

Metis Machines: Community Memory and the Politics of Computing

William Tew

GHIS 6500 NSSR Historical Studies Master's Thesis

Spring 2023

Advisor: Claire Potter

**Introduction:**

If you lived in Berkeley, California in 1985 you could walk into a number of laundromats, grocery stores, and record shops and be presented with a bulletin board exploding with advertisements for used cars, radical political organizations, and gatherings for queer residents. What was different about these bulletin boards, compared to the thousands that crowded similar spaces across the country, was the medium on which they were posted. These unusual bulletin boards were hosted on public computer terminals. Interested passersby could use these terminals to immediately contact the owners of these advertisements; likewise they could post their own ads or use the computer to post their frustrations and musings for others to comment on.

The present project will focus on the history of Community Memory (CM), the first computer-based bulletin board system which operated intermittently in Berkeley, California from 1973 to 1992. Through locations dispersed throughout Berkeley, this proto-social media network allowed users to write messages and tag them so they could be found and responded to by others. Resembling a stripped down Twitter, or image boards that would come to proliferate the Web 1.0 landscape, Community Memory was staggeringly ahead of its time. Equally surprising is the lack of written material on the network and the group of engineers that made it possible; mention of the group is relegated to a few short profiles and scant mentions in academic texts. Much of the work dedicated to the system's history is interested in its influence on modern social networking technologies, leaving a sizable gap of material dedicated to the specifics of their history. Thus this paper will focus on the complexities faced by CM's developers as they imagined this network as a tool to be used to build community; a goal that they often saw as an inherently political act.

This project will also situate Community Memory within larger computing trends of the mid to late twentieth century. Unlike many of their contemporaries, CM did not understand advances in computational power as necessarily holding the key to social liberation. Instead through their publications and internal documentation, developers cast a critical eye on the past, present, and future of computing. Through an understanding of computing's military origins and an understanding that it could come to be used in service of increased social stratification, CM offered a program that was neither techno-pessimistic, nor overly optimistic. The history of the Community Memory network offers a glimpse of networked computing that did not come to fruition, one surpassed by the development of personal computers and social media that is commonplace today. Though Community Memory did not fully abandon the technological developments of personal computing, their story is marked by their attempts to appropriate the technical tools that proliferated their historical circumstances. This occurred through their repurposing of technical tools designed for corporate use and their own contributions to the personal computing market. This is not to say that the influence of Community Memory is not felt today, much of the later section of this paper will be dedicated to teasing out its continued influence among modern web movements.

This paper will begin with an introduction to the context of computing research in the immediate aftermath of World War II. Focusing on the emergent discourses of cybernetics and the use of early computers in the lead up to the Vietnam War, I will provide an understanding of the sociotechnical forces that developers were reacting against in the construction of Community Memory. I will then narrate the history of CM through its three main iterations, using them as a useful bracketing tool to understand the changing nature of the system. Throughout these sections I will rely on both discourses from within the core of volunteers and

engineers that built CM, utilizing both external and internal documentation, and reactions to the network from the users themselves. This is helpful in revealing the vernacular uses of the system that CM as an organization did not necessarily envision. Finally, I will offer an analysis of CM that relies heavily on James C. Scott's exploration of practical vs technical knowledge in *Seeing Like a State*. While his analysis is interested in the late nineteenth and early twentieth century, I would like to use it to situate Community Memory as a system that was not interested in approaching social issues through purely technical means—unlike many of their contemporaries. This will also be a useful tool to link CM to heterodox technological movements today. By highlighting the work of web designers such as Laurel Schwulst who, similar to Community Memory repurposes technical tools to imagine different ways of interacting with the internet today, I will argue for CM's continued relevance in present day digital contexts.

### **Cybernetics and Early Computing:**

To better situate the story of Community Memory among the broader social and technological issues of the times, I will briefly highlight some of the major trends in computing in the mid-twentieth century. This will focus on the development of cybernetic theory, highlighting its emergence and path to academic preeminence. Furthermore, by relying on the narratives of Fred Turner's *From Counterculture to Cyberculture* and Yasha Levine's *Surveillance Valley*, I hope to tease out the complexities within this historiography. These complexities will point towards the ways in which countercultural groups, like Community Memory, engaged with the discourses of cybernetics, often in contrasting ways.

Fred Turner's *From Counterculture to Cyberculture* narrates a history of cybernetics that pushes against the notion that its adoption in both government and private research institutions

in the midst of World War II and its aftermath is evidence that is indicative of a political project interested in building a “closed world”<sup>1</sup>. While this pushes against popular histories of cybernetics produced by the political left, it is still useful to begin with his text as he concisely and effectively lays out an origin story of cybernetics within the figure of Norbert Wiener. Conversely, his history falls more in line with narratives popular with the general public. Thus this section will cover his arguments regarding Wiener’s contributions to cybernetics/systems theory, while also noting his novel argument regarding the openness of semi-private military research institutions. This will give us an adequate jumping off point in which to compare Levine’s arguments regarding the military histories of computing and cybernetics.

Turner begins his argument by pushing against the representation of computing research in the immediate post-World War II moment as building, what scholar Paul Edwards has termed, “the closed world”. Edwards argues that military strategy at the advent of the Cold War was focused primarily on the study of information flows in order to better service logistical decision making; “the planet was transformed into a closed informational system for purposes of military command and control.”<sup>2</sup> For Turner, this argument is too restrictive in characterizing all computing research as being dominated by the intense vertical hierarchies of bureaucracy. While he concedes that research universities, government agencies, and corporations saw an increase in hierarchization following an increase in public funding, he argues that the “laboratories within which the research and development took place witnessed a flourishing of nonhierarchical, interdisciplinary collaboration.”<sup>3</sup> For Turner this is exemplified in the history of MIT’s World War II era Radiation Laboratory, an institution which brought together scientists

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<sup>1</sup> Fred Turner, *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism* (Chicago: The University of Chicago Press, 2006), 17.

<sup>2</sup> Turner, *From Counterculture to Cyberculture*, 17.

<sup>3</sup> Ibid, 18.

working across numerous subspecialties in order to produce military technologies. Turner argues that these projects were successful primarily through the scientists' ability to work through their scholarly boundaries through the adoption of a common language that allowed them to collaborate on developing weapons systems. It is within this collaborative environment that Turner introduces the central character of Norbert Wiener.

Wiener was a mathematician at the Radiation Laboratory who was in charge of devising new techniques for aerial targeting systems on bombers throughout World War II; primarily he was tasked with improving the communicative and statistical techniques employed in tandem by pilots and gunners. The solution for the error prone process in which multiple men aboard an aircraft would transmit various strings of information to set targeting procedures came in Wiener's reconceptualization of the relationship between humans and technical systems. By theorizing human beings as akin to machines in their base function as information processors, Wiener was able to develop more accurate targeting systems while also laying the "foundation for a vision of the automated human being and the automated organization that would haunt American public life well into the 1960s."<sup>4</sup> This approach would be formalized in Wiener's publication of 1948's *Cybernetics* in which he both gave cybernetics its name while defining it as the field of study of the ways in which information was distributed and processed. For Wiener the specific form or body that was distributing or analyzing this information did not matter; he "believed that biological, mechanical, and information systems [...] could be seen as analogues of one another. All controlled themselves by sending and receiving messages, and, [...] all were simply patterns of ordered information in a world otherwise tending to entropy and noise."<sup>5</sup> These developments, for Turner, were essential to expanding his vision of the

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<sup>4</sup> Ibid, 21.

