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The House That Technology Built



An ideology of tools, through
the lens of Ursula Franklin's *The
Real World of Technology*

It is a late afternoon in May of 2022, and I am holding a chainsaw.

On the hillside below me, my friends labor at the brush. The three of them had come to visit for a few bright weeks, and while we'd planned few activities for our time together, by the time their train arrived the wildfire up the mountain had started. Within two days it had grown to 30,000 acres of active fire in steep canyon draws inaccessible to firefighters. That first night together we watched the fire glow from the crest of the hill above my house and the very next morning we started work on a firebreak.

I live rurally, in high desert scrublands below mountain foothills. The brush is not terribly dense here, but it is bone dry—we haven't had rain in almost ten months. There is an old service road that runs the ridgeline, which serves as an incidental firebreak, but it peters out into a thicket of mesquite and sage growing among the roots and dropped branches of an old cottonwood tree below the ridge. This is tinder, a matchbox; it would take only a single spark for it to all go up. We decided to extend the firebreak down the hill.

I already had the standard set of farm tools at home but no heavy hitters, so we made a run to Tractor Supply for a bush-axe and a large hayfork, and some better gloves with which to hold them. Tractor Supply's slogan is "For Life Out Here," which reads like a workshopped version of the *Whole Earth Catalog's* "Access to Tools," albeit with a far less counterculture bent. Shortened in the mid-2000s from "The Stuff You Need Out Here," it perfectly encapsulates the chain's ethos, a sort of aw-shucks do-it-yourself wholesomeness that promises liberation through tools and also perfectly circumnavigates its contribution to the death of local hardware stores.

We brought the tools to the lower field, planning to make our way up and around both sides of the tree to meet the back of the roadcut. It was hot and unfriendly

work, slow going among the smoke and the thorns and all watched over by a baleful sun, red and pulsing in the west. As we worked we talked and we laughed, the kind of talk and laughter that underpins all dark comedy—a feeling that the world is spiraling out from under you, but at least you are with your friends.

Working together, we talked about failure, collapse, apocalypses. Not apocalypse, we say, but *apocalypses*: constant, present death, unfolding. As the smoke clung in our throats, we also discussed maintenance; the scholar Shannon Mattern's research on fixing, especially on the role that hardware stores play in small communities¹; the artist Mierle Laderman Ukeles's *Manifesto for Maintenance Art*, her washing of the Wadsworth Atheneum Art Museum steps²; ideas of the commons, shared spaces maintained by all who use them; painting, cleaning, the kind of slow work that is done everywhere to stem the decay, constant, all around us. How care is practiced through tools, even during apocalypse.

One night over drinks I tried to explain this essay, still half-formed. I had planned to write about Ursula Franklin, the metallurgist and engineering professor who delivered the 1989 "The Real World of Technology" lectures which have underpinned so much of my thinking on tools and technological systems since I first listened to them some years ago.

Franklin speaks about a unified theory of technological thinking, most notably through her definitions of work-related versus control-related technologies, and the connected (but not identical) ideas of holistic

versus prescriptive technologies. To Franklin, a work-related technology is one that makes work easier to *do*: a shovel for digging, a typewriter for note-taking, a knife for cutting. A control-related technology, on the other hand, makes work

1. Shannon Mattern, "Maintenance and Care," *Places Journal*, November 13, 2018.

2. Andreas Petrossiants, "Mierle Laderman Ukeles' Maintenance and/as (Art) Work," *View: Theories and Practices of Visual Culture*, no. 21 (2018).

easier to *control*; the word-counter, the thermometer, the Pomodoro method, the manager, taxes.

Work-related technologies often (but not always) lend themselves to *holistic* use or a craft relationship to tools. A holistic technology is defined by the worker's ability to control the process from start to finish, making situational decisions about "the thickness of the pot, or the shape of the knife edge, or the doneness of the roast" during the very process of the pot being built, the knife being honed, or the roast being cooked.

Counter to holistic technologies are prescriptive technologies, or systems of making based on predetermined steps that take the act of making out of the singular worker's hands. Prescriptive technologies are particularly present in the kinds of factory work brought forth by the industrial revolution, but have existed throughout history. The defining feature of a prescriptive technology is the division of labor, where "the making or doing of something is broken down into clearly identifiable steps...carried out by a separate worker, or groups of workers, who need to be familiar only with the skills of performing that one step."

Through Franklin's lens, tools and technology become far more than just extensions of the body that operate *on* the world. For her, technology also means the social systems of labor, control, faith, philosophy, politics, reason, and science, and how all of these technological systems come back to bear on the workers who labor through them.

As I sat with my friends, I tried to explain what would become this essay as if, even then, I didn't already know that all that week, and the ones to follow, would make their way into this writing; as if I could write an essay about tools from some sort of critical distance. As if I had not held a chainsaw all that morning against the dry fallen branches of the cottonwood until my hands went numb from the weight and the pressure of it. As if

the tools we held were not a part of those broad systems of technologies, too.

