



## Weaving on a Radical Loom: History, Epistemology, and Science Activism

Sigrid Schmalzer<sup>1</sup>

**ABSTRACT:** The author uses personal narrative to advocate for consciously interweaving intellectual, social, and political work to generate robust and liberatory alternatives to the worlds we inhabit. The narrative focuses especially on the author's experiences studying the history of the original Science for the People and then participating in its revitalization, but also includes discussions of the anti-war movement, the history of science in Mao-era China, and radical education at the University of Massachusetts Amherst, among other topics. The author argues that the tools of history and epistemology, informed by Marxist analysis, can help activists navigate the tensions of generational difference, and that ideas generated through activist discussion enrich scholarship, as evidenced in the benefits she has drawn from conversations about indigenous knowledge with generations of Science for the People members.

**KEYWORDS:** activism, history, epistemology, personal narrative, Science for the People, Maoism, generational difference, indigenous knowledge.

### Introduction

Attending an online brainstorming session with Massachusetts environmental justice advocates to develop state legislation on mold and indoor air quality, the usual doubts cropped up: How did I get here? Is this an appropriate project for a historian, especially one specializing in the history of science in modern China? The answer to the second question, I reminded myself, was yes. Most simply put, the reason I often find myself in such situations lies in the continued relevance of the Maoist radical vision

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1. The narrative that follows will make clear how much I owe to how many people in formulating the ideas expressed in this paper.

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- *Correspondence:* Sigrid Schmalzer, Department of History, University of Massachusetts Amherst.
- e-mail: sigrid@umass.edu
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of science for social movements, especially but not exclusively those involving STEM knowledge.

Answering the first question has been more complicated, but the result is more satisfying, both intellectually and politically. By tracing the journey that brought me to that virtual room, I begin to do justice to the radical philosophical traditions and the social justice movements that have together informed my scholarship and my organization. Through personal narrative, this paper makes a case for consciously interweaving historical inquiry, epistemological theorizing, and active engagement in ongoing social movements, with the goal of cultivating robust challenges to establishment science and generating meaningful alternatives for scientific futures. By focusing on “interweaving,” I am drawing inspiration from the Maoist emphasis on *integration* (综合)—“bringing together” (结合) disparate elements, “simultaneously engaging” in diverse activities, and always choosing to “walk on two legs” (两条腿走路) rather than overspecializing. This approach often emerged in Mao-era China as a means of making the most of scarce resources. However, its significance went beyond practical concerns, resonating deeply with the theory of dialectical materialism that Mao and other Chinese Marxists embraced: the principle of integration recognized the analytical and practical benefits of treating things not in isolation or stasis, but rather in dynamic interaction (Schmalzer 2021).

History is vast, as is the political landscape of today. Each of us weaves our parts of this tapestry in different ways, influenced by the networks of people we engage.<sup>2</sup> In this paper, specific episodes from the interweaving of these threads will shed light on pieces of the recent history of science activism rooted in Marxist analysis, while suggesting broader takeaways that should be applicable in the political and intellectual work of many readers of *Marxism & Sciences*.

I want to underscore that my role in this history is a small one: I share my story not because it is especially important, but because in its ordinariness it may speak to the experiences, or possible experiences, of many others similarly seeking to make Marxist-inspired contributions at the intersection of activism and academics.

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2. This point was brought home to me again just before I submitted the final version of this essay. I asked my colleague and fellow activist Yige Dong to look it over, and she noted the connection to Sadie Plant’s 1995 article “The Future Looms: Weaving Women and Cybernetics.” As Yige explained, “The loom is always at the heart of women’s work and it’s such an empowering tool!”

## Discoveries, Imagined and Real

As an undergraduate at Wesleyan University in the 1990s, I pursued a double major in East Asian studies and the Science in Society Program, while also engaging (in an admittedly unsophisticated way) in environmental and social activism. The apparent resonance between radical theories of knowledge production that appeared in my science studies classes (especially those of socialist feminist philosophers), and the Maoist ideology I was encountering in my Chinese history classes, intrigued me. By questioning the nature of expertise and challenging hierarchies of knowledge, both bodies of knowledge offered tools for dismantling systems of power that were oppressing people and killing the planet. And so, it puzzled me that the radical scholars in science and technology studies did not appear to have noticed that people in Mao-era China had already put into practice ideas about the social production of knowledge and the inseparability of science and politics.

In graduate school, I continued intellectually much along the same lines, earning a Ph.D. in modern Chinese history and science studies from UCSD in 2004. My dissertation explored “mass science” in Mao-era China, focusing on the science of human evolution. In the book that emerged from that study, I concluded that Mao-era radicals were “right to emphasize the class politics of knowledge and right to think that laborers had something to offer science.” Influenced by the cultural turn, I did also worry about the limitations of that vision when it came to “traditional” knowledge forms: it was all too easy for Mao-era scientific and political elites to dismiss ideas emerging from traditional culture as “superstition,” thus missing many potential contributions the “masses” were capable of making and trampling or even targeting for destruction many significant ideas and practices. Still, over all the dissertation, and later the book, offered an analysis of Mao-era science “on its own terms.” In the process, the picture it painted was unusually positive by academic standards in the China field of the time, which had coalesced around a narrative almost entirely dominated by the persecution of scientists and ideological pursuit of irrational policies.

When I was putting these interests together, I often felt like a pioneer in uncharted territory—a rampant, and invariably false, perception among white Americans studying China. As it turned out, a generation before me, members of the radical US organization Science for the People had themselves “discovered” the connections between socialist-era China and radical critiques of science and technology. The evidence was in a 1974 paperback book titled *China: Science Walks on Two Legs*, bought at a used bookstore by

a faculty mentor and passed along to me. But because it was not academic and not current, the book remained a curiosity on my shelf rather than an object of inquiry.