<sup>5</sup> Ibid, 22.

collaborative nature of research laboratories in the post-war moment. Scientists and engineers began to rely on cybernetics not only as a common language in which they could discuss cross-discipline issues arising in weapons development, but it allowed the scientists to work within other disciplines. Turner writes, “If biological principles were at work in machines, then why shouldn’t a physiologist contribute to work on computers? If ‘information’ was the lifeblood of automatons, human beings, and societies alike, why shouldn’t a mechanical engineer become a social critic?”<sup>6</sup> Wiener becomes the key in which Turner is able to argue that it was within the highly structured and restricted world of government research that the seeds for later utopian politics centered on computers were planted. With this brief sketch of Turner’s argument and characterization of cybernetics we can now turn to the more critical attitudes of Levine.

Working within a similar source base to Fred Turner, Yasha Levine paints a strikingly different portrait of the history of cybernetics and its use by the military and other government agencies in the years immediately following World War II. For Levine, it is not the collaboration and supposed openness that characterized research in this period; rather the defining use of cybernetics is its role in counterinsurgency efforts waged by the United States. Following this focus, Levine narrates the rise of the Department of Defense’s Advanced Research Projects Agency (ARPA), focusing specifically on the periods in which it was headed by intelligence officer William Godel.

In the leadup to America’s entry into the conflict in Vietnam, Godel argued that the U.S. approach to warfare needed to be fundamentally rethought in order to effectively combat the Northern Vietnamese rebel army.<sup>7</sup> Throughout Godel’s tenure at ARPA, he was obsessed with

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<sup>6</sup> Ibid, 25.

<sup>7</sup> Yasha Levine, *Surveillance Valley: The Secret Military History of the Internet* (New York: PublicAffairs, 2018), 25.

strategies of collecting geographic and socioeconomic information on guerilla fighters. Levine argues that this approach to military strategy gained credence in an era where officials were increasingly concerned with the containment of left-wing political movements.<sup>8</sup> Military strategy was no longer solely reliant on drawing battle lines or managing logistics, rather planners had to contend with questions of culture. Within this reconceptualization Levine describes the push to militarize the social sciences, writing that the U.S. expended massive resources in hiring academics to gather data on Vietnamese society and culture in order to “understand the enemy, to know their hopes, their fears, their dreams, their social networks, and their relationships to power.”<sup>9</sup>

Levine ultimately connects this new conception of warfare to Wiener’s cybernetics, arguing that it was his conception of information systems that provided military planners with the tools necessary to process the large amounts of data they were collecting in these ethnographic studies. Levine’s understanding of the effects of this new theoretical framework lies in stark difference to Turner’s image of the radically open research laboratory. Instead he posits that Wiener’s *Cybernetics* was adopted by thinkers to envision an intensely hierarchical system in which any person or system existing outside the norm could be identified and corrected through a constant flow of information.<sup>10</sup> This is clear in their respective treatments of Wiener’s second book *The Human Use of Human Beings*. While Turner notes that Wiener expressed concerns about cybernetics being used to automate labor, he argues that this follow up to *Cybernetics* was largely a continuation of his original arguments, albeit on a larger scale.<sup>11</sup> For Levine this could not be farther from the truth; he ultimately reads this second text as

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<sup>8</sup> Levine, *Surveillance Valley*, 28.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid, 45.

<sup>11</sup> Turner, *From Counterculture to Cyberculture*, 23.



Wiener's disavowal of the applications of cybernetic theory. He cites a passage in which this fear is quite obvious: "the automatic machine, whatever we think of any feelings it may have or may not have, is the precise equivalent of slave labor. Any labor which competes with slave labor must accept the economic conditions of slave labor. It is perfectly clear that this will produce an unemployment situation [...] the depression of the thirties will seem a pleasant joke."<sup>12</sup>

While these texts do not by any means paint a full picture of the history and discourses regarding cybernetics, they do highlight vastly different arguments about the influence of these theories today. These texts both directly, and indirectly, reference how the advent of cybernetic theories were understood by alternative computing groups in the second half of the twentieth century. Community Memory both contested and adopted, to an extent, the discourses of cybernetics into their practices of building technical systems, primarily through their privileging of practical and everyday knowledge. An example of this is one of the earliest names used by Community Memory in their first press release, "Loving Grace Cybernetics," a direct reference to the Richard Brautigan poem which imagines early computers facilitating a technological utopia.<sup>13</sup> This suggests that an early goal of the group was to appropriate the analytical technologies of cybernetics in service of expanding their vision of humane computing.

### **First Iteration of Community Memory (1973 - 1974):**

The advent of Community Memory begins with Lee Felsenstein and Pam Hardt-English. While the development and genesis of Community Memory was due to the collaborative work of a large collective network of engineers, it is helpful to focus on the personal trajectories of

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<sup>12</sup> Levine, *Surveillance Valley*, 46.

<sup>13</sup> Lee Felsenstein, "'Community Memory' Now Wires Us Up Together," *Berkeley Barb*, August 17-23, 1973, 16, Independent Voices.

these two major figures, to both guide the narrative of this history while also teasing out the theoretical underpinnings of the design and implementation of the Community Memory network.

Lee Felsenstein's roots in computing can be traced back to his upbringing in a family that was intimately involved in the labor politics of the mid-20th century and the burgeoning civil rights movement. Felsenstein recounts his early experiences of being taught by his mother on how to operate a mimeograph machine—a rudimentary duplicating technology that used stencils to reproduce pamphlets, flyers, etc<sup>14</sup>. “My interest in computing derives from an interest in media, and the interest in media derives basically from the political environment in which I grew up [...] I was expected to be an activist.”<sup>15</sup> This particular mode of politics, one focused on the ability to reproduce and effectively distribute information and agitprop, would become increasingly formative for Felsenstein—particularly during his time at Berkeley during the Free Speech Movement.

Arriving on campus at the height of the Civil Rights Movement and the beginning of the yearlong student movement—later termed the “Free Speech Movement”(FSM)—would be hugely formative for both Felsenstein's understanding of political communication and the role of technology within social movements. This inspiration came from two sources within the FSM. First was the general openness of communication that the movement fostered among students. It was not only that the protest movement was able to achieve its goals, but that students were able to form a new type of community. Lee recounts, “in the Free Speech Movement, what really happened was that tens of thousands of individual alienated students

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<sup>14</sup> Lee Tusman, “Community Memory and the Computing Counterculture,” *Artists and Hackers*, March 18, 2021. [www.artistsandhackers.org/Community-Memory](http://www.artistsandhackers.org/Community-Memory).

<sup>15</sup> John Markoff, “White Rabbit: Interview with Lee Felsenstein,” Computer History Museum, Recorded October 15, 1999, YouTube video, 59:28, [youtu.be/ey6PPunF\\_rk](https://youtu.be/ey6PPunF_rk).

formed a community [...] and that was possible because it was legitimate for people to talk laterally, that is to say just to talk to each other, talk to a stranger about what's going on.”<sup>16</sup>

While the particular political struggle was always relevant for Felsenstein, he was keenly aware of how social crises birthed these necessary communicative channels. This would be directly invoked in early press releases of Community Memory; in which an immanent self-reflexive critique of the ebb and flows of communication channels of countercultural movements would be mobilized.

He wrote: “Every now and then, though, something heavy happens which brings people together. Usually it’s a crisis, like People’s Park, and it suddenly becomes legitimate to speak to strangers [...] People find out that they can help each other in ways they didn’t suspect before, and their reasons for inaction disappear [...] All because they can trade information in new ways.”<sup>17</sup>

In a more organized sense, Felsenstein also saw the foundation of community-run switchboards as information hubs during the Free Speech Movement. These were rudimentary referral systems in which students would call in with questions regarding political organizing and volunteers would pass along their messages to those within the community that had offered their services and knowledge. These would eventually become the groundwork for larger networks such as the Haight-Ashbury Switchboard which would be cited as a direct influence in Community Memory’s early writings<sup>18</sup>.

