

Searching for how Epistemic Power is Made, Appropriated, Circulated, and Challenged: An Interview with 2020 4S Bernal Prize Winner Sharon Traweek

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Abstract

In the 2020 Prague Virtual Conference of the Society for Social Studies of Science (4S), Sharon Traweek was awarded the society's John D. Bernal Prize jointly with Langdon Winner. The Bernal Prize is awarded annually to individuals who have made distinguished contributions to the field of STS. Prize recipients include founders of the field of STS, along with outstanding scholars who have devoted their careers to the understanding of the social dimensions of science and technology. This is an edited transcription, which accompanies the full audio file also available in this issue of the journal. The interview supplements the text of Traweek's 2020 Bernal lecture. In this interview, Traweek discusses her research, academic career, the many influences on her life, and her thoughts on STS—in the past and in the future.

Keywords

Bernal prize; Sharon Traweek; interview; open university; gender studies; physics; California

Audio

The unedited audio recording of this interview can be accessed at:

<https://estsjournal.org/index.php/ests/article/view/1247>.

Introduction

KIM FORTUN. Hello. We're here for an interview with Professor Sharon Traweek, who was awarded (along with Professor Langdon Winner) the Society for Social Studies of Science's 2020 Bernal Prize for career-spanning contributions to STS. We'll talk to her today to draw out the intellectual genealogies in which she was educated and has worked—genealogies that she has now shared with many generations of STS scholars. Duygu Kaşdoğan is with me conducting the interview.

Our first questions, Sharon, are about how you got into historical and social studies of science: What led you to this work, what were the challenges, and how did it matter that you entered it at a particular historical juncture, in a particular setting?

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SHARON TRAWEEK. Thank you! Very briefly, I'll say something about the first years. I grew up in a turbulent family. Both my parents had migrated to California, one from Oklahoma and one from Texas, during the later stages of the American depression. I spent some of my childhood in Oklahoma and Texas and Arizona, as well as California. My extended family includes people from a lot of different kinds of backgrounds in the southern half of the United States. Mostly I grew up in El Segundo, a town near the beach in southern California that is now just south of the Los Angeles airport and just north of the refinery now owned by Chevron, just east of the Hyperion sewage treatment plant. When I say just, I mean a few blocks from each of those toxic sites. The school system happened to be rather good because of the American taxation system and schooling. All those corporations contributed a lot in those days, it was a pre-Reagan, pre-neoliberalism, pre-information based political economy. The post-war idea of workers having good schools and so forth was still alive and well. In sum I grew up in a turbulent family in a polluted town with very good schools and near the beach. We would go to the beach before and after school and often instead of school. At school, I became very interested in mathematics; I also studied violin and music theory. One math teacher was a neighbor with five daughters. The other math teacher was considered the most beautiful teacher in the school. I never got the impression that math was just for boys.

My teachers encouraged to go to college, the first in my family that I knew of at the time. My mother was in favor of it, my father wasn't. He thought that it was a bad idea for girls to be educated. My father's father was illiterate. My mother had not finished high school. Why was my mother so interested in school? She saw it as prestige and opportunity. She was very ambitious and remained the most ambitious person I ever met. When the teachers started talking about me going to Berkeley, she was very pleased. When my father refused to pay for it, she got a job as a telephone operator at the refinery to support my education. She encouraged me to go to UC Berkeley and I did. I thought I would be a math and music major because that's what I knew, but I also took history and philosophy classes. My dorm roommate in my first year turned out to be what in the US is called a "red diaper baby." Her father, a journalist, had fought in the Spanish Civil War. One of her grandfathers was a poet and the other a medical doctor.

We were astounded by each other. She thought that everybody had to go to college, and I told her it was an option. She got furious because she didn't want to go to college. After we had that long conversation, we went to the UCB library and she asked a librarian how to find the law that says you have to go to college; he said there isn't any such law. We then went to see her parents who lived in San Francisco in a lovely place. Forever after that her family blamed me for their daughter dropping out of college, although she later returned. I also knew how to do the fashionable hairdos of the time, and she didn't, so I taught her. We were quite confusing to each other. We're still friends.

Through her I learned a lot about politics. I had already learned some through my mother, who strongly believed that poor people were likely to get the short end of the stick; I heard many stories about that. I started Berkeley in '59 and there were a lot of people from Hungary, refugees from the 1956 revolution; I met them at a coffee house. My roommate was introducing me to those kinds of places. I learned about the various political groups on campus. One was called Slate; another group referred to as YPSL, the acronym for Young People Socialist League, and a progressive Labor Party, plus some others. It's in that context that I learned that everybody was anti-Stalin. Some people were pro-Trotsky, and some people were anti-Trotsky; some were pro-Mao, others were anti-Mao. It was important to become informed about world

political economy and know your position. By 1960 I was marching with the nuclear disarmament movement and the House on Un-American Activities Committee demonstrations in San Francisco. I also learned about the South African apartheid world and Miriam Makeba's position in it.

At the same time, I was taking math and music history classes, learning a lot. In my junior year, I had classes in both math logic and philosophical logic; I thought the teachers were contradicting each other about induction and deduction; that was deeply confusing to me. I went to talk with each of them and both said to drop the other's class. This was quite shocking to me. At the beach we had spent so much time studying the waves and I realized the patterns were mathematical and I knew that musical theory was mathematical. In my turbulent childhood, the mathematics in all these beautiful patterns comforted me. Whenever I thought about math I thought about the music and the waves. Everything else seemed turbulent except this comforting, aesthetic, embodied world of mathematics, music, and waves. I was profoundly troubled by the contradictions between my logic teachers, and I quit school.

I went to New York City and got a job as a statistics assistant at an oil company. I was living in the same apartment with my roommate from college who had dropped out. I took a night course at the New School for Social Research on the history of the Mongols in Central Asia, including their movement from Mongolia through Turkey and to Eastern Europe. The teacher of that class said that in order to understand that history, I would need to read records in multiple languages, because each record would be framed differently by the scholars, depending on the different settings and time periods in which they worked.

I began to think, ah, there is a way to make this turbulence sensible, given that the categories aren't stable. This teacher asked me what languages I knew; English is my first language and I had some everyday Spanish, completely oral; I'd studied Latin, French, and a bit of Greek. The teacher said that's not enough, but I'll help you. He told me to go to the New York Public Library, find certain librarians, and they would show me books to read. They would summarize what I couldn't read. They also would tell him how I was doing. I was being introduced to the practice of scholarly research. I spent my weekends at the library in one of those little rooms where they had books all the way to the tall ceilings with those little stairwells to the upper shelves that I thought only existed in movies. I got excited by that world of scholarship.

I decided to return to school, but I wasn't sure where. I reapplied to Berkeley and the National University of Mexico (UNAM). I didn't get a reply from UNAM, which was my first choice, and I was accepted at Berkeley; much later I got an acceptance letter from UNAM. I was interested in UNAM, partly because of the Latin American liberation movements at that time, and partly because of my family background. This southwestern United States has indigenous people, as well as colonizers: Russians, Spanish, and Mexicans before the Americans arrived. My family's been part of that history and so I had been very interested in UNAM. Returning to Berkeley I took courses on historiography and the philosophy of history, plus Latin American and European history. George Stocking's and Carl Schorske's teaching still shapes my thinking. I also was taking a political theory class with Lewis S. Feuer, and I was in a circle of people very much engaged in debates about the early writings of Karl Marx, plus the work of Louis Althusser and Antonio Gramsci. The idealist/materialist dichotomy seemed much more complex in those writings, including that ideas, culture, and education were not necessarily derived only from the economy, but that they were much more intimately connected, and this difference of interpretation was volatile.

There were also demonstrations about the early days of US interventions in Vietnam when Madame Nhu visited Berkeley. Dolores Huerta spoke about the new farm workers movement. There were many civil

rights activities, including a big march against the automobile companies' salesrooms on Van Ness in San Francisco not hiring Black workers. Stokely Carmichael from the civil rights movement married Mariam Makeba from the apartheid movement. Interviewed about the position for women in the movement – famously he said in 1964—that the only position for women in the movement is prone; Makeba divorced him. I was very much in a world of all these political debates, plus some powerful, influential women; it also was a very gendered world.