Then, in 2007 as an assistant professor at UMass Amherst, I became pregnant with my first child—a fact of material consequence that as a good socialist feminist I insist on recognizing. I knew that I needed to find a small research project to tide me over for a few years, one that would not require extended travel while gestating and breastfeeding. In Mao-era China, these would have been considered two of the “four special times” for women, which made the assignment of “light work” and “near work,” respectively, appropriate. Socialist feminists today would usually take a less essentialist perspective, pointing to the increase in my “care work,” but with a similar justification for labor adjustments.

It seemed a good time to take *China: Science Walks on Two Legs* off the shelf and track down the US-based authors. The book was published in paperback by Avon Press in 1974 and offered eyewitness observations, by the SftP delegates, of science as practiced in Cultural Revolution-era China. With few exceptions, it read as a distillation of the vision of Maoist science expressed in the many PRC state-produced materials I had collected over the years. I began by searching the Internet for information on SftP and soon discovered a listserv with that name. I registered for the listserv and posted an email explaining my interest in the history and asking any members of SftP’s China delegation to get in touch. Soon I had developed a network of contacts from the original SftP, and through those conversations and more reading I developed an expanded understanding of what socialist China meant to them.

SftP emerged in the late 1960s out of the anti-war movement in the US and disbanded in 1989 largely due to financial insolvency. Many of its early leaders drew inspiration from the writings of Marxist scientists in Britain before World War II, people like J. D. Bernal, H. B. S. Haldane, Lancelot Hogben, Joseph Needham, and Hyman Levy (Werskey 1988). In the pages of SftP’s eponymous magazine, readers frequently encountered references to these authors and information on how to acquire their books, alongside sharp new Marxist critiques of the relationship between science and capitalism, among other structural forces of oppression. Meanwhile, and often intersecting with SftP’s networks, the field of science and technology studies was developing an increasingly influential challenge to the notions that scientific research was either politically neutral or intellectually objective. Some of the sharpest of these critiques came from feminist scientists and

scholars. In SftP, scientists Ruth Hubbard, Rita Arditti, Anne Fausto-Sterling, and others deconstructed biological “truths” about women’s bodies and minds. At the same time, and deriving from the same larger feminist consciousness-raising movement, scholars like Patricia Hill Collins, Nancy Hartsock, Sandra Harding, Donna Haraway, and Emily Martin—names I had first encountered at Wesleyan through my mentor Sue Fisher—were developing variations of feminist standpoint epistemology: the notion that all knowledge is socially situated and inescapably related to the gendered, racialized, and class-based standpoints of the people producing it.<sup>3</sup>

While the field of science and technology studies had not at that point taken an interest in China, Science for the People did. By 1971, some chapters of SftP had formed study groups on China. The PRC offered a tantalizing opportunity to explore not just the theory but the practice, on a national scale, of revolutionary science. Like Cuba, and later Nicaragua, China represented a communist country that remained inspirational for Western leftists disillusioned by the Soviet Union. What the 1973 SftP delegation saw was very much what they had hoped to find: not only was scientific research organized for social benefit rather than capitalist profit, but laypeople (from peasants to urban housewives) were mobilized to participate in research, and scientists were expected to learn from peasants and workers.

By the time *China: Science Walks on Two Legs* found me, it was clearly “dated” as political analysis: the field of Chinese studies had outgrown the stage where the CCP’s claims, especially about the Cultural Revolution, could be so uncritically accepted. But historians (and other historically minded folk) should not succumb to the “dustbin” approach to history. For us, all things are “dated,” in the sense that we recognize that all phenomena—including ideas—are products of specific historical processes: as Sandra Harding put it, “the thought of an age is *of an age*” (1992 452). And so dated does not mean worthless, but rather invaluable evidence of the historical emergence and transformation of knowledge. Once compelled to engage seriously with the book and its authors, I began to see the history in a new light—one that justified my instinct that the radical science ideology of Mao-era China was significant; challenged my hubris in imagining myself a pioneer, and so deepened my understanding of the widespread, enduring pioneer fallacy among white Americans interested in China; and,

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3. For a fascinating history of these and other women scientists, many of them involved in Science for the People, see Christa Kuljian, *Our Science, Ourselves: How Gender, Race and Social Movements Shaped the Study of Science* (forthcoming from University of Massachusetts Press).

most important, connected me with a vibrant community of activist-academics working to transform science in the US and beyond.

### **Connecting Dots, Forging Connections, Rebuilding SftP**

During my last two years as a graduate student at UCSD, I became involved with the San Diego Coalition for Peace and Justice—one of a series of facts of political consequence that as an activist I insist on including. Until then, I had satisfied my need for service with volunteer work, a liberal political instinct that was a poor fit with the radical intellectual currents informing my studies. As the US marched ever closer to invading Iraq, my partner and I sought a political community and found it in the anti-war movement. With the guidance of seasoned activist Carol Jahnkow, we embraced a consensus model of decision making for every action we planned, enacting revolutionary politics in our own community as we attempted to intervene in US foreign policy. When my partner and I moved to Massachusetts in 2004, we immediately joined the Northampton Committee to Stop the Wars under the leadership of the down-to-earth, but quite legendary anti-war activist Frances Crowe, and so continued our political education. I knew that these experiences mattered for my intellectual development, but in truth organizing against the war in Iraq, writing a book on the history of paleoanthropology, and teaching Chinese history to undergraduates felt like three very different occupations. I kept my eyes peeled for ways I could better integrate activism and academics.

Taking on the Science for the People research project was one such avenue. Researching the history of American radicals who had traveled to China also allowed me to deepen connections with antiwar organizers, because Frances Crowe and a few others in that local network had visited China with their own delegations at roughly the same time that SftP did. In those years, Frances directed the Western Massachusetts office of the American Friends Service Committee, the political arm of the Quaker church; she traveled to China with an AFSC delegation in 1974. Interviewing activists in my own political circles enabled me to think in ways that were simultaneously empathetic and critical about the political significance that China has held for American leftists—myself included. Frances's unusually sharp memory allowed her to convey the experience of visiting Cultural Revolution-era China as an American activist with remarkable clarity. For many years, whenever I offered my Cultural Revolu-

tion seminar on campus, Frances came with her slide projector and delivered what must have been an almost exact replica of the presentation she gave countless times in living rooms and church basements after her 1974 trip.