Finally, Felsenstein’s time at Berkeley saw him begin to question the role of technologists in social movements. Early in his time at Berkeley, Felsenstein understood his role as that of a technical footsoldier—merely developing technologies at the behest of those with

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<sup>16</sup> Ibid.

<sup>17</sup> Felsenstein, “‘Community Memory’ Now Wires Us Up Together.”

<sup>18</sup> Tusman, “Community Memory.”

more sophisticated theoretical knowledge. Throughout his involvement in the Free Speech Movement this slowly began to shift, particularly due to a diminished understanding of how useful technologies could be developed and deployed within a political struggle. He recounts, “I was not to be a follower [...] I would always be late. I had to accept my responsibility if I wanted to work in a support fashion [...] I had to get out front with technology [...] The political dynamics were such that in effect technological development came first, it came out of thin air; then what followed from that was the commercial and political use of the technology.”<sup>19</sup>

Like Felsenstein, the beginning of Pam Hardt’s foray into theorizing on the communicative possibilities of computers began at Berkeley. It would not be due to the time she spent on campus, but rather her early exodus from it. Hardt arrived at Berkeley as a computer science student at the tail end of the Free Speech Movement, and at a point in which the anti-war movement was intensifying. Hardt and several other students in the computer science department dropped out following Nixon’s invasion of Cambodia in 1970 after they had tried and failed to organize Berkeley’s Math faculty<sup>20</sup>. Like Felsenstein, they were extremely interested in the idea of building open communication networks and expanding existing networks through the use of computers. They were eventually connected with Al Rinker of the San Francisco Switchboard who was operating the system out of the warehouse commune, Project One in San Francisco<sup>21</sup>.

Hardt and the other former Berkeley students soon moved into Project One and established Resource One, a non-profit “community computer center [...] trying to make technology accessible to people who normally don’t have access to technology.”<sup>22</sup> Through

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<sup>19</sup>Markoff, “White Rabbit: Interview with Lee Felsenstein.”

<sup>20</sup> Devon Zuegel, “Pamela Hardt-English on Enabling Computer Access in the 1970s,” *Notion*, February 25, 2021 [www.notion.so/fr-fr/blog/pamela-hardt-english](http://www.notion.so/fr-fr/blog/pamela-hardt-english).

<sup>21</sup> Optic Nerve, dir., *Project One*, (Berkeley, CA: 1972), [archive.org/details/cbp000052](http://archive.org/details/cbp000052).

<sup>22</sup> Optic Nerve, *Project One*.

what Felsenstein would later call an “inspired act of hustling”, Hardt was able to secure a recently decommissioned XDS-940 computer through various grants and connections within the Project One community<sup>23</sup>. The XDS-940 is a room size mainframe and was the first system that supported remote connection of terminals through time-sharing<sup>24</sup>.

Resource One’s initial goal was to use this machine to connect the many disparate switchboard systems within the Bay Area through the creation of a common information retrieval system. This would prove to be easier said than done, and not solely due to the complicated technical solutions that would go into a system like this—the problem would lie in the individuals that ran these switchboards. Felsenstein identified the primary issue of these networks as being that “the filing system existed only in one person’s head. When that person got burned out and left, which was only a matter of time, another person would have to come in and start from scratch.”<sup>25</sup> Resource One went through great lengths to make connections with various switchboards throughout the Bay only to approach them later and find that their original contact had left and the system had been entirely revamped, or worse, the network itself had been shut down.

From the beginning, Resource One was keenly aware and concerned with how political and social groups would use a tool that had primarily been used in military and business settings. In a 1972 documentary on Project One, Pam Hardt describes Resource One as a space that would not only teach non-technical people how computers could be used as a tool, but also

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<sup>23</sup> “CONVIVIAL CYBERNETIC DEVICES: From Vacuum Tube Flip-Flops to the Singing Altair.” *The Analytical Engine: Journal of the Computer History Association of California* 3.1 (November 1995).

<sup>24</sup> “Timesharing as a Business - CHM Revolution,” Computer History Museum, Accessed February 26, 2023, [www.computerhistory.org/revolution/mainframe-computers/7/181](http://www.computerhistory.org/revolution/mainframe-computers/7/181).

<sup>25</sup> “CONVIVIAL CYBERNETIC DEVICES” *The Analytical Engine* (November 1995).

to better understand the military past of the computing industry.<sup>26</sup> In one of the earliest issues of the Resource One newsletter they describe the largest issues at the heart of their organization as:

[T]he fundamental tension between person and machine: Can this tool of a militarized society be made directly useful to people? How? Are the costs of being body-servant to the Beast worth the unclearly defined gains? Are we risking dependence on an overgrown, high level technology? What should we do with all the technological tools we've acquired? It's a unique situation, rarely has any alternative group controlled so much 'hardware' that's so difficult to use well.<sup>27</sup>

With their newly acquired computer and the seed of a community-directed communication system planted through the influence of the San Francisco Switchboard, Felsenstein, Hardt, and other engineers commenced development on the first iteration of the Community Memory system. A necessary boost was given in 1972 when Felsenstein collaborated with well known hacker, Richard Greenblatt, to develop an information retrieval system.<sup>28</sup> The result was ROGIRS, the Resource One Generalized Information Retrieval System, which formed the basis of Community Memory's technology of grouping messages together by user selected index words. The system was further developed by members Efrem Lipkin and Jude Milhon—a legendary figure in the history of cyberfeminism who would later become known for her work on the generation defining magazine, *Mondo 2000*.<sup>29</sup> The development of ROGIRS was

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<sup>26</sup> Optic Nerve, *Project One*.

<sup>27</sup> Resource One, Newsletter Number 2 April 1974, Community Memory records, Lot X3090.2005, 102734457, Computer History Museum, [www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).

<sup>28</sup> Lee Felsenstein, "Community Memory: The First Public-Access Social Media System," in *Social Media Archeology and Poetics*, ed. Judy Malloy (Cambridge: MIT Press, 2016): 93.

<sup>29</sup> Michael Havlorson, "Judith Milhon: Hacking on the edges of polite computing society," *Medium*, March 27, 2021. [halvormj.medium.com/judith-milhon-hacking-on-the-edges-of-polite-computing-society-5128e03ee141](https://halvormj.medium.com/judith-milhon-hacking-on-the-edges-of-polite-computing-society-5128e03ee141).

fundamental to the technological sophistication of Community Memory and the culture it cultivated. The ability for users to input custom index markers meant that the system had nearly endless possibilities. While the engineers believed that people would predominantly use it as a tool to find jobs or housing (similar to how one might use a traditional bulletin board) users were encouraged to tag their messages with whatever index words they saw fit.<sup>30</sup>

The first Community Memory terminal was set up at a student-run record store directly across from the UC Berkeley campus. The system launched on August 8, 1973 with a Teletype 33 teleprinter housed in a crude cardboard box (to muffle the sound that accompanied typing) with a hand drawn “Community Memory” logo affixed to the side. Strategically placed in front of the record store’s overflowing bulletin board (an early press release playfully referred to it as the networks “competition”<sup>31</sup>). The engineers lingered with anticipation, waiting to see how the radical student population would react to a technology so associated with military and corporate power invading their sanctuary of cheap records. The response was immediately positive, Felsenstein recounts the speed at which students abandoned Leopold’s bulletin board in favor of Community Memory’s high tech terminal: “The reaction was, ‘Oh, boy, let me try!’ People had no trouble learning how to use it. The system literally exploded with information.”<sup>32</sup> Many of the early uses of the system revolved around musicians using it to seek potential bandmates or gigs, or people looking for rooms to rent or cars to sell. Though many flocked to the system with more creative approaches, Felsenstein noted the presence of “typewriter graphics”— crude pictures made up of alphanumeric characters; others used the system to share recipes or literary

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<sup>30</sup> Felsenstein, “Community Memory: The First Public-Access Social Media System,” 94.