After I graduated from Berkeley, I went to New York City; given my interests in political economy, I decided I wanted to be a research analyst for a Wall Street firm and learn much more about the flow of capital. I went to a job interview, but they told me that there was a mistake about me getting the interview, because only men were hired for those positions. I said that a few weeks earlier the equal rights amendment had passed, and that included women and perhaps they wanted to reconsider. The guy said, excuse me, and left. He was gone for a long time, and when he came back, they offered me the job. I said I wanted to start the following month. During that month I began to think more about what I wanted to do with my life.

It's a long story, but tersely: I called up my UCB senior advisor (now at Columbia), and told him I had belatedly begun thinking about graduate school. It was a very different time; some call that the 'old boys club.' He said it's a bit late to get you into UC Berkeley, but why don't you go to San Francisco State University [SFSU], get a master's degree, then come back to Berkeley for your PhD. At SFSU you can study with Vartan Gregorian, who's not quite finished with his dissertation from Stanford, but he's very smart; I'll contact him. Within a few weeks I was a graduate student at SFSU with Vartan Gregorian who was also the advisor to the student Progressive Labor Party. We got along just great. I was there '64 to '66 which was an interesting time to be in San Francisco! As I was finishing my MA in 20c French history with a thesis on the 1930's radical right Gregorian advised me to go to New York University, instead of UCB, for my PhD. I applied and was admitted, but I decided to take another detour. I went to New York but worked as a teacher in an Upward Bound program with high school students, mostly from Harlem and Spanish Harlem. I married a Stanford graduate student and anti-war activist and came back to California. I was a tutor and substitute teacher in both disadvantaged and very privileged schools. Later I worked at a school for disabled kids and also was a teaching assistant in a project to design computer-assisted K-6 math curriculum.

My husband got a grant to do his archival dissertation research in Europe and we arrived in Paris in August 1968, moving to Rome in late '69. In addition to the archival work we also were involved in many demonstrations and political debates, including about feminism, with students from around the world. In '71 we separated. and I moved back to the Bay Area, joined a commune, part of a cluster in the mid-peninsula and Oregon. I started working at the Stanford Linear Accelerator Center (SLAC). I also got very much involved in the Midpeninsula Free University (lots has been written about MFU). Through all of that, I had remained interested in historical, political, and economic debates. I had become increasingly absorbed with the socio-political conditions under which knowledge making and learning was conducted. I was very committed to studying that and I thought that philosophy of science was the right way to go. That's what I was studying at MFU. At UCB I had been introduced to Thomas Kuhn's *Structures of Scientific Revolutions* and his debates with Paul Feyerabend; working at SLAC renewed my interest and I decided to study SLAC from that perspective.

I also was in a political action group with some anti-war physicists at SLAC, who introduced me to the Science for the People movement. They encouraged me in my ideas about going back to school and

continuing my studies of SLAC; they wrote letters of recommendation for me. I applied to UC Berkeley and UC Santa Cruz; I was admitted to both. When I went to Berkeley to talk with the faculty, I learned that they had planned a big project to do contemporary histories, as it's called, of major laboratories in the Bay Area and they had not yet formed a connection with SLAC. Then my application appeared with letters of recommendation from SLAC physicists, plus I had gotten a fellowship that would finance my whole graduate student career. I didn't realize then that I was a kind of walking gift to their project, but I knew they were being very nice to me and I was a bit surprised by that. Finally, they asked where else I had applied; when I said the UCSC History of Consciousness program, there was a long silence. Then one of them, who later became a very prominent academic, said "Young lady"—I was in my 30s and did not like being called a young lady, for any reason whatsoever—there's a bus between UCB and UCSC; it leaves UCSC in the morning, bringing all those who want to spend the day at the UCB library and then it goes back to UCSC. He said: let that guide your decision. It did.

When I went to UCSC to meet some faculty, I just picked the first person listed for History of Consciousness, not knowing who he was. I was a little taken aback when his shirt wasn't fully buttoned, and he was not wearing socks with his shoes. It was Gregory Bateson and he asked me all sorts of interesting questions. I said there were at least three different versions of the past at the lab I wanted to study and asked what he thought of that. I'd asked the same question at Berkeley, and they had said "we'll help you figure out the correct version." Bateson said, "they must have three different versions of the future." I quickly realized he was right; I asked if he knew ways of studying that and he discussed anthropology. From my experience at the Free University, I thought I also needed to study philosophy, history, and sociology of science. I wanted a physicist on my Advisory Committee, too. Bateson said yes to all that, and at Berkeley they'd said well, perhaps. At that time the HistCon program was run as a collective; I liked that because I was living in a commune. The reason I did not apply to any place outside the Bay Area was because I had no intention of leaving the commune; it was too important to me. So that's how I ended up at UCSC, and why I thought HistCon was the right place for me.

My friends who were already academics all said this was a terrible decision: if I were going to take the trouble to go back to school—which was a huge aggravation but necessary for certain kinds of careers—I should go to the place where my degree would have higher status. I decided that what I wanted to do did not involve people being impressed by Berkeley. The SLAC physicists were telling me to just get a PhD, come back to the lab, and help us revise some things. At Santa Cruz, the other students were all saying we're not in this because we want to become academics. We're suspicious of the academy. We came here to get new ways to think about being activists. I felt very well situated at UCSC. That's a long story, but that's the way I decided to answer your three big questions.

KIM FORTUN. That was a great story to tell, and to put into STS history. Why don't we ask you just a couple of follow-ups, imagining how people in our different worlds might have heard the story. One that I have to start with is about why you thought that philosophy of science was a place where you would work out some of your puzzles. Tell us why philosophy of science was a beacon for you early on, and how you've come to think about philosophies of science in the diverse STS ecology that you have helped build.

SHARON TRAWEEK. Well, at Berkeley I was taking philosophy classes, including logic. I was beginning to be aware of the focus in the philosophy department on Anglo-American philosophy of logic, while there were just a few people who knew about what in that context is often called Continental philosophy. In the history department European philosophy of history was taken seriously. In my political theory classes on Marx European political philosophy was important. As a student I lived for a while in a group household which included some philosophy graduate students. When we had parties, some of the younger faculty in the philosophy department would show up; one of them was Paul Feyerabend. There was also another young faculty member at Berkeley at the time, Tom Kuhn. It was clear Kuhn and Feyerabend were outliers in their academic fields; that was intriguing. Once I overheard Feyerabend advise a student to go to Zurich because he could focus entirely on certain issues in philosophy that were not well represented in the UCB department.

I heard many debates among philosophers and began reading about logical empiricism, critical rationalism, empiricism, positivism, and incommensurability. Feyerabend was questioning the nature of the rules for methods and logics. Kuhn situated historical changes in science, not in changing logics, but in changing ways of identifying new problems in new contexts. The ideas that appeared in *Against Method* and *Structure of Scientific Revolutions* became very important for me in rethinking logic and attending more to the processes for learning and making knowledge, including Michael Polanyi's ideas about tacit knowledge. Kuhn and Feyerabend both were connected with Imre Lakatos whose work on research programs I also liked. Bertrand Russell had said that mathematics was a beautiful castle built on sand. I began to think of logics as perhaps a beautiful castle built on sand. I also thought that Feyerabend and Kuhn had some new ways for thinking through the dichotomies of induction and deduction, idealism and materialism, theory and observation, and so on as incommensurable, etc. Beyond that there were intriguing discussions about historically situating the debates between Popper and Carnap et al., on reason and rationality as proxies for debates about the Cold War.

KIM FORTUN. I have a few more follow up questions, partly to draw connections to your current work. First: You mentioned the Free University movement. I know that's a whole story in itself but given that it's part of the backstory to your current book project on the neoliberal university, tell us a little more. Some people may not know the really important story of the Free University.