At the same time, I also began talking with local activists who were organizing around food and agriculture. Just as 1970s feminist consciousness-raising circles nurtured the emerging analysis of Hubbard, Haraway, and others in *Science for the People* and beyond, the burgeoning permaculture movement of the early 2000s inspired me to think about the intersections between sustainable farming and revolutionary forms of social organization. And so, I was primed to follow up when Vinton Thompson, an entomologist who had participated in the 1973 delegation as a graduate student, said something along the lines, “If you’re really interested in mass science, you should find out more about Pu Zhelong. Of all the scientists we met in China, he seemed the most sincerely committed to learning from the peasants.” Pu Zhelong, who had featured in SftP’s book *China: Science Walks on Two Legs*, was an insect scientist known especially for his work with parasitic wasps as biological control agents, allowing for the management of crop pests while minimizing chemical insecticides. And just as Vinton predicted, research on Pu confirmed that he had collaborated effectively and genuinely with peasants at his research sites. My second book project thus coalesced out of conversations with *Science for the People* contacts and local permaculture activists.

In 2012, I found another way to link activism and academics by taking a leadership role in a radical undergraduate major at UMass called Social Thought & Political Economy (STPEC), originally formed in 1972. The student leaders who interviewed me for the position specifically asked about my commitment to consensus-based decision making; thanks to my experience with the anti-war movement, I could speak very sincerely on this question.

The highpoint of my STPEC tenure was the 2014 conference we hosted, “Science for the People: The 1970s and Today.” Vinton Thompson proposed that I should bring people together for a kind of reunion—a chance to chat about old times and reflect on the significance of SftP’s work in the 1970s and 1980s. Testing the waters resulted in a very positive response—so much so that we quickly had to expand our sense of what the event would be. In April 2014, STPEC hosted a three-day conference on SftP’s history and legacy with more than sixty speakers and more than two hundred participants. We organized most of the panels around specific issues:

each panel included at least one participant in the original SftP work on that issue, and at least one person organizing on the issue today. For example, the panel on the militarization of science included Frances Crowe and former SftP member Jonathan King, who had worked together against anthrax research at UMass in 1980; it also included Derek Denman, a graduate student at Johns Hopkins organizing against drone research, and Elke Heckner, a scholar exploring the militarization of PTSD therapies.

The event attracted not just veterans of the original SftP, but younger folks who had never heard of the organization but felt it was just what they had been looking for. One Ph.D. student from Tennessee, Ben Allen, took the mic at a plenary session and lit a fire under us all to restart the movement. Thanks to him and a number of others, SftP got off the ground again, gaining momentum after the election of Trump in 2016 and the liberal March for Science in 2017, of which the nascent “revitalized” SftP offered a resounding radical critique. In “Which Way for Science?” (its most important early communication), the new SftP argued, “Science is inherently political. What is studied, to what end, by whom and under what conditions, are all political questions integral to the very nature of science. By denying this fact, we risk erasing the struggle of scientists of color, women, disabled scientists, and scientists from the LGBTQ community who have had to fight for education, credibility, funding, and job opportunities within science, technology, engineering, and mathematics (STEM). Concordantly, we risk ignoring and diminishing the struggles of scientists who have resisted the use of science for making war, exploitation of workers, the enabling of environmentally destructive resource extraction, and the support of industries that harm people and the planet” (Science for the People 2017).

In January 2018, the new Science for the People held its first national convention on the campus of the University of Michigan, Ann Arbor. The event brought together members of the original organization along with activists from the younger generation who were leading the way to rebuild the movement. Ann Arbor was an apt site for several reasons. University of Michigan professors John Vandermeer and Ivette Perfecto had been keeping SftP embers alive in the intervening decades, especially through their ongoing work with the New World Agriculture and Ecology Group (NWAEG), which had sprung from the original SftP; and John had been the keynote speaker for the UMass 2014 conference, focusing his remarks on the significance of “mentoring comrades”—indeed, his mentorship since the 1980s has produced multiple generations of radical, politically



engaged ecologists. The University of Michigan was also the institution that fired radical mathematician Chandler Davis back in 1954, after he refused, on First Amendment grounds, to cooperate with the McCarthyist House Un-American Activities Committee. From his post-blacklist home in Toronto, Canada, Davis went on to play an important role in early SftP antiwar organizing, including as co-author of the exposé *Science Against the People*. His return to the University of Michigan in 2018 (at 91 years old) to help usher in the new SftP was deeply inspiring.

At the top of our agenda for the weekend was outlining our common commitments and hammering out a process to resolve disagreements and finalize a set of “Principles of Unity,” which we eventually accomplished (<https://scienceforthepeople.org/mission/>). We also listened to a number of presentations, including from John Vandermeer about his recent engagement with the Zapatistas, and via video call from Dianne Rocheleau, another original SftP member who was then in Mexico involved in her own project with the Zapatistas. For me, their contrasting perspectives on the role of science in the Zapatista movement was one of the most fascinating and challenging moments of a long weekend filled with fascination and challenges. It confirmed for me a suspicion that one of the divides we would face in the revitalization project involved our divergent perspectives on the relationship between science and “traditional” (and/or Indigenous) cultures. John had attended the recent ConCiencias Conference organized to bring Zapatistas together with leftist scientists, where he heard Zapatistas criticizing some of the participating scientists for presenting solutions supposedly based on “traditional” knowledge but lacking in scientific credibility. John felt strongly that what agricultural scientists have to offer leftist peasant movements is rigorous modern science, and he said that was what he heard his Zapatista hosts requesting from him. Dianne’s ongoing engagement with Zapatistas outside of the conference setting gave her a somewhat different sense of what leftist scientists need to bring to the table: she heard Zapatistas articulating the legitimacy of traditional knowledge forms and asking for mutual respect. Reflecting back on my struggles to assess the contradictions inherent in Maoist attitudes toward traditional knowledge systems, I bookmarked this contradiction for future reference.<sup>4</sup>

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4. When I shared a draft of this paper with John, he emphasized the different contexts of his and Dianne’s encounters and said, “In the end, I don’t think that Dianne and I disagree at all.” However, whether the difference is produced by context or by perspective, it is an issue that will require continued thoughtful debate among leftists.