<sup>31</sup> Resource One, “Newsletter Number 2,” Community Memory Records.

<sup>32</sup> John Hubner, “Computer Power to the People!,” San Jose Mercury News August 7, 1983,” Community Memory records, Lot X3090.2005, Box 12, Folder 25, 102734419, Computer History Museum.

works.<sup>33</sup> Emboldened by the success of this initial experiment the system would expand to several locations over the course of its 14 month trial period, including the Mission Branch of the San Francisco Public Library, the offices of Vocations for Social Change in Oakland, and the Whole Earth Access Store in Berkeley.<sup>34</sup>

While these initial tests proved to be more successful than any of the Community Memory engineers had imagined, they were extremely limited by the hardware of the XDS-940 and Teletypes. The teleprinters would jam constantly, requiring a CM attendant (or employee of the various locations) to unjam its punch tape sheets. After 14 months the project was shut down and Felsenstein and others went to work, both to brainstorm fundraising strategies and to design computers that would serve as the foundation for a new Community Memory system.

### **The Second Iteration of Community Memory (1977 - 1988):**

The second iteration (1977 - 1988) of the Community Memory is among the more interesting phases of the project due to the group's attempts to become more professionalized through both their financial and social strategies. It would be within this stage that the collective that made up the Community Memory Project would attempt to move out of the testing phase. A phase in which their fears that the Berkeley community would shun their attempts to humanize computer technology would be put to rest by the explosion of its use for purposes beyond even what they had imagined. This relaunching of the Community Memory network would raise questions about how a project so dedicated to a subversive view of technology would grapple with the struggles of funding and legitimization that come with attempting to win over a city community. Thus, this section will cover both the actual rollout of the first “official”

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<sup>33</sup> Felsenstein, “Community Memory: The First Public-Access Social Media System,” 95.

<sup>34</sup> Ibid, 96.



Community Memory system; and the discussions that were taking place behind the scenes as engineers and designers debated how this project would fit in with the larger political landscape.

The second phase of Community Memory began in 1977 with its official incorporation as a non-profit organization, with Lee Felsenstein, and engineers Efrem Lipkin and Ken Colstad acting as chairmen. This iteration of the project, which lasted from 1977 until 1988, was marked by an obsessive approach to the design of the network—with an official prototype of the system not launching until 1984. Yet this focus would produce a wealth of material on the inner debates of the group, debates that would not only go on to shape the future of CM, but its impact on contemporary networking technologies.

While the question of politics was certainly present in the first iteration of CM, the outline of a fuller political project was less of a priority as it was necessary to make sure the system would function correctly, and crucially that people would be willing to use it. As Community Memory attempted to legitimize itself and find a place among the Berkeley community, the question of politics became much more present—both in publications published by CM and in discussions taking place among the engineers and designers.

The second CM system was designed against a backdrop of increasing relevance of computing technologies among the general public. People no longer automatically viewed computers as symbols or weapons of the military or corporations. Thus, the problem for Community Memory was not to convince people that computers could be used in an egalitarian fashion, but rather to present a more nuanced view of technology that would not play into the notion of computerphilia. This is present throughout writings of the Community Memory adjacent *Journal of Community Communications (JCC)*. For instance, in one editorial introduction in 1979, Community Memory member Sandy Emerson wrote about the necessity

of grassroots organizations to take seriously the question of building strong networks among other political groups. Though she questions whether an organizational strategy centered on networks “will lead to a more liberated and humane society, or whether these networks will merely take their places at one end or the other of the current spectrum of power and influence.”<sup>35</sup> She did not advocate for the abandonment of technological networking as a strategy; instead arguing that any group involved in the construction of alternative political networks must be attuned to how they’re designing their technological tools—and how those tools are shaping them. Finally Emerson argues that any network that is viewed as the end all be all of political strategy is bound to produce “only the limited influence of example”<sup>36</sup>. In other words, network building, and the design of technological tools more broadly, must exist in conversation with other repertoires of political action.

In the same issue of *JCC*, Felsenstein presents his strategy for the construction of an organization centered around the design and manufacturing of political technologies. He begins by pontificating on the strategies he would engage in to direct Community Memory as a corrupt and tyrannous regime. He writes that he would recruit a cadre of “highly specialized technicians, trained in our own schools. Like Army specialists, these technicians would be trained in the handling of one model only, and would return to the schools for training on newer versions.”<sup>37</sup> This hypothetical system would have the veilance of a democracy, with any decisions actually going through a “centralized Department of Engineering”<sup>38</sup> He argues that

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<sup>35</sup> Sandy Emerson, “Editorial: Networking,” *Journal of Community Communications* 3, no. 3, 1979, Community Memory records, Lot X3090.2005, Box 12, Folder 26, 102734478, Computer History Museum.

<sup>36</sup> Sandy Emerson, “Editorial: Networking,” Community Memory records.

<sup>37</sup> Lee Felsenstein, “Hardware Imperialism,” *Journal of Community Communications* 3, no. 3, 1979, Community Memory records, Lot X3090.2005, Box 12, Folder 26, 102734478, Computer History Museum.

<sup>38</sup> Lee Felsenstein, “Hardware Imperialism,” Community Memory records.

this scenario exists in the real world in the governance structures and practices of contemporary giants AT&T and IBM. In order to counteract this future and “develop a truly decentralized, directly democratic societal information system,” Felsenstein proposes the following program:

To do so will require the technical equivalent of arming the populace. This means not just the dispersement [*sic*] of the requisite skills to a lower level, but the establishment and nurture of a structure through which the development of new devices and techniques can proceed in a bottom-up direction. Fine words, to be sure, but how is it to be done? First, we must move the seat of technical education outwards to the greatest degree possible. This means that each installation of equipment must be expected to serve as the nucleus of a learning group. Instructors and technical literature will circulate, but the members of the group must be drawn from the local area.<sup>39</sup>

These arguments contain many of the principles that CM would attempt to live up to over the next few years as it designed and built its first “official” prototype. Of particular interest is his outright dismissal of engagement with institutional bodies. In this piece Felsenstein’s ideal system is one that draws both its political and technical space from within the local community, for the local community. As we will see later, this relationship between Community Memory and its users/the Berkeley community would become a main generator of the tensions in the upkeep and design of the system.

Felsenstein’s vision of Community Memory presents an idealized vision of combining technical innovations with local organizing. This radical vision would not necessarily present itself in the significant amount of news coverage given to CM during this phase of the project. In various articles printed in both local and national publications, representatives of the project offered a much more tempered view of their aspirations. One 1983 local news piece warned,

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<sup>39</sup> Ibid.

“Watch out, America: The radical left is trying to enter the electronic age.”<sup>40</sup> Community Memory seemingly preempted these strawman characterizations of their mission and offered a much more toned down argument for why the network was necessary. Often these representations of the system advocated for its use as a tool that would help communities return to some semblance of a pre-urban ideal. In one quote about the goals of the system, Felsenstein argues that the impetus for CM comes from an understanding that “man is a village creature, that the one thing people really can't get along without is community. Urban structures only work when they approximate village life. [...] CM is a tool for the reformation of industrial society from within. That's the explosion I look forward to.”<sup>41</sup>

While Felsenstein and other CM members presented was a relatively harmless system that was primarily working towards the reform of local politics, internal documents presented much larger ambitions. One internal memo circulated in 1984 and headed with a warning of “POLITICALLY SENSITIVE MATERIAL” presented Felsenstein's views on how CM must present itself to various economic classes in order to remain a legitimate political threat. This included recommendations such as presenting the system as a useful for breaking through information barriers to “working people” and the “petit-bourgeoisie [*sic*].”<sup>42</sup> It also stressed the importance of accommodating groups that existed outside of traditional class labels, such as youth groups or the unemployed; Felsenstein writes that their concerns about survival should be represented on the system, but also that placating them was of utmost importance as they could “neutralize a CM system through vandalization.”<sup>43</sup> The most telling section of the document is that which addresses the state and political and economic elites, he writes:

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<sup>40</sup>“Hubner, ‘Computer Power to the People!’,” Community Memory records.

