

Conclusion

Science in Our Backyards

| grass · root |
the root of a plant of grass

—OXFORD ENGLISH DICTIONARY

| grass · roots |
the most basic level of activity or organization

—OXFORD LIVING DICTIONARIES

The term “grassroots” is a plural noun that has found its way into all sorts of political spaces. It seems that these days everyone is organizing in some way or another at the grassroots level. Grassroots movements range from those that work tirelessly to save the planet, those that travel door-to-door campaigning for a political candidate, those that strive to end gendered violence, to those that work fearlessly against racial and social injustices, such as Black Lives Matter. It is interesting to think about the properties or qualities that actually make an organization or movement into one that is considered to be “grassroots.” If, as it is defined by the *Oxford Living Dictionaries*, for something to qualify as being “grassroots” it must meet the most *basic level* of activity or organization, then the question becomes, Who or what counts as being “basic”? Who or what decides how we discern what constitutes a “level”? What boundaries and borders are we dealing with here?

For instance, starting as a call to action against state-sanctioned violence and anti-black racism, Black Lives Matter proudly stands as a leaderless social justice movement that is instead “member-led.” Does being “member-led” count as being a grassroots organization or an activity that takes place at the most “basic level”? The movement does affirm several key ideas and aspirations that serve as the organization’s guiding principles. As one of the most powerful movements of our time, Black Lives Matter encourages its members to work toward and affirm values of diversity, restorative justice, globalism, collective value, empathy, and loving engagement. The movement is intergenerational, queer and transgender affirming, and unapologetically black, affirming black villages, black women, and black families.¹ As inspiring as these principles are, how is it that a member-led organization—one that is comprised of a global network—can aspire to build upon so many rich, but also disparate, principles? How does a grassroots movement such as this take action?

Many grassroots movements, including Black Lives Matter, are built on the idea that everyday people can come together to organize and effect change. This indeed is the beauty and hallmark of doing things the grassroots way. Yet many such “member-led” movements commonly face criticisms for being “horizontal” rather than “vertical” in their organizational structure—that is, without a clear hierarchy in their leadership. In their contribution to the anthology *Urban Policy in the Time of Obama*, Lorraine Minnite and Frances Fox Piven have commented on the capacity of horizontal movements to exercise power. They explain that a “vertical” organization is mainly defined by unequal social relations of status and class, and that although they suggest that there is a chance for those at the bottom of this vertical organization to access power, this access mostly comes from “locating vulnerabilities” within a hierarchical structure.² Minnite and Piven go on to say that those at the bottom of a vertical organization can still effect change by “scale jumping” or, in other words, by overcoming institutional hierarchies that “lock in place the deep inequalities of urban life.”

Alternatively, they explain that horizontal urban social movements work as lateral networks of support.³ For these lateral networks to function, they must overcome several boundaries and borders by building coalitions through common interests. Interestingly, however, Minnite and

Piven suggest that in both the cases of vertical and horizontal organizational structures, change is produced through “disruptive action.” They explain: “In this sense, movement activities and actions do not so much ‘jump scale’ . . . ; rather, the effects of their actions pulse like electricity through the nodes of networked relations, both horizontal and vertical, the energy reconfiguring those relations to shrink the spaces in between, and bend authority in a favorable direction.” The definition of “disruption” that Minnite and Piven are working with here relates to urban social movements and refers specifically to “actions that withdraw contributions to social cooperation within institutional arrangements.”⁴

Yet, as members of the Black Lives Matter movement would present the results of their collective efforts, it appears that the definition of what gets to count as a “disruptive action” in an urban movement is far more varied than simply withdrawing one’s contribution to institutional arrangements. In fact, if one goes onto the Black Lives Matter website, they will find a link called “Take Action.” If one follows that link, further options to either “Find an Action” or “Take an Action” are presented. According to the movement, the disruptive actions that have been taken by their members have led to a number of accomplishments, having “ousted anti-Black politicians, won critical legislation to benefit Black lives, and changed the terms of the debate on Blackness around the world.”⁵ It would appear that this grassroots, member-led movement, which is supposedly operating at the “most basic level,” can accomplish extremely complex tasks and effect change at many different ways.