### **Local Organizing, Situated Knowledge, Solidarity Science**

As Ben Allen and other organizers around the country worked to revitalize Science for the People, I very much wanted UMass to continue to play a role, so I began announcing meetings of a local SftP chapter. In those early days, as I sat in the room wondering if anyone would show up, I tried to channel my inner Frances Crowe. Sometimes when I was running in very late to a meeting of the Northampton Committee to Stop the Wars, I would find the nonagenarian Frances was the sole person present. Invariably, she would have arranged chairs in a circle and would be sitting with her hands folded quietly in her lap, as if in meditation—and then when I entered, she would share what she had been thinking about and launch into the work we could do together. Though a nationally recognized recipient of numerous awards, whose 95th birthday warranted the attendance of Amy Goodman, she did not see this as a waste of her time. Nor did she lose confidence in the importance of the work when she found herself doing something alone. With humble steadfastness cultivated over decades of Quaker-style political action, she had faith that if she carried on doing what she knew was right, sooner or later others would show up.

People did eventually show up, and our chapter adopted the name “Western Mass Science for the People” to include participants beyond UMass—from the community and from other nearby campuses. Our identity has shifted and grown as our membership has changed. Over time, our regular members have included: an agricultural ecologist at Hampshire College who participated in the original SftP; staff members at UMass working in DEI, one of whom trained as an engineer and belonged to the original SftP; K–12 school teachers; undergraduates in the sciences and public health; graduate students in education and engineering; STS scholars (including me) interested in knowledge and power; a UMass staff member in arts programming involved in anti-nuclear activism; and community organizers from Arise for Social Justice, an economic justice group in Springfield, Mass.

Early on, our chapter made contact with an organizer from Arise who was seeking assistance in her struggles around mold and health. Tatiana Cheeks is a Black mother originally from Brooklyn whose youngest child, Khai, suffered from a mold allergy; habitually exposed to mold in shelters and badly maintained rental apartments, Khai experienced constant respiratory symptoms. Tatiana attended a chapter meeting and shared the wealth

of knowledge she had accumulated as she struggled with intransigent landlords, ignorant doctors, scam mold remediators, and housing court judges who clearly did not respect her testimony.

And so, one of our more enduring projects has been supporting Tatiana's Mold Action Committee. On the basis of that work, together with our readings in activist science and technology studies, and what we have learned from one another, we have developed an approach we call solidarity science, and we have shared that vision through Zoom-based "community" workshops. We define solidarity science as the notion that scientists, engineers, and other STEM workers should not just be working for the people in a top-down way as if bestowing charity, but working with the people, recognizing the knowledge that community members hold, and ensuring that community priorities and perspectives are there from the outset as we collectively develop robust scientific knowledge that addresses social needs and furthers social justice.

Our understanding of solidarity science draws especially from the concepts of situated knowledge and strong objectivity advanced by feminist philosophers of science, and we have been particularly indebted to Sophie Wang's highly accessible introduction to these concepts in her comic book, *Science under the Scope*, published by Free Radicals—a group that overlaps in mission with SftP (Wang n.d.). As we explain it in our workshops (aided by Wang's graphics), situated knowledge recognizes that everyone has knowledge, and that everyone's knowledge comes from somewhere and relates to their specific social, political, and economic situation. This is as true of lab scientists as it is of farmers, as true of doctors as it is of patients: all of these people have valuable knowledge to contribute, and each person's knowledge relates to where they sit in the world. Strong objectivity is the idea that our collective understanding of the world is more robust if it involves a greater diversity of observers. Since all knowledge is partial, we are going to know things better if we bring more people to the table, each examining a phenomenon from their own social location, each contributing their own situated knowledge.

Our work with Tatiana has been the most important inspiration and the most vivid example of how solidarity science, based on situated knowledge and strong objectivity, works. Many community organizers and activist scholars will no doubt immediately recognize the proud tradition of "housewife epidemiology" that Tatiana is continuing: from nuclear fallout in the 1950s–60s, Love Canal in the 1970s, drinking water contamination in Woburn, Mass. in the 1980s, and the PG&E scandal in the 1990s,

to the recent campaigns against coal ash pollution from Duke Energy in North Carolina and the water crisis in Flint, Michigan, mothers based in affected communities have taken the lead. The term “housewife epidemiology” was coined to emphasize the particular ways in which women *as women* and *as caregivers* have taken on very public roles in establishing patterns of disease related to environmental pollution and on that basis calling for effective change at the policy level (Merrifield 1993). By acting publicly *as mothers* these women have claimed an authority within patriarchal, classist, and racist systems that would otherwise have easily marginalized and silenced them. Of course, they are still operating within those systems, and that creates limitations. It’s significant, for example, that the women who have been most publicly acclaimed in these roles—and who have been celebrated in film (e.g., Erin Brokovitch)—have been white, while we know that Black and Brown women have fought very similar battles and have had to struggle to achieve even basic recognition. Still, by acting in highly gendered (and often also highly class- and race-conscious) ways, these community organizers have been able to challenge the way scientific knowledge is usually assumed to work.

The diversity of the Western Mass SftP chapter members, and our experience working together to create the community workshops among other activities, has provided us lived experience that reinforces our own understandings of solidarity science. And of course, we each draw on other experiences that enrich our ideas about the concept. Brian Schultz, an agricultural ecologist and entomologist at Hampshire College who did his Ph.D. at University of Michigan with John Vandermeer and participated alongside his mentors and classmates in solidarity work with US farmworkers and with the Sandinistas in Nicaragua, often emphasizes that scientists have global knowledge but farmworkers have local knowledge—they know better than scientists how things work (or don’t) in the place they are farming.<sup>5</sup> He is also fond of saying that as a science professor, his job is often to tell students where science stops and other kinds of knowledge (e.g., related to policy) have greater relevance.