<sup>41</sup> Ibid.

<sup>42</sup> Lee Felsenstein, “ABOUT: CM MYTH, CLASS ANALYSIS,” May 8, 1984, Community Memory records, Lot X3090.2005, Box 3, Folder 6, 102734457, Computer History Museum.

<sup>43</sup> Felsenstein, “CM MYTH ANALYSIS,” Community Memory records.

a perception on the part of the ruling class (es) that CM presents no significant threat to their way of doing business. To them (the military, big business, intelligence community, and political establishment), CM must appear as harmless, perhaps useful as another opiate of some small and vaguely troublesome sections of the population. They must see it as not intruding into their claimed spheres of influence -- in this case the broadcast media and videotext. This does not mean that it must not actually intrude, but that the perception must not be pushed that it will intrude. We don't want them to find out the truth until it's too late for them [...] CM is a fragile flower, and will remain one until people of many classes and interest understand their mutuality of interest with its continuation and begin to express their support for it and their willingness to defend it. For there will be attackers, powerful ones eventually, who will understand CM as the harbinger of a new bolshevism. When these two forces meet we will see the "Cooley test" of our system. Best to prepare systematically.

This section highlights the amount of importance placed on the Community Memory system by its designers, as well as the perceived dangers of its true intent being discovered. As we will see, the radical past and present of CM would become a hotbed issue both in discussions between programmers and designers, as well on the system itself.

A significant issue for the newly professionalized Community Memory was the question of funding. Initial cash came directly from Felsenstein who was able to fund the passion project through his successes in the burgeoning microcomputing industry. In between the two iterations of CM, a colleague of Felsenstein was promised a cover story in *Popular Electronics* in return for the design of a computer terminal with a built-in keyboard. With Felsenstein's help the pair went above and beyond the initial challenge with one article writing that instead of a simple terminal the project had morphed into a "full-blown computer, the first real desktop system that featured a built-in keyboard and the ability to accept standard circuit boards and ROM chips so

the user could customize it.”<sup>44</sup> This now legendary computer also gives insight into Felsenstein’s approach to engineering with one interview noting that “[u]nlike Steve Wozniak’s Apple computer, which sprang forth from one single, brilliant mind, the Sol was a committee design” with the primary objective of “bringing computer power to the people, not elegance or absolute performance.”<sup>45</sup> Significantly, Felsenstein’s venture into the realm of personal computers was marked by an idealism similar to that of the Community Memory vision. While he is most well known for his pioneering work with the Homebrew Computer Club (of Jobs and Wozniak fame), we can see that his engineering designs were both integral to his funding of CM and to his overall mission of reconceptualizing computers as community tools.

Community Memory’s most significant venture into the world of commercialized computing came in their attempts to fund the project through licensing the bespoke software on which the terminals operated. Due to large amounts of capital required to launch the second iteration of the system (reports placed initial startup costs at around \$100,000<sup>46</sup>) Felsenstein and the other founders decided it would be necessary to develop a steady stream of income based on the technology they had developed for Community Memory. The two products adapted for the market were Sequitur—a database management system which was based on the relational database system in which Community Memory operated, and X.Dot—a version of one of the earliest data-communications protocols which allowed for geographically dispersed systems to exchange information. Contemporary accounts noted the novelty of the two products, particularly Sequitur, which was among the first database management systems made available

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<sup>44</sup> Paul Freiberger and Michael Swaine, “Lee Felsenstein: Populist Engineer,” *InfoWorld* 5, no. 45, November 7, 1983.

<sup>45</sup> Ibid.

<sup>46</sup> “Hubner, ‘Computer Power to the People!’,” Community Memory records.

to the public.<sup>47</sup> Despite the uniqueness of these products the company setup by Community Memory found it difficult to build a reliable market, one report wrote “‘Community Memory wanted to make a million dollars on [Sequitur] to fund the nonprofit side of the project’ [...] However after premiering at Comdex in 1981, it sold only about 100 copies for Unix and 1,000 copies for IBM Personal Computers.”<sup>48</sup> The failure of Community Memory to break into the commercial software market would also cause the organization to confront questions regarding the ethical uses of their software.

One of the first potential buyers willing to pay X.Dot’s hefty price tag (it was initially priced at \$300,000) was an airline company in Johannesburg looking to use the software as the basis for a reservation system.<sup>49</sup> While this single sale would have been more than enough to fund the second iteration of the Community Memory system, the sale was refused on the basis of the ongoing boycott of South African companies—but not without debate. Only one member of Community Memory’s collective was willing to argue that the sale was essential to give the product clout within the software marketplace. The uniqueness of the software ultimately made the sale untenable; due to the lack of competitors, Community Memory’s developers argued that the product would make it extremely useful to the state of South Africa in establishing more advanced data-communications technologies.<sup>50</sup> Tensions continued to grow when the U.S. Naval Surface Weapons Laboratory approached Community Memory to purchase a license for Sequitur. For some members of CM’s cadre this sale fell into more of a gray area than working

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<sup>47</sup> J.A. Savage, “Nonprofit firm seeks to create low-cost network,” *Computer World* October 8, 1990, Community Memory records, Lot X3090.2005, Box 12, Folder 25, 102734419, Computer History Museum.

<sup>48</sup> Savage, “Nonprofit firm,” Community Memory records.

<sup>49</sup> Tom Athanasiou, “High Tech Alternativism: The Case of the Community Memory Project,” *Radical Science* 16 (January 1985): 45.

<sup>50</sup> Athanasiou, “High Tech Alternativism,” 46.

with the South African state. One member posited, “what was so different between doing business with the military and doing business with the banks — between fast death and slow death?”<sup>51</sup> Yet it would ultimately prove impossible for the group to abandon their ideological commitment to build a computing network that was fundamentally different from the discipline’s military roots. One member wrote, “The military debate was fertile ground for an organizational crisis for exactly this reason: it forced an end to the easy assumption of political efficacy. The value of the project now had to be weighed against more concrete realities.”<sup>52</sup>

In the face of these organizational difficulties, Community Memory ultimately turned away from their attempts at breaking into the commercial market in favor of sourcing funds through nonprofit grants and private donations. The second iteration of the network would come to a close with the closing of the Berkeley Co-op in 1988. Community Memory’s terminals installed at Co-op locations were among the most popular on the network, thus with the closure the team decided to reconfigure the technical specifications of their system and relaunch in 1989. Some of the most prominent alterations made consisted of replacing their hardware with cheaper and more accessible alternatives. It was with these changes and a redefined understanding of how Community Memory would approach fundraising that they turned towards the third iteration of the system.

### **Third Iteration of Community Memory (1989 - 1992):**

While the second incarnation of Community Memory would be marked by financial troubles it would prove to be successful among community members: the organization reported an estimated 1,000 messages posted every month<sup>53</sup>. This success galvanized the organization to

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<sup>51</sup> Ibid.

<sup>52</sup> Ibid, 47.

<sup>53</sup> Community Memory, “Community Memory News #2,” 1984-85, Community Memory records, Lot X3090.2005, 102734457, Computer History Museum, [www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).



expand, both in terms of the physical footprint of the system and its conceptions of CM's role within the community. During this later phase the volunteers and engineers of CM cast a critical eye on the design of the system, proposing a number of revisions to both the hardware and software, including an introduction of increased organization and monetization features.