This book is not about urban social movements. Yet it is predicated on the idea that by the mere act of pronouncing “molecular feminisms,” the reader will have engaged in several disruptive actions. The first disruptive action comes from the fact that the two fields, molecular biology and feminism, have been kept apart. For many reasons, including institutional structures and disciplinary gate keeping, the two fields rarely have a chance to “shrink the spaces in between” them. A second disruptive action of molecular feminisms follows from the fact that although this book brings together the topics of feminism and science, it does not do so by turning to predominant or majoritarian discourses of gender equality or banal pipeline metaphors that usually accompany most women and science projects. It reaches instead toward those minor literatures or less explored lines of inquiry that are invested in questions of ontology, ethics,

epistemology, and everything else in between that goes into the political act of knowledge-making. Lastly, thinking with molecular feminisms serves as a disruptive action because at the heart of this project is precisely the idea that molecular biology itself can provide us with creative ways to enact critical disruptions and thereby reconfigure dominant relations.

Discussing urban social movements, Minnite and Piven describe the effect of movement activities and actions as a “pulse of electricity” that “moves through both nodes and networks” in order to reconfigure relations. It is here, in their description of *how a disruptive action works*, I realize that in writing a book on molecular biology, feminist theory, Deleuzian philosophies, postcolonial theory, and decolonial studies, I might have been trying to describe strategies of horizontal social movements all along. The only difference is that what counts as “social” in my case has not been limited to the human experience. It has included not only humans but all nonhumans, including organic and inorganic others. My understanding of the social has even included “raw” matter. Molecular feminisms, biophilosophies of becoming, and microphysiologies of desire all attempt to reframe these social relations by turning to ontological and ethical maneuvers that create movement and disruptive actions along a horizontal plane.

These social relations include those between the humanities and sciences, culture and biology, feminist theorists and feminist scientists, and between the knower and what is to become the known. To reframe these relations, I have taken us back to the actual physical and material pulses of electricity that Jagadish Chandra Bose reported to have measured when he was conducting his experiments on the capacity for response in plants. Developed by an anticolonial figure, who conducted scientific research as a colonial subject under British rule, I have used Bose’s work to theorize a different understanding of “response” that may be useful to both feminism and biology. Similarly, I have brought forward the work of such scientists as Barbara McClintock and Lynn Margulis, who may not have referred to themselves as feminists but whose intimate scientific inquiries of chromosomes and bacteria can serve to address some of the most pressing questions in feminist theory and feminist STS today.

Each of these scientists—Bose, McClintock, and Margulis—were marginalized within their scientific communities for different reasons in their day. Yet their theories and research findings have lived on and now contribute to our efforts to bend scientific authority and to produce knowledge

that is otherwise. My reason for sharing their scientific work has been the hope that by learning about their disruptive actions, we as feminist scientists, scientist feminists, and all other invested parties may also be called to action. Like the strategies of horizontal urban social movements, much of our efforts actually need to start locally, in our own backyards as it were. Practice-oriented feminist STS approaches can help in this regard by providing us with the everyday knowledge and tools to conduct our experiments. Doing science in our backyards could include setting up local science shops where experts from a diverse range of knowledge bases come together, through a shared common interest, to solve local problems. It could involve creating feminist, postcolonial, and decolonial technoscience salons where academics learn to bring their research into interdisciplinary conversations. It could involve creating shared community maker spaces that prioritize the involvement of typically marginalized groups. It could even involve setting up interdisciplinary mentoring structures that support the radical act of having feminist scientists practice both their science and their feminism at the lab bench.

Lastly, I want to address the first definition of “grass root” placed at the start of this conclusion. According to the *Oxford English Dictionary*, a “grass root” is a noun that can be defined simply as the “root of a plant of grass.” Yet, if I have succeeded in any way at all in writing this book, it should be evident by now that the coming together of stolons, rhizomes, roots, shoots, and molecular politics in the event that is *becoming a blade of grass* is anything but simple or inconsequential. I learned this lesson myself not from arboreal thought but from a tree that fell in my backyard.