For me, the history of Maoist “mass science” continues to supply epistemological and political inspiration. It may well have been in *China: Science Walks on Two Legs* that I first encountered the “three-in-one” model of Mao-

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5. Some STS scholars challenge the idea that science (or any knowledge form) should be considered “global” (see, e.g., Turnbull), but this remains a meaningful distinction for many scientists and helps to make sense of the experience in which some types of knowledge travel more effectively than others across diverse sites.

era, commune-based scientific experiment groups. Along with Pu Zhelong, the three-in-one groups became a particular focus in my second book project. The premise was this: establishing the most appropriate new agricultural technologies (crop varieties, fertilizers, insect control, planting strategies, etc.) required the participation of people with diverse forms of knowledge. Technoscientific expertise could be supplied by scientists or technicians, but they were in short supply; in their absence, young people with secondary school education and some training at agricultural extension stations were good substitutes: youth boasted not only some basic scientific knowledge but also a willingness to embrace change. However, such people by no means held all the answers. “Old peasants” with decades of direct experience in agricultural production possessed much deeper knowledge of the realities of farming in their specific locales. Moreover, old peasants were by nature more down-to-earth: they were far less likely than scientists or “educated youth” to charge madly after a fancy new technology, seeking personal glory. Local cadres served as the final leg of the tripod, since they had the “correct” political understanding necessary to keep new agricultural practices consistent with broader policy commitments.

When I began working in the STPEC major at UMass, the administrative structure I inherited also involved a three-in-one combination. (I do not say “coincidentally,” since after all, STPEC arose in 1972, a period when Maoism and Maoist-inspired theories of participatory research and pedagogy were deeply influential on leftist academics.) In STPEC, all issues were handled by anti-hierarchical decision-making bodies comprising students, staff, and faculty working through consensus. The most obvious rationale for this system was to ensure equitable opportunities for political participation, and especially to empower students to engage in self-governance. Still, I could not help but think of the system in terms of revolutionary knowledge production along three-in-one lines. Because of our very different positions in the university, students, staff, and faculty have different experiences and perspectives, and thus different knowledge to bring to the table. Decisions made by groups representing all three perspectives are bound to be more robust, reliable, and revolutionary. Studying the history of Maoist three-in-one scientific experiment groups enriched my understanding of what we were doing in STPEC; and participating in STPEC committees made Mao-era history far more tangible. This was the knowledge that I in turn brought to Western Mass Science for the People,

and it informed my contributions to our community workshops, in particular the emphasis on enacting situated knowledge in the promotion of solidarity science.

### The Historian's Toolbox

In 2019, Rodolfo Ostilla Mónico, a member of the new SftP, proposed digitizing *China: Science Walks on Two Legs* to make this early and influential SftP publication more widely accessible. Given the personal significance of the book as my introduction to SftP, I was delighted that others recognized its importance and grateful to Rodolfo and other members for their willingness to do the hard work of formatting and proofing the digitized version. I was also concerned about the implications of having the current organization “reprint” the book as though its political analysis reflected present-day wisdom on the subject of science in Mao-era China. In fact, as I’ve already acknowledged here and as some of the others on the SftP listserv also pointed out, the book was “dated” in multiple, unavoidable ways.<sup>6</sup>

First and most obviously, the rosy picture of socialist science that it presented has been profoundly challenged by mountains of personal accounts detailing suffering, persecution, and political decisions that flew in the face of both scientific evidence and human decency. While some scholars, me included, have begun to insist on writing histories that do justice to the era’s revolutionary ambitions and their positive outcomes, no scholar could sign off on an account that failed also to consider the voluminous negative evidence that has accumulated since that time.

Second, and for our movement perhaps even more important, the book’s authors were a delegation of entirely white people only one of whom spoke even a little Chinese. Although they were serious in their commitment to learn about China through reading and discussion, they could not (and, to their credit, did not) claim deep knowledge about Chinese history and culture. To suggest, in 2020, that their book represented an essential source of knowledge on science in Mao-era China would be not just misguided but racist: it would deny the existence in our communities of vast numbers of people with far more direct and extensive knowledge of China (including Chinese and Chinese-American people),

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6. Consistent with the mixed feelings among US leftists today about Mao-era China (and present-day China as well), the discussion on the SftP listserv was rich and by no means unified. My analysis here should not be taken to represent that of all SftP members.

and so would preserve the fallacy that China constitutes a mysterious, exotic land knowable only through the intrepid feats of white explorers.

The challenge for the historian then becomes how to explain the significance of such a “dated” artifact. And that lies in what it means to be “dated,” in the power of recognizing that the “thought of an era is *of an era*,” and in the value of understanding that era and how it relates to our own. These were the ideas that were forming in my head as I engaged in the listserv discussion. Out of that discussion came the idea that the new SftP should publish a critical edition of the book. A collection of essays would offer reflection and analysis of the book’s significance, and the digitized version of the book would live on a separate website dedicated to the archiving of the history of the original SftP (<http://science-for-the-people.org>), making clear that the book itself was not a publication of the new SftP. This was an exciting project for me, because it wove together my apparently disparate fields of activity in a far more direct way than I had previously managed, and in the process, I gained a clearer understanding of the value of the historian’s toolbox to our social movements—though I do not feel I have been as successful as I hope to become in sharing those tools.

By this time, I had a lot I wanted to say about this book and its historical significance, and so I was grateful for the chance to write the introduction to the collection and to take a leading role in soliciting and editing of the essays. I thought it was important that the first essay be written by someone who possessed both personal and scholarly knowledge of the recent history of science in China, and for this role I thought immediately of Zuoyue Wang. Zuoyue grew up in China during the Cultural Revolution. In the 1980s, he studied physics with the legendary astrophysicist and political dissident Fang Lizhi, who played a leading role in the democracy movement culminating in the Tiananmen Square protests of 1989. Zuoyue then turned to the history of science, and he came to the US where he completed a dissertation and then a book on US science policy during the Kennedy era. We first crossed paths around 2000, when I was a graduate student and he was a professor in the process of shifting his research agenda to include the history of science in modern China. His immersion in the 1980s democracy movement in China and his study of the early twentieth century Science Society of China had given him a strong liberal politics quite different from my efforts to rehabilitate the radical program of the Mao era, and certainly the personal stakes for him were far higher, but this never prevented him from acting as a kind and supportive mentor to me.