This section will focus on a selection of the changes carried out throughout the final years of the network (1987 - 1992); with a focus on the reasons for the changes (both explicit and implicit) and the reactions to them by users of the system. Finally, it will also look at analyses of Community Memory's role as an alternativist technology through two essays authored by CM employees; both of which are responding to the work of critical historian of technology, David Noble. These revisions suggest a fundamental shift in both the goals of Community Memory and their ideological relationship to technology. Broadly this entailed a larger shift towards professionalization of the system, in reaction to both internal pressures regarding the most effective applications of the system, and external concerns such as lack of funding. As the technical kinks of the software and hardware were worked out, there was a push in this period to gain legitimacy among community groups in Berkeley.

One of the most significant changes applied to the terminals in this period was the introduction of coin slots that would allow CM to charge users for messages written. The stated reasons for this were twofold. First, it was introduced as a solution to the issue of "graffiti" that had been prevalent throughout the entirety of the project. One report of the system estimated that roughly 30% of all messages posted to the bulletin board were spam messages that commonly came in the form of random characters or miscellaneous obscenities.<sup>54</sup> In response to a survey placed at CM locations, multiple users complained that graffiti sometimes made the

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<sup>54</sup>Susan Douglas, "The Segmented Society: Can New Technologies Narrow the Gap?," Community Memory records, Lot X3090.2005, Box 19, Folder 15, 102734480, Computer History Museum.

system nearly unusable. “The few real messages are interesting; the incredible number of stupid messages make its use (browsing at any rate) quite irritating,” one respondent wrote. “Perhaps once people get over the thrill of being able to swear and talk about sex in public that will change; but I doubt it.”<sup>55</sup> As CM understood it, charging for every message posted would effectively eliminate these spam messages; albeit at the expense of reducing use of the system. Nearly every respondent to the aforementioned survey noted they would use the system less if coinboxes were implemented.<sup>56</sup>

The second reason for the introduction of a fee for messages was the hope that the profit from the terminals themselves would help offset the cost of running the system. Community Memory was sustained through a combination of donations, grants, and personal investments from figures such as Felsenstein, but community contributions were essential to its long-term success. The projected profits were by no means large with one newsletter predicting that the coinbox would bring in roughly \$50/month per terminal.<sup>57</sup> These profits would, however, cover the cost of phone and administrative expenses at the various locations of the terminals.

The introduction of coinboxes were also seen as desirable in the eyes of institutional bodies such as foundations or businesses interested in hosting the system. Monetization of the system marked a larger shift occurring within the direction of the project overall; namely a redirection towards institutional legitimacy. As a 1987 issue of the Community Memory newsletter explained, “the CM Board of Directors has decided not to install the coinboxes until

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<sup>55</sup> Community Memory, “Co-Op Community Memory Project Questionnaire,” Community Memory records, Lot X3090.2005, Box 18, Folder 4, 102734449, Computer History Museum.

<sup>56</sup> Interestingly enough, graffiti messages were not wholly eliminated but rather redirected with the introduction of coinboxes. Often users would simply post their spam messages to the “Suggestions to SysOp” forum which was always free to use.

<sup>57</sup> Community Memory, “Community Memory News Winter 1987-88,” Community Memory records, Lot X3090.2005, 102734457, Computer History Museum, [www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).

the pilot system has more terminals [...] But the prototype has already attracted interest from a potential sponsor of a CM system, and allows us to demonstrate another important aspect of CM.”<sup>58</sup>

The effect of requiring users to pay \$0.25 to post was that the majority of the messages would be worthwhile, and help users reach the goal of connecting users to helpful information. This was notably different from descriptions of the system from earlier issues of CM’s newsletter. One blurb in 1983 listed the different possible uses of the system as: “debates about community and political activities, listings of community resources, information about bartering, buying, selling, and renting, notices about groups being formed, graffiti, poems, dialogues, and ”multilogues.””<sup>59</sup> In the beginning of CM’s history, graffiti—at least in the form of supposedly incoherent ramblings—was an integral if not slightly undesirable attribute of its emergent culture: now, the goal was to eliminate it.

The operators of Community Memory pushed to optimize the ways in which information on the system was organized by introducing forums as a way to collect and centralize information. While messages could still be posted outside of forums using the original system of user created tags, forums were now designed to better organize interrelated messages. These were created by users themselves who would then become hosts of the forum, giving them the ability to add any message to their forum and/or remove any submitted message (with the caveat that any rejected message would be listed publicly within the forum).<sup>60</sup>

While this feature allowed for community members to volunteer their time and effort to better curate the information available on CM, it also was an avenue by which both community

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<sup>58</sup> Ibid.

<sup>59</sup> Community Memory, “Community Memory News #2’ 1984-85,” Community Memory records.

<sup>60</sup> Community Memory, “Community Memory News #3,” Summer 1987, Community Memory records, Lot X3090.2005, 102734457, Computer History Museum, [www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).

groups and official government bodies became disseminators of information on the network. Similar to the coinboxes' attempt to rid the bulletin board of graffiti, this incorporation of data sourced from "official" bodies was a shift away from CM's early goal of only broadcasting information from individuals. The network slowly began shifting away from a system "defined by the community that develops through its mediation [...] It is determined, in the aggregate, by the members of that particular community. Almost a self-developing community."<sup>61</sup> While many of the forums hosted by organizations such as the Berkeley City Council were largely ignored ("official" forum hosts often complained that it was difficult to gauge whether their information was being received<sup>62</sup>) CM would make further attempts to institutionalize the system in the last years of its operation.

From 1989 to the eventual dissolution of the system in 1992, there were significant pushes to link Community Memory to the Berkeley City Council and its computer networks. In 1989 Berkeley councilwoman Nancy Skinner recommended that the City Council "DIRECT THE CITY CLERK TO PROVIDE COUNCIL AGENDAS AND SUMMARIES IN MACHINE-READABLE FORM FOR THIS DATABASE, AND DIRECT CITY STAFF TO PROVIDE COMMISSION AGENDAS, CITY JOB LISTINGS, AND CERTAIN OTHER CITY INFORMATION."<sup>63</sup> Alongside an official commendation of CM's efforts in building its community database, this recommendation would make it easier for officials at City Hall to upload various city documents. Prior to this recommendation, official information was uploaded to the bulletin board on a weekly basis meaning that time sensitive data was often unavailable to users. The relationship between CM and City Hall would be further strengthened in 1991 when

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<sup>61</sup> Community Memory, "Community Memory News" Winter 1987-88, Community Memory records.

<sup>62</sup> Community Memory, "Focus Group for Community Memory Forum Hosts," Community Memory records, Lot X3090.2005, Box 2, Folder 3, 102734456, Computer History Museum.

<sup>63</sup> Community Memory, "City of Berkeley Consent Calendar Information, June 21, 1989," Community Memory records, Lot X3090.2005, Box 1, Folder 3, 102734467, Computer History Museum.

it was agreed that CM's central computer would be housed within the City's networking headquarters. Additionally, there would be a dual effort to establish an "electronic mail link between Community Memory and the administration's network, Citywide" to extend emailing capabilities to those without personal computers.<sup>64</sup> While continuing the precedent set by the introduction of forums, this partnership was also advantageous for the City. The original proposal states that it would set Berkeley apart from other city efforts to broaden digital access to official documents; as the report writes, "[s]everal cities already have some form of public access via dial-up computers, but it is believed that Berkeley will be unique in linking its administrative system to a truly democratized electronic network."<sup>65</sup>

While this opened up another avenue by which the community of users could easily access important information, this partnership—like the introduction of forums and coinboxes—furthered ongoing shifts in CM's objectives. These efforts to better transmit City Council documents diminished a central tenet of CM's philosophy. Communication was fundamental to CM's community of users, with the system being built upon constant discourse; this was foreclosed in the introduction of this partnership. As one city employee described their relationship to CM's user base: "we think of dissemination as the important task; the responses are less important."<sup>66</sup> It is now helpful to turn to reactions to these changes as articulated by CM's employees.