SHARON TRAWEEK. I won't go into the full story, but just say free universities have a very long history, all over the world. It's partly got to do with working class access to complex knowledge-making and critical thinking. It's also about a critique of universities and the corporate apparatus of universities. In the '60s in the US it also had another dimension: debates about the role of universities and many academic fields in the Cold War, including the world of so-called area studies in which anthropology, history, and language studies were deeply implicated, and so forth. The anti-Vietnam war movement also included a critique of universities' involvement in that war. There were a lot of demonstrations on campuses about specific departments, including science and engineering, being active in the war effort.

The Free University movement was a critique of existing universities, but more positively was also a place of what seemed to me to be intellectual engagement for the sheer pleasure and the sheer excitement of reading together, talking together, debating together. It also reminded me of the debates in the coffee

houses in Berkeley and the ones I had found in New York and Europe where there was such an intensity and excitement and pleasure of just grabbing onto ideas and joining the debates. It didn't matter where people worked. That lack of hierarchy and rank seemed so important to me. I felt that had something to do with the program that I joined at Santa Cruz in the History of Consciousness Program, when it was still run as a collective. I've always maintained that naive fantasy that all universities could be like the MPFU, and also the sort of childish disappointment that they're not. Childish because everyone says that's just the way they are, it's not confusing. I still have that hope that at least inside a classroom, a workshop, or a discussion like this that there be that kind of excitement again.

KIM FORTUN. We can come back to this at the end of our discussion—to concerns about not just extending or building, but also about *rebuilding* university spaces, many of which have been shattered by structural adjustment, neoliberal policies and attitudes, and other undermining currents. I know you have lots to say about this. One thing to elaborate on now: you briefly mentioned government surveillance of researchers and particularly leftist researchers. Can you share a little more of that history? This is the present for so many of our colleagues, so I think they'd appreciate hearing your experience.

SHARON TRAWEEK. Partly it comes from my roommate in college—she was the “red diaper baby”—and then her friends I met, kids she had grown up with, other red diaper babies who became my friends. They would joke about their childhoods with surveillance police hovering around. They first saw them as hilarious because they were so incompetent; then gradually as they got older they realized how much the surveillance had shaped their parents lives and futures in a very sad way. One of those people later had taken a job as a waitress in the coffee shop of a US government agency office in Europe. She had to have a security clearance to be working at that place, but the process would take quite a while. She was just a waitress, so she was always put at the bottom of the list. Finally, they told her they had to fire her because of her close association with somebody who was on the bad boys list of the US surveillance; it was her father.

During the '60s political demonstrations, we knew that there were plain clothes police all over the place, and we also learned about agent provocateurs. We had to watch out for who was wanting to push things in a violent direction because that might be an agent provocateur; we also learned the history of why there's a French term for that. I remember in the late '60s all our phone lines got really wonky and everybody started saying it's because of surveillance. We would make jokes about the poor jerks who had to be listening to our conversations, but we never said anything of substance on the phone. It's part of why we turned to mimeograph machines, a retrograde technology at the time, so that we weren't talking about certain organizational things on the phone. There was a lot of violence too and we had to watch out for that. I mean violence from the right and from the regular police. We all knew people who had been badly beaten, including friends who were in Chicago for the Democratic Convention. Later we supported people whose wounds affected their whole lives. There was a strong sense of police being a serious problem all through the '60s and '70s. It began to wane after '75, but only for a while. There's a lot more to say about that; it's very serious now and it's not a new problem.

Earlier I mentioned my first husband and I were in Europe for his dissertation research; it was on anti-left movements in both France and Italy from 1848 through Mussolini's rise to power. As a 'research assistant' I was in the archives looking at records from the police about all of their infiltrations of the left.

Surveillance of the left has a very long history. While doing research in Paris in the late '60s we were living in a building with a lot of other leftist students from around the world; the ones we spent most time with were from north Africa and Mexico. Some students who had demonstrated at the Olympics in Mexico '68 were murdered and a core group of student activists came to Paris. We all spent time at Nanterre, a new campus, where active debates seemed non-stop. Oh, by the way, there's now a 'cops off campus' movement at UCLA, part of a nationwide movement. The anti-surveillance movement has a long history, too.

KIM FORTUN. This is a nice point to shift to the story of the History of Consciousness Program and what kind of space it provided for your work. First, though, quickly tell us the story of the emergence of that program. I know that it came from the very history you just described to us and was meant to be a special space.

SHARON TRAWEEK. Clark Kerr was the President of University of California system during a very interesting time when, with the baby boom in the US, they realized, of course 18 years early, that the student population of universities was going to grow massively. They began planning for the expansion of the UC system and decided to turn some existing teacher's college and existing agricultural research centers into universities [UCSB, UCR, and UCD], as well as starting three new universities: Irvine, San Diego and Santa Cruz. Each of the three new campuses was to have a different mission; Santa Cruz was going to be an experiment to show that a massive public university system could have an exemplar of that putatively very American phenomenon, the small liberal arts college. Apparently, the topic was very close to Clark Kerr's heart.

In the context of recruiting the faculty for UCSC, what was to be an undergraduate school, some faculty members wanted to have a program for a few graduate students; there was some debate about that. The philosopher Albert Hofstadter apparently was very instrumental in the decision. Specializing on Hegel, he was quite familiar with the ideas about consciousness in 19th century philosophy, embracing a very wide array of ideas from the arts through the humanities and social sciences. He thought that the History of Consciousness would be the appropriate title for an interdisciplinary program which would be taught primarily through tutorials in the Oxbridge model. They would only admit students with research projects that could not have been—ought not to have been—pursued within a traditional academic environment of departments and disciplines. Clark Kerr accepted this little amendment to his ideas. There also were a few faculty in the sciences who had argued successfully that they should have graduate students; some of them were on loan from other UC campuses and others were on loan from the universities where those faculty had been teaching before coming to UC Santa Cruz.

When I got to Santa Cruz, there were about 3000 undergraduates and probably less than 100 graduate students. The HistCon program was run as a collective by the graduate students and the associated faculty with whom the students had tutorials. We decided together about whom to admit; we were a little amused by all the applicants who thought that the program had to be about higher, raised, or false consciousness. We liked the idea that everybody's projects could not be conducted within the conventional disciplines as constituted. In their applications almost everybody discussed why they had tried to do their projects in a regular discipline, but they encountered so many intellectual limitations that they decided to apply to a non-disciplinary, tutorial PhD program. We had tutorials, but we also formed seminars with

interested students and faculty. We would make proposals, discuss them with each other, reach conclusions, and do it.

KIM FORTUN. How long was shared conceptualization, governing and administration of the HistCon program sustained? Can you imagine programs with that kind of structure today?

SHARON TRAWEEK. I have fantasies about that, and some of us who were associated with HistCon in those days have that fantasy too. We think digitally, with a Free University, we might be able to do so. When I was in the program it started to be seriously attacked by some faculty. That's a long story which I will skip now, but they were very annoyed by HistCon, and we were annoyed by them. They saw us as anti-intellectual activists. At one point, the chancellor of the university had decided to stop the program so two of us went to see him about that. We were sort of delegates from a coalition that had been meeting about the problem. The other person had gone to one of those "Seven Sisters" liberal arts colleges in the northeast. My mother had raised me to be a lady—not that I was particularly interested—but she had tried and this woman from the Seven Sisters had all the lady training. We both showed up in our lady gear to meet with chancellor Angus Taylor, a mathematician who had written a textbook that I had used at Berkeley, which I mentioned. We had a point to negotiate: if he would authorize the hiring of someone to lead the program, and if we could recruit someone with an international reputation, would he then provide more resources and allow the program to continue? He was quite intrigued by the idea because we said, in fact, there was an international network of which we were a part, and it was heavily, decidedly, emphatically intellectual. As a group we had these very broad, rich webs of relationships around the world, and we could invoke them. He was surprised and said yes. Hayden White was hired as a result of that initiative. We then told White there were jerks at bay and that he needed to negotiate heavily to get resources that could not be appropriated into some other territory on campus which we saw as the primary motivation of the jerks. The new resources ideally would include three new positions that would be filled immediately. Donna Haraway and Jim Clifford were the first two people hired.