We have participated in many collaborations, and just a few years before I recruited him for this essay, we connected in another, unexpected but absolutely fitting, way: when reading the opening autobiographical section of Sophie Wang's comic *Science Under the Scope*, her drawing of her father, identified as a historian of science, made me certain that she must be Zuoyue's daughter, as indeed she is. Of the many insights offered by Zuoyue's contribution to the critical edition, I found especially helpful his provocative challenge to SftP's readers to consider carefully the appeal by liberal dissidents like Fang Lizhi that science should be free from political control. This is where the rubber meets the road, and radicals have to be prepared to confront these fundamental questions, whether in "actually existing socialism" or "actually existing capitalism."

Similar to the logic of the 2014 conference panels, we decided to include a present-day organizer in the collection: JS Tan, a leader in forging solidarities between tech workers in the US and China, proved the perfect choice. He contributed the closing piece, titled, "Why the 996.ICU Movement Must Not Be Forgotten in the United States"; this became SftP's first publication offered also in Chinese translation. JS analyzed the stark inequities in the tech industry in China, explained the exacerbating effects of the deteriorating US-China relationship, and chronicled the rise of opposition among Chinese tech workers to grueling working conditions along with the (sadly all-too-brief) supporting actions in the US. He concluded that "in the face of nationalism, only workers stand to lose," and called for more transnational tech-labor solidarity.

The middle two essays were contributed by former SftP members who had participated in its delegations to China: Vinton Thompson in 1973 and JT in 1978. As a historian of SftP and related movements, I found their reflections on their experiences intrinsically interesting, and I treasured this opportunity to gain a more fleshed-out understanding of the meaning the trip to China held for them and the organization as a whole. However, my conversations with the writers and then with the publishers led me to recognize that this perspective was not obvious—it represented a way of thinking that was strongly shaped by my acculturation as a historian. I decided it was my job to convince the authors that the value of their contributions lay not in what they had to say about China, but rather in what they had to say about their own experiences and about SftP. Every fiber of my being as a historian told me that this was true, and I admit I stuck very rigidly to this principle, but as a science activist it raised uncomfortable questions for me about the politics of expertise: I was essentially telling



two smart and well-informed people that because they were not China experts, their analysis of science in China, then or now, did not have a place in the critical edition. This was a challenge for them to accept, not because they claimed special expertise on China, but rather because it can be extremely difficult for people to internalize the idea that their own experiences are of historical value—the tendency is to think that only what we witness or analyze about “bigger” subjects (like “science in China”) is relevant. Through conversation we came to an understanding, and the pieces they wrote worked well with what I had envisioned for the project.

Things got more challenging when the draft was turned over to the publishing committee. A big part of the trouble related to an awkwardly timed transition in the leadership and unclear communications, such that the new publisher and the committee were not aware that the project was moving forward and had not been involved in the conversations that had brought us to where we were. They were taken by surprise and were understandably frustrated. But I think there would have been differences to resolve in any case. During these debates, disciplinary differences (the view of a historian vs. the view of scientists) became entangled with generational differences: we did not see things the same way because of our generational differences, and we had different views on the value of past ideas because of our disciplinary differences.

In assessing the middle two essays written by the former SftP delegates to China, the committee members were perplexed by the impressionistic tone and lack of analysis. To me, the impressionism was entirely appropriate given the historical value of the narratives as primary sources illuminating the significance of China within the political trajectories of these members of the original SftP. In fact, it was precisely the more “dated” elements of their essays that I found most valuable (because they helped capture the “thought of an age”), and that some of the committee members considered most questionable (because they did not square with political sensibilities today). And where I saw evidence of older activists being willing to offer for critical consideration their thought of an earlier age, some on the committee saw problematic ideas that should not be included in a present-day SftP publication.

Generational tensions are by no means uncommon in radical politics today, and compared with many other organizations, SftP can claim some success in bridging them. Nor are these tensions new. In fact, this experience reminded me of a conversation I had with Chandler Davis in Ann Arbor at the new SftP’s first national convention in 2018. Born in 1926,

Chandler was a generation older than many of his comrades in *Science for the People*. In the 1950s, not only was he resisting McCarthyism, but he was also writing cutting-edge feminist science fiction (Davis 2010). Hence the pain when in 1972 an editor at the original *Science for the People* magazine published his article marked up with edits mocking his use of masculine pronouns and sarcastically commended him for “not censoring his doubts and biases” (Davis 1972; *Science for the People* 1972). Chandler shared this experience with me at the Ann Arbor conference. I don’t know how often he had told the story in the past half century; my sense was that he had mostly laid the memory aside but that it continued to rankle because it had never been resolved.

This is about the struggles of movement building and especially struggles around inter-generational differences, and it is about the radical potential of a historical analysis. It’s why history is part of the radical loom. Recognizing the historicity of something, taking a step back from it and analyzing it in its historical context, is one of the most profound intellectual legacies of Marxist analysis. It is a radical move to be able to see ourselves in history, and vice versa. When we can view our own words and actions as products of a certain historical context, and as part of a dynamic movement, we enhance our ability to learn from the past and from one another, and to grow as activists. Multi-generational organizing plus a historical analysis is a powerful combination, but one that requires much patience to cultivate.