While Tom Athansiou's "High Tech Alternativism: The Case of the Community Memory Project" and Greg Williamson's "Ambivalent Memories of Virtual Community" were

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<sup>64</sup> Community Memory, "City of Berkeley Consent Calendar Information, December 10, 1991," Community Memory records, Lot X3090.2005, Box 1, Folder 3, 102734467, Computer History Museum.

<sup>65</sup> Community Memory, "City of Berkeley Consent Calendar Information, December 10, 1991," Community Memory records.

<sup>66</sup> Community Memory, "Focus Group for Community Memory Forum Hosts," Community Memory records.

written at different stages of the CM project, their engagement in similar issues, particularly the role of technological systems within broader programs of political struggle make for a fruitful comparison. Both are concerned with the efficacy of building alternativist networks as strategies to resist the hegemonization of communication technologies. Central to both of these pieces is the work of David Noble in his three part essay, “Present Tense Technology” in which he presents a revisionist history of industrial sabotage throughout periods of intense technological change. It is through this history that he argues for a reconceptualization of how social movements approach the imposition of technological rationality. Due to the centrality of Noble’s thinking in both of these pieces it is worthwhile to summarize his arguments.

Writing in 1983, Noble saw the contemporary moment as ushering in a fundamental transformation of the economic sphere; one characterized by the introduction and shift towards computer based systems of communication and production. Central to Noble in this time of intense technological change is the question of how it reconfigures the relationship between owners of industry and the classes of laborers that stand the most to lose with the introduction of new technologies. Noble is particularly concerned with what he sees as the liquidation of political questions from the sites of technology, arguing that “it too has become a mere ideological device [...] The idea of technology has lost its essential concreteness, and thus all reference to particulars of place and purpose, tactics and terrain.”<sup>67</sup> Through a broad overview of historical instances of acts of sabotage against introductions of new industrial technologies, Noble hopes to gesture towards a critical position vis-à-vis technical systems that is grounded in the present—what he views as having disappeared in the autonomous rhetoric of progress. His call is for a politics of technology that primarily centers around the issues of confronting technology in the present, though he notes this does not necessarily entail an abandonment of

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<sup>67</sup> David Noble, “Present Tense Technology,” *democracy* 3, no. 1 (February 1983): 10.

thinking about the future of technological assemblages. This point is crucial in his discussion of alternativist technologies, which is the argument most relevant to the CM authors. Thus he begins his investigation by offering a counterpoint to dominant narratives of the Luddite movement that arose within the turbulent era of the first Industrial Revolution.

Noble's argument revolves around a simple assertion that the Luddites were not self-motivated in their destruction of primitive industrial machines, but rather were rationally responding to broad shifts occurring in the organization of labor. Crucial to this argument is the idea that "technological progress" as a goal in itself is an invented category that was projected backwards in order to justify the trauma of the Industrial Revolution. In one provocative moment, Noble describes that the Luddites, "did not believe in technological progress, nor could they have since the alien idea was invented after them, to try to prevent their recurrence [...] In reality, the Luddites were perhaps the last people in the West to perceive technology in the present tense, and to act upon that perception. They smashed machines."<sup>68</sup>

For Noble, the Luddites did not sabotage the introduction of textile frames because they were against technology, but rather because they understood them as threatening to their class interests. Furthermore, it was only in the wake of increased sabotage across Britain that discourses of technological progress came to the fore. This emergence, for Noble, had the effect of acting as a booster to capitalist development—both through its promises of material prosperity and its shaping of criticisms launched against economic developments.<sup>69</sup> Through the mid to late nineteenth century, criticism was no longer launched at the exploitation inherent in the introduction of new technologies, but rather at the supposed misuse of them. Thus through the ongoing development of political economic discourses, scientific and technological progress

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<sup>68</sup> Noble, "Present Technology," 11.

<sup>69</sup> Ibid, 15.

was stripped of its political consequences and all but restricted from the realm of debate and political action. Noble tracks this alongside the emergence of social reform programs in which the Luddites were understood to be suffering from “moral poverty” in their actions; an issue that would be solved not through mediation of labor relations, but rather through philanthropic institutions.<sup>70</sup>

The second part of Noble’s essay is dedicated to the responses of labor to the introduction of automated industrial technologies introduced in the immediate aftermath of World War II. The disputes over the introduction of these technologies mark an emergence of labor actions that, for Noble, fall in line with the actions of the Luddites in the previous century. Through contemporary news reports and political materials Noble argues that these struggles over technology are predominantly characterized by a loss of faith in traditional union governing bodies.<sup>71</sup> This not only entailed a shift in tactics, with workers engaging in novel forms of protest, but it also resurrected a critique of technology as a political formation.

With this resurrection of a critical position vis-à-vis technology, Noble argues that two conclusions can be drawn about the path forward for any movement interested in disputing the position of technology. The first is that the power over technological decision making ultimately reflects the structure of power within society writ large; thus attempts to shift this power imbalance ultimately results in “bargaining over technology post hoc and from a position of weakness.”<sup>72</sup> The second conclusion reflects a more proactive approach to the politics of technology, with Noble arguing that a more expansive view of technology allows for more thinking to be dedicated to designing more liberatory alternatives. He argues that this is ultimately successful in moving beyond deterministic ways of thinking by rejecting the notion

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<sup>70</sup> Ibid, 19.

<sup>71</sup> David Noble, “Present Tense Technology: Part Two,” *democracy* 3, no. 2 (May 1983): 72.

<sup>72</sup> Noble, “Present Tense: Part Two,” 78.



of development as inevitable, it ultimately results in “confusion and false promises.”<sup>73</sup> In the worst case this focus on alternatives ends up reproducing a mirrored version of the previously abandoned deterministic attitude by arguing that if one simply changes the technology, then politics will soon follow suit. In the best case scenario, for Noble, this thinking functions as a way to demonstrate that an alternative technological world is possible, though he argues that this still ignores the massive political mobilization necessary to popularize these systems. Finally, even if a working prototype is produced any group will ultimately run into cultural or social barriers. As Noble argues, “No existing technologies have ever had to pass such tests of viability until (if ever) after the politically determined and culturally sanctioned decisions to invest in them had already been made [...] without the requisite social power that could *deem* labor’s alternatives viable [...] whatever the researchers and unions come up with will be dismissed on economic and technical grounds, but for political reasons.”<sup>74</sup>

In the end Noble’s prescription for groups interested in building alternative systems (whether in the realm of labor or not) is to balance the focus on present and future. He does not discount alternativism and argues that intellectuals and researchers have often fallen short in their study of “alternative social and political visions [and] roads not taken.”<sup>75</sup> His critique is that these projects must always be constructed alongside struggles fundamentally engaged in the present, in his example it is the organizing of rank-and-file union members. Though his analysis is strongly steeped in the world of labor, it is one that is easily applied to social movements as a whole. With this summary completed we can now turn to how this critique was incorporated into the self-reflexive critiques Tom Athanasiou and G.S. Williamson in their works on Community Memory.

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<sup>73</sup> Ibid, 79.

<sup>74</sup> Ibid, 82.

<sup>75</sup> David Noble, “Present Tense Technology: Part Three,” *democracy* 3, no. 3 (August 1983): 91.