Over the weeks of work on the firebreak, we each gravitated to a particular tool: sickle, bush-axe, clippers, me with my chainsaw. We half-joked about tattooing them onto each other as stick-and-pokes to cement our bond over our shared labor and shared fear. I even did some doodles, flash sheets with the tools picked out in miniature, each against a circle for the red sun.

In considering our tools as signifiers of identity, I'm reminded again of Franklin; how, all tied up in class, gender, race, nationality, and life experience, tools become symbols for the actions they enable their user to take. How they also define an in-group and an out-group. She tells a story of once being asked to examine museum bronzes among a group of historians, and how she was the only one who brought a particular type of magnifying glass; how, before she'd said a word to anyone, she was set apart from the rest, her with her tool that said quite plainly "engineer."

Out of all the tools, the chainsaw gave me the most trouble to draw. The other tools were analog, elegant, clear shapes that defined their purpose: blade, handle, lever. The chainsaw was blocky and strange, but more than that, it was different from the others, powered by a heavy battery I had to keep in constant rotation with the charger. Inelegant and non-human, its form is defined more by the limits of lithium-ion charging than the pressure of a hand. On the page, I tried to simplify it by separating the chain from the machine, thinking that perhaps if I drew the chain unattached, by itself, it would make for a better tattoo. It turned into a rope, or a snake, or a sigil. But it was unreadable as a chainsaw.

It is no accident that these more self-evident tools are, most generally, the kinds of tools that lend themselves to the practice of holistic or craft technologies. Their forms denote action and they become stand-ins for the laborers

who use them: saw to mean carpenter, anvil to mean blacksmith, spade to mean gardener, knife to mean chef. These tools are depicted in union logos and on flags, even when the workers under their banner might more commonly use the equipment of a factory line. They are an anchor, a lightbulb, a wrench, a hammer, a sickle.

These are also the kinds of tools that made up the bulk of Stewart Brand's *Whole Earth Catalog*, forerunner of Silicon Valley's long obsession with tools and tool-making. The *Whole Earth Catalog* was a counterculture product review magazine which was published primarily between 1968 and 1974. The first page of the spring 1969 edition captures the ethos of the magazine in a manifesto-like frontispiece, claiming: "An item is listed in the CATALOG if it is deemed: Useful as a tool; Relevant to independent education; High quality or low cost; Not already common knowledge; [and] Easily available by mail." It continues, "We are as gods and might as well get good at it."

In her 2018 *New Yorker* article "Silicon Valley's Sixty-Year Love Affair with the Word 'Tool,'" scholar and academic Moira Weigel writes, "Brand and the *Whole Earth Catalog* presented tools as an alternative to activism. Unlike his contemporaries in the antiwar, civil-rights, and women's movements, Brand was not interested in gender, race, class, or imperialism. The transformations that he sought were personal, not political."³

Brand himself writes, "a realm of intimate, personal power is developing—power of the individual to conduct his own education, find his own inspiration, shape his own environment, and share his adventure with whoever is interested."

If this sounds like the kind of language used to describe personal computing and the internet at large, it is no accident. Brand went on to form The WELL, an influential virtual community

3. Moira Weigel, "Silicon Valley's Sixty-Year Love Affair with the Word 'Tool,'" *The New Yorker*, April, 11 2018.

that launched in 1985. Kevin Kelly, an editor at the *Whole Earth Catalog*, founded *Wired* magazine. Tool-obsessed Steve Jobs himself called the *Whole Earth Catalog* "an early Google." This ethos, one that views tools and technologies as identity-neutral liberators, is shot through personal computing, as well as the communication technologies that rely on computation.

Silicon Valley has a general unwillingness to view tools as situated inside of—and rising directly from—culture, gender, politics, race, class, wealth, disability, community, and all of the other aspects that make up human existence. This is in part because viewing tools as beholden to society unravels the promise of DIY liberation through technology. Instead, a Silicon Valley worldview paints every tool as inert until used, a simple object that is always within the power of its user.

Given this, it should be little wonder that tech companies have spent the last half century building control-related technologies in the guise of work-related technologies. A word processor to help you type, with a data-gathering mechanism within. Email, with ad-tech. Social media, surveilled. A work-related technology is useful as a symbol, and as a promise; if you only get the *right* tool, you too can work better and faster with less effort. And if all tools are viewed as work-related, then all tools must be good—right?

In Franklin it is easy to see something of the Luddite. Luddites too saw full well the difference between work-related and control-related technologies. Contrary to the contemporary vision of the movement, the Luddites of the 19th century were not anti-technology; in fact, many of them were highly-skilled technical workers, mostly in textiles, who were watching the advent of the industrial revolution and its effects on their field. They did not want to destroy *all* machines, but rather used property destruction as a mechanism towards labor regulation, focusing on manufacturers who utilized new machines to

circumnavigate standard labor practices.

Franklin specifically speaks to the sewing machine, which was introduced to commercial use in 1851. Through the sewing machine we can see a mirror of the personal computer, a device "widely advertised as a household appliance that would free women from the chores and drudgery of hand-sewing." In *The Real World of Technology*, she quotes an 1860 article which claims, "The sewing machine will, after some time, effectively banish ragged and unclad humanity from every class."