### **Activism Feeds Back**

I want to close with a current example of how my experience in SftP and other activism continues to feed back into my work as a China historian. Recently, sociologist Joel Andreas invited me to participate in a conference on the history of Mao-era efforts to overcome the boundary between mental and manual labor. Joel has long had feet in both academic and activist worlds: he has worked in labor organizing, and in addition to his many scholarly publications he is the author-illustrator of the well-regarded comic book *Addicted to War: Why the US Can't Kick Militarism*. The other conference organizers, Yige Dong and Pun Ngai, are also prominent sociologists who share an interest in the radical history of the Mao era because of their ongoing political commitments in labor and feminist organizing—and Yige in particular has been an inspiration to me through the work we

have done together in the Critical China Scholars (<http://criticalchinascholars.org>).

My contribution to this conference draws on my past and current research on the production of agricultural knowledge in the Mao era, especially the emphasis on integrating the knowledge of peasants (manual labor) with scientific workers (mental labor). It also draws substantially, if more abstractly, on conversations with SftP comrades about indigenous knowledge and science. Applied to concrete historical experiences of the Mao era, these become questions of whether efforts to unite “head and hand” could hope to do justice to the knowledge of farmers given Maoist hostility to traditional culture—and, on the flip side, whether the current Western academic and activist interest in indigenous knowledge gives us a critical enough appreciation for oppressive aspects of cultural systems and the workings of class.

In writing the paper, I have found myself going back through extended email conversations with SftP comrades from 2019 and 2020, sparked originally by the controversy over the Thirty-Meter Telescope in Hawai'i. It seems to have begun with Chandler Davis reaching out to a few of us, along with a few of his family members, to express his disquiet over the way activists seemed to be taking for granted that “deference to traditional cosmology” was sufficient reason to call a stop to the construction of the telescope. Michael Harris, another mathematician from the early days of Science for the People, similarly found it troubling that “contemporary activists are comfortable with traditional categories like ‘elders’ and ‘sacred’ that they would subject to rigorous analysis if invoked by the Mormons, for example.” Michael further highlighted the need to attend to the fact that Hawai'ian “traditional culture” is a “class society,” and Chandler expressed concern that we had heard from only “a small group of designated chiefs” rather than people representing the majority of Hawai'ian Indigenous people. As thoughtful Marxist scientists, Chandler and Michael found the activist discourse to suffer from a lack of materialism—both in its failure to attend to questions of social hierarchies and, still more important, in its readiness to discard science when it conflicts with the religious beliefs of indigenous people.

Sympathetic to their call for class analysis and a materialist perspective more generally, I could also hear the objections that others in my circles— younger folks for whom concerns about colonialism often supersede concerns about class injustice—would certainly raise. I responded, “My sense is that a key division among us here is whether we see culture (including

different cosmologies and epistemologies) as a legitimate thing to defend from colonialism alongside people's bodies and their political and economic rights." And it occurred to me that a properly critical, materialist approach would focus on power dynamics—and Maoists in particular would highlight the need to attend to the specific conditions of the time and place. I suggested that "a consideration of power in the colonial history of our continent and the Pacific Islands should extend also to the realm of the superstructure (including spirituality and epistemology)." And I asked what Chandler, Michael, and others on the thread thought of Robin Wall Kimmerer's *Braiding Sweetgrass*, since it seemed to me to be "one of the most influential recent books for young radical scientists."

Chandler's daughter chimed in on the thread promising to buy him a copy for his birthday, and Michael bought his own copy. There followed an exciting, enlightening discussion driven by a thoroughly Marxist analysis. Both of these SftP veterans appreciated the book tremendously and stated their intention to recommend it to friends, family, students, and colleagues. Michael emphasized that he learned "more about ecology than I would have believed possible in the space of 100 pages." Chandler applauded Kimmerer for "treating her own world view as a work in progress: she is trying to learn more of the largely erased Potawatomi heritage and other indigenous thought; she is trying to solve some specific open problems in ecology; she is searching as we all should for levers of influence on the way the land is treated; and so on," and he noted that she "is especially clear in accepting the input from different knowledge schemes whenever they are helpful, and she tells specific things she understands better as a result." Still, Michael noted Kimmerer's frequent use of the word "sacred," which he said appeared to do "no work except to express the author's metaphysical commitments." Further, and "more seriously," he worried about the book's focus on the clash of cultural attitudes toward nature over and above the "conflict over land and resources," which to his mind more accurately explained the "genocidal character of the confrontation between the European colonizers and the indigenous populations"; and he highlighted the lack of attention to "internal class stratifications and power dynamics" and other aspects of the dynamic histories of indigenous peoples. Chandler noted that Kimmerer was at her best when she recognized that "teachings from indigenous lore vary from one teacher to another" and wished she had "made this explicit much oftener," as "it would have helped get away from the suggestion of some mystical source of knowledge."

Into this discussion, Natalie Zemon Davis (the extraordinarily inspiring and influential radical historian, also Chandler's wife) introduced her article, "Physicians, Healers, and their Remedies in Colonial Suriname," which captured the complexity of colonial attitudes toward indigenous knowledge systems, while also highlighting the agency of indigenous people in actively acquiring knowledge and transforming their own ideas. There was much here that related to Kimmerer's work, and I began as well to think about the connection to Mao-era Chinese history of science. Natalie had demonstrated that the colonists perceived the indigenous people as knowledgeable but "superstitious," such that "an experienced and learned physician was needed to collect and communicate their discoveries, to turn their everyday practice into a meaningful pharmacopeia of use to all humankind." The colonists' perception struck me as strikingly similar to Maoist attitudes toward folk knowledge of the natural world (though in Maoist epistemology, "synthesize" would come between "collect" and "communicate"). Stepping back from these disparate cases, and considering them alongside many others, I noted that attempts to foster epistemological pluralism have usually nonetheless maintained some degree of inequality (with indigenous knowledge serving in a subordinate / service role). This is the challenge that I think Kimmerer and others are taking on: how to achieve pluralism (and not just co-existence, but dynamic engagement) on a more equal footing.