KIM FORTUN. We need to come back to this later—in building the stories through which we're going to STS program—build around the world, which we've had so many discussions about in recent years. The HistCon story is a story that needs to be told and retold. For now though, turn to the ways you worked with Hayden White, Gregory Bateson and others in the HistCon community. What were the ideas in play? How did they shape your thinking? At the time you weren't an "STS scholar." How did these influences shape the pioneering STS scholarship that you are known for today?

SHARON TRAWEEK. Thanks! First of all, before Hayden White arrived, people on campus had connections to various international networks. They said that Bateson and Marcuse were available, for example. Norman O. Brown was already on campus, and he was part of these vast networks. Earlier I spoke of World War II and the Cold War; there was a group of American academics and intellectuals who had been part of what was called the Office of Strategic Services [OSS] during WWII, which later became the Central Intelligence Agency [CIA]. Brown had been part of that world and he was invoking some of those connections. At that time there still was a customary fixed retirement age in American academia, which ended in 1986, a

point I want to address later. People had to 'retire' at 65, but they could be rehired quarter by quarter or semester by semester, as long as they could prove every term that they had kept their intellectual capacity. Bateson was being hired semester by semester. Brown, who was sometimes joining seminars with Bateson, also suggested that Marcuse, who had been teaching under the same retirees program at UC San Diego, be invited to teach a course at UCSC. Sometimes Marcuse would bring his teaching assistants with him . . . back to that later. On a few occasions, the three of them joined seminars together, which was quite a display. Brown, Marcuse, and Bateson had known each other since they were young, but by the late '70s they were clearly eminent. Amongst ourselves we students agreed that if we were going to work with one of them, we had better work with two because none of us wanted to be apprentices, followers, protégés, or worse. If we worked with at least two of them, they would sort of respect each other's territory, and we students could remain independent more easily.

When they were in the same room the conversation was very demanding and lively; it was hard to get a word in edgewise. There were all these assistant professors trying to speak too, so mostly we students were having our discussions before and after those seminars. Maybe a third of the HistCon students had come straight from being undergraduates, but most of us had been out of school for about 10 years. '65 to '75 was a critical time period, strongly affecting many life decisions. The assistant professors were those who had stayed in grad school during '65-'75; some seemed 'careerist' to us. We older students were the cohort that had not done that; we were of the same age, but very differently situated. Most of the people who were my age mates among the HistCon graduate students had been activists in various domains. We were very much strategically trying to think how our research could help us become better activists: using theory to improve our praxis.

Gradually we realized that many of the faculty members felt vulnerable. A lot of the younger faculty were worried about how being at an unusual new school like UCSC might harm their careers. The elder faculty felt vulnerable because of being hired semester by semester with no benefits, no health insurance, and a very reduced salary, as was the case with Bateson. Usually, younger people think that older faculty are very nicely situated financially; that was clearly not the case for some of them. There was a sense of vulnerability from multiple positionings that eventually became quite obvious to all of us, and we talked about it. Meanwhile, there were a lot of people who were internationally eminent. The idea of simultaneously being an outlier and being very smart and having a lot of people interested in their work seemed normal. That was also what I had encountered at the Midpeninsula Free University [MFU]. Some very smart people could be janitors or others would have a global intellectual network. All the ranking stuff seemed—at least at that phase of my life—not very important.

I wanted to use some sociology, history, and philosophy, along with anthropology in my work. My fellow HistCon students and I were aware that in some other contexts that would be seen as dabbling, being dilettantes. In our cohort we knew that meant much more work. It was a very demanding, exciting, and intellectual environment . . . with a lot of freedom. Later, I thought STS and gender studies, as new fields that had not coalesced into disciplines, would be like HistCon, at least for a while. Watching the students and faculty who want to turn STS and gender studies into established disciplines has helped me to understand the whole apparatus of universities and disciplines, plus the people who enjoy that disciplining.

KIM FORTUN. Sharon, one of the things you helped stage for me in graduate school was head-spinning, new understanding of underlying structures that produce everyday common sense, what counts as true, what counts as authoritative. I'll never forget reading *Metahistory*, and my head never stops spinning—it's still a formative text for me. But I also came from a much more intellectually conservative background than you at the time you were in graduate school. What in grad school really spun your head—or was there any spinning left to do by the time you got there?

SHARON TRAWEEK. Oh well. Bateson spun my head, it seemed like at least once a week. He was always asking about form—the form of the argument, the form of the practices we were witnessing—and he was curious about my fieldwork. It turned out that the Governor of California, at the time Jerry Brown, was interested in Bateson's work and as Governor he had put Bateson on the UC Board of Regents, the trustees governing all the campuses of the University of California. One of the problems that the regents were deciding then was its governance of the laboratories, including Los Alamos, that had been involved in generating the bombs of Nagasaki and Hiroshima and had continuing involvement in the development of weapons for the Cold War. The UC Regents periodically decided whether they should maintain or release the contract that they had taken on during WWII to manage those labs. Bateson was asking me all about these physicists I knew, some of whom had been in the Manhattan project. He was asking me all these probing questions about my work that were coming from a public policy world that I wasn't expecting from him. I thought he's Mr. Epistemology and deeply empirical, I mean profoundly empirical, in his thinking about epistemology. I was so accustomed to the philosophers either being interested in logic, or a Feyerabend/Kuhn world about a history of changing ideas and changing descriptions of how those ideas changed. With Bateson it was Highland New Guinea, deep epistemological questions, animal behavior and public policy, and they all had to be discussed at the same level. Any one of those arguments also had to be useful in the other contexts too and—I just felt radically disoriented in a positive way.

Later in Japan I saw those little daruma dolls that pivot and wobble when you push them; I felt like that all the time. My closest fellow students and I were overwhelmed by this, and we worked with each other to keep up. Each of us had these very different projects. Mischa Adams was very much involved with the study of deaf communities, John Salter was working with Native Americans to change restrictive State of California regulations about their land, Chela Sandoval was shifting from media studies to building ideas about oppositional consciousness, and Susan Foster was both an innovative contemporary choreographer and a historian of European formal choreography. We all were overwhelmed in the sense of being at a huge feast of ideas with consequences. Then Bateson got sick, and he could no longer sign the papers for us to study with him, or for us to proceed with our degrees. I was so pissed. Hayden White had just arrived at UCSC, so I went to see him and said I've got a problem you can solve, this is what you have to do. I was just talking like that, I was so angry that the institution would cut off Bateson like that, and he didn't even have health insurance and . . . awful. White talked later about how amused he was by the HistCon students' approach to academia. He asked what I thought I was learning from my work with Bateson. When I answered, he said, "I'll tell you what, I'm going to sign all the forms as if I were your teacher, but you have to come here every week and tell me what you learned." I said "okay." I told Bateson who then said I would need to report to *him* about what White would say. Of course, that was hard work.

Meanwhile, some of us HistCon students realized few people were registering for White's classes because he was new. We had to work to get him hired and then we had to fill his classes. You mentioned *Metahistory*. All those tropes traced back to at least the 12th century in European history. We all started taking that seriously too. Through Bateson and White I'm learning about at least two very different, powerful, and original interpretive infrastructures, each tied to rich intellectual heritages. Knowing Bateson's and White's work, you realize that finding intersection points is a very interesting, but demanding challenge. So that's the rest of graduate school: me learning about these two infrastructures, their relationship, and how they relate to my projects, deciding how they might help me to think about my work in new ways.

