyond documentation and witnessing to make two important contributions to the literature. She explores the processes through which communities and their experiences are rendered invisible by an alignment of corporate, academic, and regulatory agents – an alignment that speeds the extraction of natural gas, even as it has unpredictable and unsettling "social and organic consequences." Wylie also draws from this analysis to develop a critical and engaged research project rendered on a digital platform to attempt to redress this imbalance with the production of knowledge by and for communities.

Wylie's insightful analysis draws from her research conducted in the anthropology of science at MIT between

2004-2011. This period provides a valuable vantage point, as it tracks the natural gas boom across shale plays from Colorado to the emergence of the industry in northern Appalachia. The social setting of MIT also provides an important vantage point: Wylie examines how the production of technoscientific knowledge at an industry-funded research center produces 'regimes of imperceptibility' that obscure and entrench the power of corporations over local communities and removes community concerns from view.

At the heart of Wylie's book is the question of what kinds of knowledge production can expose and disrupt these processes. Wylie develops an analytical framework to explore this question through a focus on the work of Theo Colborn, a pioneering environmental health scientist who helped to identify and found the field of endocrine disruption, and whose approach to civic science led to the creation of The Endocrine Disruption Exchange (TEDX), a database that raises awareness about the public health dangers of natural gas extraction and serves as a critical tool for communities seeking to understand and document exposure. As endocrine disruptors have unanticipated ecological, biological, and reproductive effects, themselves blurring boundaries, Theo Colborn maps out a generative and boundary-crossing approach to researching these phenomena and effects, which are often obscured by traditional discipline-bound approaches.

This framework informs Wylie's engaged research that attempts to "reduce power asymmetries that persist and pattern scientific inquiry, and that are embedded in technical infrastructures" (17). Wylie works with communities to generate online tools that can document people's experiences with the gas and associated petrochemical industries, culminating in two digital projects, which she describes from their inception to their endpoints. Landman Report Card (LRC) was a database that allowed communities to share information and experiences regarding what are often predatory leasing practices; and WellWatch was a website that compiled and shared community generated knowledge about the gas industry, focussing on public health. Through a discussion of the vibrant, if brief-lived WellWatch site, *Fractivism* explores the radical potential of ethnography when combined with citizen science and grassroots activism. Wylie's vivid description of the process and challenges of designing and implementing these digital tools is richly informed by theory drawn from engaged Science and Technology Studies, and her discussion of creative collaboration with artists, scientists, engineers, and community members provides useful lessons learned on both logistical and theoretical levels. For instance, Wylie addresses

the legal, ethical, and technical concerns by generating a database populated and used by community members, while reflecting on ways in which online technology was initially met with distrust by community activists who had previously experienced the coercive way that technology is used as a tool to divide communities and prevent collective action. The value of these chapters is enhanced by Wylie's compelling writing style, which communicates the sense of urgency and excitement accompanying an engaged anthropology of resistance.

That the websites are brought to an end, in one case with the irreversible corruption of the database containing powerful community-generated testimonies, highlights a few limitations of the study. Wylie points out, after the loss of WellWatch in particular: "Despite over 15 years of communities expressing environmental health impacts associated with fracking, *there is still no formal mechanism for aggregating and collectively studying their experiences*" (284). There is something of a disconnect here between the call to action in Fractivism, and the ultimate dissolution of a project that seemed to have everything going for it. If this fails, what spaces can exist for counter-hegemonic knowledge production, as communities and scholars attempt to challenge a vastly powerful nexus of industry, academic, and regulatory actors? How, strategically, can those niches be opened and expanded? Some parallel projects exist today, including Public Lab, a citizen-science non-profit co-founded by Wylie to generate hardware for community-based environmental research. However, extant projects focussed on fracking do not seem to contain the same participatory ethos, digital ethnography, and focus on environmental public health. On a similar note, the early end of these digital tools leaves many questions unanswered. On what levels might these projects move beyond being reactive to industrial predations, and start to articulate alternatives to the social and political realities of fossil fuel extraction? A longer life to these webpages would also have enabled a more critical evaluation of the design of these two digital platforms. For example, they are intended to link communities across spaces of extraction, and Wylie points out that LRC initially used regionally specific images (cowboys) to solicit input from landowners dealing with industry Landmen, yet there is little gender analysis of this tool. Zones of enclave extraction are global phenomena where health risks and burdens are profoundly gendered. A closer consideration of social class, gender, and race might prompt an interesting exploration of the kinds of social boundaries that might be crossed (or persist) in collaborative projects such as these. On a more practical note, a table of acronyms would be helpful in making the text more accessible.

Wylie makes an exciting and timely scholarly contribution that is relevant well beyond the scope of those concerned with the anthropology of energy. This book is useful to social scientists to inform research and teaching on topics spanning science and technology studies, energy policy, sustainability,

environmental health, digital humanities, and applied and design anthropology. The relevance of this work also extends beyond academia, and would be of great value not only to gas patch communities that are still struggling to demonstrate the links between chemical exposure and illness, but to community leaders and activists that are engaged in a growing array of citizen science initiatives. Reviewing the longstanding and growing body of research on energy in anthropology, Paladino and Simonelli point out: "Despite so much good work and detailed knowledge of the enduring hazards but fleeting nature of the dominant high-risk, high-stakes energy models of today, we remain entrenched in them" (Paladino and Simonelli 2013:1). Fractivism provides hope for strategic tools that may subvert regimes of imperceptibility and provide alternate mechanisms for exposing, understanding, and ultimately challenging the social, physical, and environmental costs of petrochemical and fossil fuel extractive industries.

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