Through this conversation with Marxists from (and orbiting) the original Science for the People, I started homing in on what has become my analytical framework for thinking about knowledge production in Mao-era China and beyond. The answer to the concerns that Chandler and Michael have raised about "the sacred" and how to entertain calls for pluralism without opening the door to the religious right, lies in adhering to a materialist analysis: we should analyze ideas within their political, social, and economic contexts. Indigenous knowledge systems and religious-right knowledge systems have had completely different political relationships with modern, Western science. The histories are different and the current power relations are different, and we should not expect a single rule that floats over and above any consideration of the actual political contexts. We should also look at the role "sacred" is playing in each knowledge system and evaluate its political and epistemological significance before we decide whether, in that specific case, it is worth engaging.

I know I did not convince Michael, and probably not Chandler either. Michael recognized Kimmerer's book as a "deeply materialist comparative

analysis of the indigenous and colonial interactions with the natural world.” But he also noted that Kimmerer’s emphasis remained on “differences on cultural attitudes” rather than “the material reasons for these attitudes,” and he feared that the “young radical scientists” I had referenced were similarly swayed by this emphasis on cultural formations rather than material causes. Chandler reminded us that the late Marxist biologist and SftP luminary Richard Levins “would have us learn as we can from non-materialistic belief systems while keeping our own belief structure running and functional (and under critical anti-dogmatic questioning, to be sure)” —and he attached Levins’s chapter, “The Science of Dharma and the Dharma of Science,” in which Levins engaged with Meera Nanda and Vandana Shiva, concluding:

Meera Nanda is our ally in the struggle against the Hindu right, the traditional oppressive sexism and inequality, the mystification of nature. But she is not our ally, apparently, against the corporate modernizers or against scientism. Vandana Shiva, on the other hand, is an ally against the technocratic globalizers, against scientism, but not, apparently, against rural mysticism. It is the nature of coalition politics that allies can sometimes be adversaries, adversaries sometimes allies. (Levins 2008 94)

Even as we were wrapping up that conversation, a discussion erupted on the main SftP listserv regarding Marxist biologist and SftP veteran Richard Lewontin’s critique of Vandana Shiva. Historian of science Kavita Philip entered the discussion, citing the same work by Levins that Chandler had referenced on the separate thread, noting, “As Levins has written, even if one doesn’t have expertise in Indian politics, an honest (dialectical, historical materialist) analysis easily shows up the contradictions and political gaps in Shiva’s and Nanda’s own positions. What remains, still, is to excavate the politics of Brahminism. This is being debated on India’s streets today, with Muslim and Sikh activists carrying Ambedkar posters and signs. Academic insights lag behind the theorizing on the streets. Levins famously combined both. I’d like to find ways for us to do and nurture that same agility and historicized politics.”

Kavita also shared a very thoughtful and thorough article she had written on of the concept of indigenous knowledge as discussed in STS literature (Philip 2001). And she recommended an important article by Sinha, Gururani, and Greenberg, “The ‘New Traditionalist’ Discourse of Indian environmentalism,” which offers a critique of traditionalism strongly reminiscent of what Chandler and Michael had raised with respect to “deference to traditional cosmologies.” According to the authors, the traditional

cultures held up in global political and academic circles fall far short with respect to crucial goals in “equitable resource use, the participation of women and subordinate classes and castes in local institutions of resource use, decentralised, democratic and collective local control over state institutions for resource use, a priority for the provision of ‘basic needs’ to the rural and urban poor over other uses, and programs to regenerate resource stocks” (Sinha et al 2008 67).

The email discussion continued, and a number of us began collecting the gems from the email threads and considering whether to propose an issue of the new *Science for the People* magazine on “Science and Indigeneity”—or, as biologist Kriti Sharma suggested, “Science and the Sacred”—to pursue these debates more thoroughly. This is finally coming to fruition in 2023.

In the meantime, these conversations with SftP activists of multiple generations have profoundly shaped what I am writing for the conference on mental and manual labor in Mao-era China. I am finding myself thinking about what scholars engaging with indigenous knowledge would make of the scientism of Mao-era political and intellectual elites, who spurned traditional knowledge forms as “superstition,” doing violence to indigenous cultures and missing opportunities to benefit from their wisdom. And at the same time, I am reflecting on the insights of my SftP comrades, considering that we need to ward against turning indigenous knowledge into a fetish such that we fail to recognize what it masks: in particular, class. For example, if we consider the relevant knowledge brought by an undocumented Mexican farm worker in California’s grape industry: while it is possible that she has inherited an ecological epistemology from her cultural heritage that would be recognizable through an indigenous knowledge paradigm, is it not far more likely that she has experiential knowledge based on her practical experience informed by her class perspective as an exploited laborer? In this respect, a Maoist concern for the integration of mental and manual labor would be a more relevant framework for activist scientists (like those in SftP) seeking to collaborate on agricultural sustainability and food justice. And at the same time, again channeling Chandler and Michael, would an indigenous knowledge paradigm lead us to disregard the arguably important project of dismantling irrational ideas from traditional societies that have sustained vast social injustices?

I don’t know what my contribution to the Mental and Manual Labor in China conference would look like if not for the time I have spent organizing

in Science for the People and other political spaces. But I have to believe it would be significantly different. If not for those political engagements, I would not have had the experience of consciously enacting forms of knowledge integration to achieve social transformation. And I would not have felt the stakes as deeply, because I would not have participated in conversations among science activists with strong, mostly overlapping political commitments and yet strikingly different analyses based on different perspectives on the relationship between science and other epistemologies, and more broadly on the relationship between cultural and material forms of domination.

Weaving on a radical loom means consciously bringing together the different areas of our intellectual, social, and political work to generate robust and liberatory alternatives for the worlds we live in. This concept may be particularly relevant to radical science movements, where the need to integrate different forms of knowledge and social action, maintaining critical awareness of many kinds of hierarchy and domination, is especially obvious. Marxism not only appears in many of the colors that run through my bits of the tapestry but has also supplied some of the most powerful tools to weave the threads together. No doubt the many other people who have been involved in Science for the People (past and present), and in radical science movements more generally, have similar stories to tell about their own efforts to weave on a radical loom.

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