Earlier I mentioned the dichotomies of induction and deduction, idealism and materialism, theory and observation, etc., and how Kuhn and Feyerabend had begun discussing them as incommensurable elements. Althusser, Gramsci, and the early Marx had confronted some of those dyads, too. Through my studies with Bateson and White, plus my understanding of feminist epistemology, I began to see those dichotomies not as dyads, but spectra. For example, Bateson saw induction and deduction as a repertoire that included abduction. [That is not the same as the old triad of thesis, antithesis, and synthesis.] White's work on the figurative tropes of metaphor, metonymy, synecdoche, and irony could be seen as a sequence within cycles, potentially endless variations of abduction. Bateson focused on the process of making sense, though levels of learning; White saw the tropes as a way of making increasingly complex permutations of an idea. For both of them the processes were performative and laced with aesthetics, as well as ethics. 'Feminist epistemologies' challenge binaries, essentialism, and classificatory thinking; 'othering' requires categorical thinking and exceptionalism. I practice figurative abduction with metaphoric, metonymic, synecdochic, and ironic stories about outliers at the 'edge' of ordering processes, then spiral through the tropes again. I'm writing about all those relationships now for a chapter in a volume edited by Sandra Harding and Leandro Rodriguez Medina.

At first I had thought of White as a specialist in the intellectual history of Europe with a focus on the governance of medieval monasteries, along with an interest in Foucault. Then I see he's connecting the structures of 19th century poetry, symphonies, Marx's and Freud's arguments, the emerging academic field of historical research, and much more. I learned that while he was at UCLA writing *Metahistory* Angela Davis was being fired from the UCLA Philosophy Department by the UC Regents, because she was a communist. There were student demonstrations. White brought a lawsuit against the Los Angeles Police Department [LAPD] for coming on campus and violating academic freedom. The case went all the way to the Supreme Court and he won; that case still affects how much the police can do on a university campus anywhere in the United States.

So while I'm learning about Bateson on policy, ethnography, and his participation in the secret service during WWII, I also find out about White's scholarship and activism, along with how all the other HistCon students had spent the '65-'75 years outside the university. We've got kind of weird relations with people who are our age mates, but who are senior to us in the academic apparatus. There are also all the class issues involved. I learned White's family was from Appalachia; when my parents went to California his parents are going to Detroit to work in the car factories. We started making jokes about class in academia. One time somebody who was part of this wonderful intellectual community at UCSC made some remark that was, to me, just 'up to here' with class privilege. I turned and glanced at White, he winked back at me, and then we both burst out laughing. Bateson was part of a famous lineage in British academia, an 'aristocracy

of the mind.’ He was perfectly conscious of and comfortable thinking about class privilege, including his own, in the UK and the US. He also was curious about my family background. I was thankful for both White and Bateson showing me how class can be acknowledged and situated in academia, rather than simply displayed as a set of privileged codes. Most of the academics I know, including the leftists, are not so aware of or comfortable talking about their own class position, so it was very exciting and important for those of us students who were not from the almighty middle class, much less the upper one, to have those two examples.

KIM FORTUN. I understand your intellectual history and graduate school experience as extending the way you think about structures *and* form. Clearly, this has been a very, very productive way for you to approach historical and cultural studies of the sciences and scientific culture writ large. Can you say more about how the study of structures and form has become central to how you understand and practice STS?

SHARON TRAWEEK. Maybe the bridge there is Susan Leigh Star’s and Geoff Bowker’s work with *infrastructures* and ordering practices. For my HistCon cohort one of the topics that we all decided we wanted to investigate was Michel Foucault. This is 1975–76; his work was being translated, but a lot of us knew enough French to read it. I liked *Archeology of Knowledge*. We had read Hayden White’s work on Foucault when we decided we were interested in interviewing him for the HistCon job. Foucault, Kuhn, Feyerabend, and Polanyi, etc., were right on the cusp of structuralism changing into post-structuralism. As HistCon students we saw the whole world of Chomsky, Piaget and Levi-Strauss, the prominent structuralists, as having something to do with the Cold War. That might be a problematic position for some, but we were trying to understand that historically situated intellectual lineage of structuralism. We also saw White’s work on tropes plus Bateson’s work on levels of learning as part of the long lineage of the structure of argument in European thought. In that context we were asking about the work unimaginatively called post-structuralist and how it might or might not ‘provincialize Europe.’ We were also very much caught up in thinking what’s before structuralism, what’s after, what’s going to be after, after, after . . . asking about that process, as well as the content.

Now, for STS—I’m *trying* to make this short—when I was at Santa Cruz and going to the stacks in the science library, where the philosophy and history of science stuff was, I came across STS work. I would sit on the floor in the stacks or on a windowsill, reading through the ’70s articles and thinking: How does this fit? Where does this go? The whole Bernal/Fleck thing—that’s the Marxist side of British science and I’m seeing also that there’s a debate about scientific materialism—and through the lens of Althusser and the early Marx the UK version of scientific materialism seems a little wonky to me. But I also know from my own participation in the Science for the People movement that this scientific materialism is a very big deal amongst a lot of scientists.

Then I went to 4S meetings and began to meet some people like Loet Leydesdorff who also was in the science for the people movement. I thought, okay, I know these people. There was also this whole other world of the Edinburgh Strong Programme people and their special attachments to Wittgenstein which both fascinated and annoyed me that Feyerabend seemed excluded. It seemed to me STSers were struggling to make sense in the ways that my HistCon cohort and those at the Midpeninsula Free University were struggling to make sense of knowing, learning, and how to make change. Where do we go if we’re not going

to be structuralists? Where are we going if we're not going to be scientific materialists? Meanwhile, there's also a crowd screaming "what do you mean you don't want to be scientific materialists? There is *one* way to be Marxist in the academy!" That's still a very loud noise. That leads me to the all the conflict around *Social Text* and the 'science wars' in the '90s; that's another topic. But it seems to me that at least some of the STS people, when I was first getting involved, were still very much engaged with these debates.

I'm going to flash forward now and say it seems to me that the people who really engage in these kinds of debates now are the international, transnational — let's just leave the word national out and just say — translocal STS. I also don't like 'global,' it's all implicated in so much nonsense, so let's just say translocal, two words that are related differently than transnational, etc. . . . What is an idea? What is its political economy? Who are its agents? What are its traces and effects? How is it related to other ideas? It seems that those questions which have entranced me so much for so long are pursued in translocal STS in all of its manifestations. I know that many of us involved are the children of imperialism, including the children of the imperialists, the children of the colonists, the children of the local elites that benefited from the imperial occupations, the children of the exploited. Many academics have this stuff in our biographies, in our genealogies. There are so many kinds of imperial and colonial power and oppression. Much of all that was absent in STS, glaringly, obviously absent. It's like "whoa." However, some of that is coming into STS through translocal STS: intellectually, politically, economically, etc.

DUYGU KAŞDOĞAN. I have a follow up question about your intellectual diversity, Sharon. First, though, I want to say that I am really impressed by this story. It resonates very well where I am located right now, in Turkey. This is how STS matters for me, as we struggle for academic freedom here. It is so easy to forget that there are stories we can learn from in other places. It couldn't be more timely to recall these stories today.

Now for my question: you mentioned how STS and gender studies emerged around the same time, both in somewhat undisciplined ways. Continuing from there, I wonder about how particular feminist STS scholars have shaped your thinking. I know that Sandra Harding is a very close colleague and friend of yours, for example. You also told us about the History of Consciousness program, which brings Donna Haraway to mind. Could you say a little more about how Sandra Harding, Donna Haraway, and other feminist scholars have influenced your thinking and journey in STS?

SHARON TRAWEEK. That's right, it is such a big part of my world, my thinking. I'll add another detail to this; while I was ABD, finishing my HistCon dissertation, I got a job teaching at Stanford, a three-year teaching appointment. In the midst of it, there was a chance to apply for a job at MIT. By no stretch of the imagination did I think I would get it, but I had friends in Boston I wanted to see. One of whom was this person I got to know in my first year at Berkeley, my roommate who was the red diaper baby. I thought oh, if I get on the shortlist, I get a free trip to Boston. I could see my friends and also two people from the commune who were then living in Boston. Cool, I'll just get on the shortlist, and I did so. I felt completely confident going into the interview because I didn't want anything except the trip. In that context, somebody at Santa Cruz told me I should get in touch with Evelyn Fox Keller who was then teaching at Northeastern but also was an adjunct in the MIT STS program where my job interview was. When we hired Donna Haraway at HistCon, Keller had been on the shortlist for the job, along with Margaret Rossiter — three amazing people.