But, of course, the sewing machine did not simply enter the home as a domestic labor-saver, despite many homes having a personal sewing machine. With the advent of the sewing machine, one could now isolate the various steps in garment construction, monitor those steps, divide them between workers who were only trained to their particular step, bring in a boss, calculate the per-hour cost of twine and fabric and labor, create standardized garment sizes, ship those garments to distribution centers, and generally perform all of the other prescriptive technological innovations that resulted in what we now predominantly see sewing machines used for: the sweatshop.

To live a life within human society is to live a life inside of technologies, including many that have become so standardized and widespread that they are the default lens through which we view the world. It is impossible to abstract contemporary society from the computer or the sewing machine, as well as from the more-abstracted but no-less-real technologies of taxes, transportation, or prayer. A compelling enough tool—one that carries the weight of the power behind it—insinuates itself as self-evident and demands that the world be remade by its use.

This life inside of technologies is the house that technology has built. Franklin, again, says, "The house is continually being extended and remodeled. More and more of human life takes place within its walls, so that

today there is hardly any human activity that does not occur within this house. All are affected by the design of the house, by the division of its space, by the location of its doors and walls. Compared to people in earlier times, we rarely have a chance to live outside this house. And the house is still changing; it is still being built as well as being demolished."

When speaking of tools and houses, nothing rises quicker than Audre Lorde's 1979 address "The Master's Tools Will Never Dismantle the Master's House." For Lorde, the tools and the house are both metaphor and reality. Lorde asks, "What does it mean when the tools of a racist patriarchy are used to examine the fruits of that same patriarchy? It means that only the most narrow perimeters of change are possible and allowable."⁴

She demands different tools and different houses. "Those of us who stand outside the circle of this society's definition of acceptable women; those of us who have been forged in the crucibles of difference—those of us who are poor, who are lesbians, who are Black, who are older—know that survival is not an academic skill. It is learning how to stand alone, unpopular and sometimes reviled, and how to make common cause with those others identified as outside the structures in order to define and seek a world in which we can all flourish. It is learning how to take our differences and make them strengths. For the master's tools will never dismantle the master's house."

In tools studies, the titular phrase is taken out of context more often than not, applied broadly to mean "you can't break society with society!" But within Franklin's view, that society is technological and that technology is society; racism, ageism, homophobia, and classism *are* technologies. They are technologies of control as insidious and as in-built as any we've discussed.

In this view, a work-related technology is indeed easier to turn

4. Audre Lorde, "The Master's Tools Will Never Dismantle the Master's House" (comments, Second Sex Conference, New York, September 29, 1979).

against the walls of the master's house. Simple, held in the hand, a brick or a stone doesn't halt itself in the air right before it smashes a window. The same cannot be said for control-related technologies, which resist their purpose changing, or snitch on their users, or both. This is why the most useful protest tools are simple, explicable things; water bottles for eye cleaning, umbrellas for forming front lines, bolt cutters to break apart fences, gloves for protecting your hands as you throw back a tear gas canister. It is also why you do not take a cell phone to a protest, or try to solve social problems with high-tech solutions. Control-related technologies are never as reliable as a stone in the palm.

But even so, sometimes control-related technologies do escape their intended purpose or designed use. The postal service popularized zine culture. Acid house rose from a synthesizer shipped without a manual.⁵ Tool libraries lend, freeing tools from an individualist ethos. Do it yourself becomes do it together.

This is also true of digital tools; writing this essay I've kept returning to the software that makes up the structure of my days: web browsers, word processors, game engines, image editors. In Franklin's ethos, computers are unequivocally a control technology. They are tools of surveillance and control; they organize society in order to better surveil and profit off it. And yet, within computers exist holistic technologies—or at the very least technologies that allow their users to have a momentarily holistic relationship with computation by hiding or automating many of the moving parts of the machine.

My own passion is in weird tools, personal tools, handmade tools, urgent tools, small and broken tools—the kinds of tools that reorder your relationship with a technology. I think about alternative software licenses, weird-web templates and generators, protest tools and resources, opportunities directories and mutual aid spreadsheets.

5. Shuja Haider, "Dropping Acid," *Logic Magazine*, January 1, 2019.

None of these are without ideology, which is perhaps their most useful aspect; they want to be used towards protest, towards maintenance, towards care. They say: I belong to this other house, the one that I am building with my use.

It is now June, and my friends have gone back home. The fire has grown to 325,000 acres, and is expanding still. But there is a firebreak that runs clear up the hill now. I continue to work the edges in the evenings, now alone, alternating between many tools. The break is 20 feet wide and extends on either side of the cottonwood. This makes the tree feel bigger.

These tools that I carry back and forth from the lower field—all tools, maybe—are for making something, even the ones built to clear brush. They carve the future out of the living body of the present. They construct a new house out of the bricks of the old. They carry with them this keenness, this honed edge that can be turned against the world to make from it another. And in that world, the cottonwood will not burn.