I was introduced to the three of them in the context their job interviews at Santa Cruz. It was my last year at HistCon. When Donna Haraway arrives in Santa Cruz as a new faculty member I have six months left at HistCon. Donna and I begin having conversations, after I already had been offered and accepted the job at MIT, so I also was in conversation with Evelyn. Both were at turning points in their work, so it was exciting to hear about that.

Keller decided to host a discussion about science and feminism, bringing together about fifty people at her Northeastern base. One person I later realize is Sandra Harding walks up to me, and in a strong voice in front of all sorts of people says: “Well, Sharon Traweek, I finally get to meet you, how come you haven’t been publishing more of your work? Everything I see of yours is like samizdat.” She’s referring to the clandestinely circulated work of the dissidents in the Soviet Union. Everybody’s turning and looking at me and I’m thinking, that’s Sandra Harding talking to me and everybody’s looking at me. So, I felt that way about Donna and Evelyn and Sandra that they were the elders. I was tremendously impressed by their work, very much aware of how marginalized they had been in academia, and quite intrigued by how they were forging new ways of doing important work from the edge.

At Santa Cruz I tried to join the feminist studies group, but they said I couldn’t join because I was studying men which meant I was ‘male-identified’ and the academy’s filled with enough men’s studies, so we don’t need another. They argued that there were too few of us feminists at the edge of academia, so we should be using our embodied energy and minds to study women. They told me I could join as long as I agreed to only study x, y, z, and I said no thanks. Then it seemed all of a sudden Donna Haraway, Evelyn Fox Keller, Sandra Harding, and Margaret Rossiter appeared. I had met Rossiter in another context too and knew her important work. I felt entitled by those four women doing powerful work in gender studies and science in a context in which almost everybody else—who were feminists in the academy—were saying no, no, you can’t study that; you must only study how women are being exploited and used, which, of course, was and is a massively important topic. Meanwhile, a lot of women scientists were and are saying well, if you think you’re a feminist why aren’t you studying us? Then and now I felt so grateful for those four people just because they and their work were there, going against the grain.

All those people helped me, in major ways. Haraway and Harding have done two things their whole careers that are enormously significant. They both continue to engage in practices that have a major effect on me and lots of other people. Haraway cites junior people, graduate students, people far less known than she is. She discussed her citation politics at the anniversary event for *Catalyst*; in the midst of her work that’s being circulated all over the world she cites our work which then circulates with hers. That’s very important and very anti-hierarchical. Harding organizes many edited volumes in which she brings in all sorts of people from around the world, including me. Our work starts to circulate because she said it is worth reading. She’s doing it again with that new volume I mentioned earlier, co-edited with Leandro Rodriguez Medina. Academia is rife with discussions of influence and genealogies: Haraway and Harding engage in a very different and powerful set of feminist practices. Their focus is on our relatedness, how we’re all tied to each other, a connection and sense of responsibility and obligation. It’s not just a kind of worship of the elders. There’s an egalitarian engagement with the other ideas and idea makers, plus assuming the responsibility to help those coming along that I learned from the two of them quite emphatically, powerfully.

And ideas. Harding’s work on strong objectivity is part of a large debate about standpoint theory. It is through her work that I learned about standpoint theory and all the other contributors. Key concepts in

academia are all conversations that then often take the name of an individual—that eponymous practice happens in all our fields. Harding insists that she's part of a conversation that she brings people into and then redirects us to other voices. Standpoint theory is part of that. I teach strong objectivity all the time: what does it mean if we know the subject positioning of the knowledge makers when we're looking at their ideas? This takes me back to trying to understand theories of induction in mathematics and philosophy. If you understand the situation of the knowledge makers, does this give you some new insight into the knowledge making? Yes! All of Sandra's work is about sharing knowledge while sitting at the kitchen table. Can you talk at the kitchen table about your ideas and somebody else's while improving them and then acting upon them? She's deeply involved with that kind of community work, including her impressive work with UNESCO and science education around the world.

With Haraway, I would say *Primate Visions* was very important for me; again it's back to what I was saying earlier about Bateson's work. With *Primate Visions*, there are the policymakers, Teddy Roosevelt, and the New York Natural History Museum, a palace of wealth, and how all that is implicated in patriarchy—is patriarchy. Then she shows how you need that to understand primate studies and the full sense of masculine authority, including masculine epistemic authority. In the meanwhile, I'm doing these so-called "lab studies" [from the STS perspective] where I'm watching all these guys try to learn how to perform masculine authority. Not being very good at it, as they get started, and also coming from lots of different cultures, where the way you perform masculine authority in Paris sure doesn't look like what it's supposed to look like in San Francisco, Palo Alto, Tokyo, Tel Aviv, and in Rio. All of a sudden, these guys are in the same collaboration trying to perform their masculine authority according to their cultural context and they don't quite understand each other's performance. *Primate Visions* helped me to think about how this global variations in the performance of masculinity gets laced through all these other worlds of social behavior studies and political economies, inherited wealth and temples to knowledge, and all the rest of it.

Yesterday at the *Catalyst* anniversary event, someone asked Haraway why she didn't say more about A, B, and C in *Primate Visions*; she said it was a tenure book. She had to perform "to the clock." She was at Santa Cruz; she had been denied tenure in her earlier position. Jim Clifford, hired at HistCon the year after Haraway, had not been able to get academic positions. Evelyn certainly wasn't in the secure position. Margaret wasn't either. All these people are now so famous for their important and original work, but they weren't in secure academic positions at all when they got started. They took huge risks because of their passions and commitments. To be sure they weren't totally impoverished; they did have access to some kind of income and status. It's not like they had zero privilege and a lot of people do have zero privilege. They had access to a little bit. Nonetheless, individually and as a cohort they have very, very interesting intellectual and academic biographies.

I was a visiting professor at UC San Diego when they were getting their quasi-STS program started. One of the new STS faculty from UK listened to Haraway give a colloquium talk there and he said she's like a Welsh preacher! This is in a context where a lot of people in STS were being very snotty about Haraway's ideas and work; anybody who talked about her work was called a "Haraway clone." By calling her a Welsh preacher he was grudgingly acknowledging her charisma and passion, while at the same time demeaning it from his subject positioning in UK society. All these people whose work and practices remain important to me—White, Haraway, Bateson, Harding, and others we haven't talked about yet, like Vartan Gregorian from

West Asia were all great storytellers and very passionate about their work. Haraway and Harding continue to emulate and represent that to me.

KIM FORTUN. Sharon, I know that when you teach these figures, you draw out similarities in their patterns of thought that constitute feminist epistemology—as a both a historic body of work and space for work today. But you also draw out the differences between feminist STS scholars, and the different intellectual genealogies they come from. We can't have a full explanation here, but at least tell us why you think it's important to attend to these diverse genealogies, draw them to the surface and work with them, seeing them as a resource, rather than something to manage away. How, in other words, are *differences* among feminist STS scholars critical to think and work with? I know that you really believe in and practice the value of difference. Please talk that out for us a little bit.

SHARON TRAWEEK. Not to be annoying, I just wanted to say that these coherent programs make me quite uncomfortable—their coherence, their sameness, their monolithic quality. I happen to like the ideas in Actor-Network Theory a lot. I think that the acronym ANT is wonderful. But it's also become a kind of monolith and I've heard people talk about being an ANT scholar, and also being a kind of benefactor, advocate or originator of ANT. I'm not interested in that, at all.

It's from all those debates at Berkeley about who's the right Marx that I became increasingly uncomfortable with anything that starts to sound like a doxology and orthodoxy. What is interesting in Marx, Derrida, Foucault, ANT, etc., can be marginalized in all that orthodoxy, erased in order to make it seem all the same; it isn't the same, it's complex. Of course, I understand that if we are in a movement where we're all going to be against some particular war or injustice or inequity, but we don't agree about much else, then for today we're not going to talk about our differences. We're all going to get together and be against that particular form of oppression. That makes sense to me as strategic political action at any given time. However, I think it's an important intellectual and political exercise to notice where there's difference and complexity. If we're going to talk only about sameness and otherness then we're into the world of dyads and classifications, it seems to me a fundamental negation of the very original and important insight of feminist epistemology that binaries are odd. Binaries are based on the whole classificatory way of thinking. From Carl Linnaeus to gender and racial categories. There's something fundamentally wrong—intellectually, conceptually, epistemologically, ethically—with turning the world into categories, instead of a spectrum. If we want to do it strategically, maybe that's cool, it can be very, very helpful sometimes to have simply an on and off switch, but we need to understand how it's constituted and when it's not useful.

Haraway started out as a graduate student in biology then became a historian of science, working on X-ray crystallography. Harding was a graduate student in philosophy of logic; her dissertation was on William Van Orman Quine. Evelyn Fox Keller was in biophysics. Most of the people I know whose work has been very important to me were doing something else in grad school to get their first position, then they were jumping traces to do something different. They're all jumping in different directions, with different tools. I think it's important to understand what they were leaving, what tools they took with them, and then what they do with these different tools. For example, it seems very important to me to know that Harding began doing all that work in philosophy of logic. She then looks at the logic of studies of gender in the social sciences. She has a distinctive way of thinking through positions.

Most feminist technoscience studies are about biomedical technosciences (Haraway, Keller, etc.) or social sciences (Harding, Longino, Wylie, etc.). There is a very large body of work on changing demographic representation in STEM fields. The last twenty years many feminist studies of computing and media worlds have emerged. However, there are still very few of us working on the physical sciences and engineering. There also are only a few intersections of feminist technoscience studies and feminist epistemology. We are very far from understanding what is similar and different among all those kinds of feminist technoscience and epistemology studies.

I try to teach the students that if you're going to be thinking about feminist epistemology in your own domain it helps to know how it's been done in a range of fields: the social, biomedical, computing, media, and physical technosciences. I teach that examining sameness, difference, and spectra are at the core of feminist epistemology, along with a repudiation of binaries and categorical thinking. Crawling back into binaries and classification systems leads to a series of contradictions at a very fundamental level. It's really quite shocking, in my opinion.

DUYGU KAŞDOĞAN. We talked a little bit about your reactions to the *discipline* of STS, which you beautifully resisted. Building from this, what do you see as the biggest challenges and obligations of STS as a field in today's world? What roles do you see for 4S, and what are your thoughts on the increasingly transnational character of the field?

SHARON TRAWEEK. That is a huge question, extremely important, and urgent. I change my mind daily, but I think some issues appear consistently: legitimacy, entitlement, resources. It's good if we can help students to get some funding, it's good if we can get funding for research, it's good if we can get resources to circulate our ideas. The conventional way that happens is through university infrastructures and through the usual intra- and extramural funding sources. The conventional way to get access to all of that is through certain kinds of legitimacy, certain kinds of citation practices, certain kinds of licensing, degree granting, etc., typically allocated through disciplines.

Disciplining has obvious benefits. I have witnessed that in STS and gender studies. It is practiced in many kinds of fields over the last century. The process of 'departmentalization' of interdisciplinary programs at American universities has become systematized. It's a way to get the courses for the students and to give them degrees for what they've learned, which is important. It also is filled with a disciplining of consciousness that many people cheerfully engage in and then cheerfully insist that students be disciplined in that way, invoking all the meanings of discipline and punishment. I know that there's a large tide of people in STS and 4S who are very big on building a disciplinary edifice of privilege and authority for STS. That approach has been there a long time. We all could tell lots of stories about who's accrued all that, and in the process how their voice, posture, and work changes. I think it is sad and tedious to watch, but understandable.

Given that, how do we create space for an STS that keeps the edges alive and active. Currently I think that trying to thwart the disciplining is a waste of time when lots of people clearly want it. To me the question is how to create some space at the edge of all that for the many people who don't want that disciplining. Going back to my early experiences with the Midpeninsula Free University and the History of Consciousness Program, I think being at the edges of a lot of that authority clearly provides some resources. I get thwarted

at UCLA in personal ways, academic and professional ways all the time, but I am still employed. People have trouble getting their interdisciplinary projects and degrees approved, but they often do. I think dealing with being in the margins—how to make that a lively place—is to be at the edge intellectually. On the edge also has opposite connotations in American English, being pushed to the edge, but also being at the cutting edge.

I think one of the big benefits of 4S is that it remains non-disciplinary. Of course, sometimes it feels like STS is just a branch of sociology or some other discipline, but I've seen it become more than that. I think that a not disciplined 4S creates a huge opportunity. There are a few other examples that maybe we could make use of or exploit. I think part of the non-disciplining of 4S is also its non-nationalization. I understand that many resources in academia come through national venues—it's idiotic to turn away from them and just say never—it's like going into a kind of hermitage, possible, but harsh. I think it's better to find ways to make these margins bigger. Sometimes we read a book and see the margins, what has been excluded from consideration, seem to be wider than the text; well, let's go there. How do we do it? I think we first learn more about all the practices that are already at the edge. That's partly how I have studied women in astronomy with Jarita Holbrook, Diane Gu, and Luis Felipe Murillo: who's at the margins, how are they surviving at the margins, "surviving successfully at the margins" to use the phrase from Maria (Mia) Ong. What are success strategies in the margins?

I think because STS is translocal, operating in multiple different national regimes, we're all experienced with that, we know how they function, and we know where the edges are. We can keep on doing that. I understand that there are all kinds of problems with the idea of translocal civil society, but I think there's a kind of opportunity there to have the analog of a Midpeninsula Free University or a kind of History of Consciousness Program, of STS. Being at the edge of universities we learn—as somebody said to me once—how to be a weed in a very fancy garden. There are all sorts of problematic risks and privileges associated with that image. How do we avoid being 'weeded out'? As STSers we can study knowledge production at the edge. I do think that we already know much about it; we can share that knowledge and experience with each other.

KIM FORTUN. Today, there are many creative STS program building initiatives underway in many places—IstanbulLab in Turkey, for example. How would you advise them—particularly about what can be accomplished working in the margins, rather than at the center? How can we scaffold the kind of intellectual vitality enabled by the Free University as you described it?

SHARON TRAWEEK. At one point I was approached by a US Government funding officer who said, "with these physicists you're studying discovery in the context of scarcity and abundance. Tell us which is more effective." I said I'm not going to answer that; physicists would stop talking to me. However, it was a good question. How do we make the ecologies of scarcity and abundance, the cultures of scarcity and abundance work with us, and not hurt us too much? Yes, we already know how to do that. I realize I make it sound like it's kind of cheerful and fun. Sometimes it's extremely painful and I have bruises that go right to the bone. I do have that experience in academia, it's harsh, it's awful, it's even worse when it happens to somebody that I feel connected to, who has fewer defenses than I have. I feel we're in a very harsh time, obviously, globally with an awful pandemic world, a horrible, precarious, racist world. I think maybe the

good news is it's so obvious that we are embedded in a deeply racist, classist, ableist, ageist, nationalist, etc. world of infinite classifications upon classifications upon classifications.

All that is so obvious; it doesn't take a lot of convincing these days to make that point. The question is: what are we going to do about it, starting now? I can remember those moments in the '60s when some of us thought it's going to take us about five years, and we'll get this all cleared up. It was a nice feeling and I see that sometimes in young people now. I'm not patient, I'm too old to be patient, I want it to happen while I'm still alive. I'm all for getting it done as fast as possible. Where are those spaces? Are they virtual? Paradoxically, I hate Zoom, but I love being able to communicate with you this way, across vast distances, having this conversation is delicious. Earlier I mentioned that during the '60s and '70s leftists faced telephone surveillance and we didn't want to use the phones. It wasn't only because of the police doing surveillance on the phones. The Vietnam War was partially financed by a tax on telephone calls. Certainly, we didn't want to pay those taxes, so we found alternative means of communication. People came up with something called black boxes for local calls and then blue boxes for long distance. The phone company [it was a monopoly then] equipment did not register that a call was in progress or had been made, so there was no charge and no tax. Maybe a virtual free university could be our black/blue boxes?

Maybe we could have a virtual History of Consciousness Program or a virtual STS Program. We have already learned how to do virtual 4s conferences, workshops, and webinars. We're patching together virtual seminars with people from all these different schools in different countries. We could just get ourselves lined up in our curricular niches on our home campuses coordinating the times with everyone at different sites. We can learn from the beautiful way that The Asthma Files and PECE are organized. We know how to be members of multiple communities at the same time; we know how to be multicultural. We've all got our strategies. I think it's bringing together people who want to do all of that, leaving the people who want to do orthodoxies to their projects. It is important to find the other places where we can practice our heterodoxies. Right now we are using a space where we can carry on these discussions. I think we need to maximize these existing channels.

One more thing. I mentioned 'generation' a few times, along with genealogies and relatedness, and connectivity. Academia has all that. It's also very age graded, as anthropologists would say; if you know somebody's career stage you typically know their age. That's how I get treated as 15 years younger than I am, because my career stage is 15 years junior to my age; that is, I started the HistCon program in my mid-30s. It works for me, and it works against me. Earlier I mentioned that in grad school at UCSC the junior faculty were my age mates, but we had made very different career decisions to get to those stages. Some of them couldn't keep in mind that many of the HistCon grad students were the same age they were, with the same historically situated experiences. To them we were junior because we were grad students. However, my fellow older students and I worked with mentors who always remembered our stories. With them we could be both junior to them in academia and age mates; they were okay with dealing with the complexities of that. I learned that the people who wanted all those junior to them to be younger were exposing so much about their needs for inequality and hierarchy.

Similarly, I've learned much from my more recent experiences with academia and ageism. A few years ago I mentioned my age at a UCLA Gender Studies faculty meeting; afterwards while waiting for the elevator at another building somebody about my age who had been at the meeting said "Sharon, don't tell anybody how old you are; it's dangerous. Don't do it." I've been told the same thing in Sweden and at 4S

meetings. Every once in a while, we come across these little litmus tests. We get exposed to so much information about somebody that they don't realize they're revealing. In this case, its ageism in academia. That is, many are aware of the concept of intersectionality, that sexism, racism, ableism, classism, ageism, and other social inequities are intertwined and co-constituted, each strongly reinforcing the others; ageism reveals that the other elements remain, too.

I've routinely been asked bluntly at 4S meetings by people—not from the US: “Don't you feel guilty for not retiring?” I always say that fixed retirement ages ended in the US a generation ago and new academic jobs in the US do *not* emerge when someone retires. I suggest they learn about that and use it in their own countries where the elders increasingly outnumber the young.

My point is about finding successful strategies for being in the margins of orthodoxy. I recall Bateson not having a regular job or health insurance. When he became quite ill, it was Buddhists who helped. I think finding these places at the edges is very important. I think we all know these places we can go to for some comfort and some stimulation and friendship and love. We just need to tell each other more about them and use them more. That's the optimistic side of me.

KIM FORTUN. We need to end here. This has been a powerful interview, which will wonderfully supplement your Bernal lecture—which was such a gift to hear and now have for our teaching going forward.

SHARON TRAWEEK. Thank you, both so much.

KIM FORTUN. Thank you, Sharon.

DUYGU KAŞDOĞAN. Thank you very much.

Coda from Sharon Traweek: Forms and Stories

During the interview Kim Fortun asked about form and Duygu Kaşdoğan said she liked the stories. I should have mentioned how, for me, the two are strongly, complexly connected; I want to say more about that. In this interview when asked about the work that shaped mine at the beginning of my life in academia I discussed Bateson, White, and Harding, among others. Bateson always asked about the “patterns that connect’ and the ‘differences that make a difference.” He also asked about participants’ speech and movement, the shared choreography and communication on different occasions. He considered layers of interpretation and their relationship to each other, whether in Highland New Guinea and cybernetics, or with horse trainers, dolphins, and physicists. White taught us to look for the ways figurative language was used to build different kinds of complexly structured arguments deftly used at various times by those with different kinds of commitments, from historians, politicians, composers, poets, and biologists to us. Harding challenges us to investigate how our positions in society are related to the ways we think, what we know, and the epistemic authority of our ideas. In every case there is attention to the enactment and performance of ideas that accomplish something.

In each of their sets of challenges there are no assumptions about the correct genre for presenting and circulating ideas or judgments about singular proper structures of argument; of course, there are extremely specific assumptions about that in academia. Bateson, White, and Harding recognized that and

produced much of their work in that preferred genre using the proper kinds of arguments. I prefer to follow the implications in their work. That is, all our ideas and scaffolding for them become stories, with different kinds of form and conveyed in different ways through speech, writing, images, and movement that are considered compelling and convincing performances, with different kinds of epistemic authority on different occasions for different groups of people.

My preferred theoretical and methodological forms are stories. One grad student impatiently said to me in a seminar that my stories were entertaining, but he wondered when we were going to get to work. My methodological and theoretical work is in those stories. During my early fieldwork I noticed that physicists at every career stage always were telling stories about their work. It took me a while to realize that the stories were exemplars and instances of their epistemic practices; they were vignettes of epistemic strategies, employed successfully (or not). On multiple occasions in many ecologies it seemed like I was in the midst of a storytelling festival; on others it felt like duels, a kind of battle rap. The stories, taken together, were an archive of their evolving cognitive repertoire. The students learned to listen carefully and repeat lines; some of them began to tell stories too. In *Beamtimes* I first reported on the forms of stories appropriate for each career stage. In other contexts I explored the many variations within those forms. The community members recognize the themes and endless variations; some can improvise powerfully.

In my subsequent work I have reported more on their complex story telling. About twenty years ago I began to use different genres with different structures for presenting my work. On some occasions my academic interlocutors have decided to not include my work, which they have seen as stories, rather than scholarship. At a 4S conference in the '90s a sociologist told me that *Beamtimes and Lifetimes* had a lot of good stories that he had decided could be 'theorized' and he could help me to do that. I explained that my methodological and theoretical arguments were embedded in *my* stories about the physicists' stories, and furthermore that those who knew the debates I was addressing also recognized the moves I was making. From his comment I deduced that he was not interested in the ones I was addressing. More recently I've been working on some stories about these processes. One is my Bernal Lecture and another is an essay I'm writing for the new volume being edited by Harding and Medina, mentioned earlier. I am working on an essay about fieldwork epistemologies with Nadine Tanio and Nashra Mahmood. Another example is the book co-authored with Knut Sørensen, *Questing Excellence in Academia: A Tale of Two Universities* (Routledge 2022). An open access version will be available 8 December 2021.

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Professor Sharon Traweek teaches in the Department of Gender Studies at the University of California, Los Angeles. She has also been on the faculties of UCLA's History Department, Rice University's Anthropology Department, and MIT's Program in Anthropology and Archeology and Program in Science, Technology, and Society. In 2015 she was invited as visiting researcher at the Max Planck Institute for the History of Science in Berlin. She has held visiting faculty positions at Lund University, the Mt. Holyoke Five College Women's Studies Research Center, the Anthropology Department at the University of California at San Diego, the Program in Values, Technology, Science, and Society at Stanford University, and the Sokendai Graduate University for Advanced Studies in Japan.

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Kim Fortun is a Professor in the University of California Irvine's Department of Anthropology. Her research and teaching focus on environmental injustice and disaster, data practices and politics, and experimental ethnographic methods and research design. Fortun's is the author of *Advocacy After Bhopal Environmentalism, Disaster, New World Orders*. Current projects include *The Asthma Files*, a collaborative project to understand the cultural dimensions of environmental health and the Platform for Experimental and Collaborative Ethnography (PECE), an open source/access digital platform for anthropological and historical research. From 2005–2010, Fortun co-edited the *Journal of Cultural Anthropology*. September 2017–2019, Fortun served as President of the Society for Social Studies of Science (4S).