Community Memory's Tom Athanasiou's "High Tech Alternativism: The Case of the Community Memory Project" (1985) directly responds to the critiques put forth by Noble. He states that while he agrees with Noble's analysis of the history of technological development, he ultimately diverges from the conclusion that activist groups should focus entirely on presentist opposition.<sup>76</sup> Athanasiou argues that a complete refusal of technology only makes sense in situations in which technological developments are so intimately connected to capitalist development (in this case he offers the example of anti-nuclear organizing)<sup>77</sup>. On the other hand, he argues that the flexibility of computer technology is a powerful tool that should be utilized to its fullest extent in building an alternative technological culture. While he notes (in agreement with Noble) that the revolutionary potential of communication technologies are often overstated, he argues that Community Memory "contains a real moment of rebellion against the hierarchical logic that today constitutes technical design."<sup>78</sup>

The bulk of Athanasiou's article is dedicated to the difficulties that arose in CM's attempts to design and implement their system while operating in accordance with their non-hierarchical ideals. These can be split into two categories, funding issues and the division of labor. He describes the complexity of squaring the group's political ideology with their intention of funding the project through the commercial licensing of their database management and data communication softwares. Not only did they find trouble in the delegation of programming tasks due to the lack of "formal organizational relations"<sup>79</sup> but the demand for their products was sorely lacking. The few interested buyers that did step forward became the subject of intense political debate, namely due to their connections to Apartheid states or the

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<sup>76</sup> Athanasiou, "High-Tech Alternativism, 37.

<sup>77</sup> Ibid, 51.

<sup>78</sup> Ibid, 38.

<sup>79</sup> Ibid, 45.

U.S. military.<sup>80</sup> Athanasiou writes that the trickiness of trying to break into the Silicon Valley economy tested the cohesiveness of the group; he writes, “the military debate became the locus of expression for more generalized antagonisms rooted in the political and interpersonal ambiguities of the larger venture.”<sup>81</sup> Though it had the benefit of prompting the members to question the usefulness of Community Memory, or at the very least ask where it might be situated amongst the technological backdrop at large. Athanasiou seems aware of the critiques put forth by Noble, asking whether the noble aspirations of CM would “justify our small contribution to capitalist modernization?”<sup>82</sup>

The second major issue for Athanasiou is the problem of delegating and structuring labor. He writes about the obvious gap that emerged between programmers and non-technical staff at CM. Despite their best intentions, he writes, that often programming labor was centralized, not only in their relations to other workers, but in the actual decision making processes as well. Furthermore, within the cadre of programmers there existed “an odd mix of extreme hierarchy and participatory democracy”<sup>83</sup> with much of the final say on design decisions running through a figure that Athanasiou names as “Mr. X”. He pushes back against the notion that this odd makeup of labor at CM might be unique within the tech world as a whole. Athanasiou writes that a “severe interpretation of Community Memory’s history would reveal even more disturbing parallels with typical high-tech paternalism. Instead of management we had ‘the Junta’ [...] they kept organizational goals firmly in mind [...] like typical professional workers, we worked as much for our identities as for our articulated goals.”<sup>84</sup>

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<sup>80</sup> Ibid, 46.

<sup>81</sup> Ibid.

<sup>82</sup> Ibid, 47.

<sup>83</sup> Ibid, 48.

<sup>84</sup> Ibid, 49.

At the end of all of this Athanasiou stills come out on the side of alternativism, with this article seemingly functioning more as a warning to other groups of the pitfalls that might await them. While he is aware of the fraught nature of CM's "benighted attempt" at building an anti-hierarchical communication system, he ultimately argues that it is important as it presents a vision "of technology that is both visionary and critical."<sup>85</sup> It is now helpful to move forward several years to G.S. Williamson's essay, published in the final year of Community Memory, to further understand the issues that arose as a result of the project's attempts at institutionalization.

Published in 1991 in the leftist magazine, *Processed World*, G.S. Williamson's "Ambivalent Memories of Virtual Community" speaks to the organizational problems present in Athanasiou's piece while offering a critique of CM's overall mission. Following a brief summary of CM's history (including their failed attempts to commercialize their software), Williamson recounts the reasons for his increasing dissatisfaction with his working conditions, stating that his issues revolve around "a hypersensitivity to political issues and my changing view of the world (and my role in it), and the changing nature of the organization itself."<sup>86</sup> One of his major discontents with the overall direction of Community Memory is what he terms the "creeping institutionalization" of the system. As covered earlier in this section, Williamson decries the attempts to bring in information from official venues such as City Hall, arguing that this became necessary as an attempt to assuage potential benefactors.<sup>87</sup> Not only did this shift the information on the network, but Williamson notes that it increased the day-to-day labor of CM employees. In an illuminating quote he writes:

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<sup>85</sup> Ibid, 50.

<sup>86</sup> G.S. Williamson, "Ambivalent Memories of Virtual Community," *Processed World* 26/27 (Summer 1991): 28. [archive.org/details/processedworld2627proc](http://archive.org/details/processedworld2627proc)

<sup>87</sup> Williamson, "Ambivalent Memories," 29.

In the case of the City Council agenda, a program (written by an unpaid volunteer) converts the material from one electronic form to another; then a person—usually a programmer—adds index words and minor edits, and loads the few dozen messages. The net result: perhaps one person a month reads some of the messages; *we reinforce the image of institutions, rather than individuals, as providers of information; some clerk in the city government has yet another task; and the city government—which already has ample ways to disseminate information—continues to set the agenda.* [emphasis added]<sup>88</sup>

This crucially reflects the ways the original mission of Community Memory came to be subtly warped through the introduction of “official” institutions as information sources. This shift did not take place through concrete efforts to censor certain users or topics of conversation, but rather through simply taking up space.

To better understand the sources of his increasing frustration in working at CM, Williamson turns his attention to what he identifies as the project’s ideological foundations: “the primacy of information, and the importance of community.”<sup>89</sup> He argues against the inherent power imbued in access to information, stating that Berkeley is most likely not bereft of information and that information often does not entail actual political power. “Confusing some abstract form of knowledge with actual power is a convenient trick, particularly for those with an interest in maintaining existing forms of ‘democracy.’”<sup>90</sup> Furthermore he questions the virtues of “community” as a goal to strive for, asking whether or not meaningful political programs can be built upon gestures of community building. He goes as far to ask whether the prioritization of community is in actuality evidence of a concealed agenda or ideology on the part of the “State.” He quotes Bedford Fenwick who writes, “‘The State not only wants our obedience, but like other contemporary corporations, it demands our love. The ideology of

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<sup>88</sup> Ibid.

<sup>89</sup> Ibid.

<sup>90</sup> Ibid.

community is one way it seeks to achieve this.”<sup>91</sup> Ultimately Williamson understands why CM would attempt to build a community-centric system, as he notes that the project was born out of a time period in which people began to feel ever more disconnected from the traditional centers of community: work, family, etc.

Directly responding to Athanasiou’s assertion that groups should not wholly abandon alternativist struggles, Williamson writes that while he agrees with the framing of CM as a project in which technical imagination is directed, he questions whether it is worth the requisite time and effort. Ultimately he argues that the most dangerous aspect of Community Memory is the encroaching passivity he believes it fosters (which he supports through the “steady flow of requests for us to provide information” on the CM network).<sup>92</sup> Gesturing toward the impossibility of a radical computing, he ends the essay with this provocative statement: “Possibilities of computer use within a truly free society are barely shadows flitting across our screens as we mechanically maintain the edifice of legitimacy for this barbaric social order.”<sup>93</sup>

Ultimately Athanasiou and Williamson agree in their conclusion that a utopian computing system was not possible within their social and political climate, though Athanasiou pushes alternativism as a worthwhile struggle despite the complexities it entails. Williamson’s article is helpful in understanding the context and results of CM’s increasing institutionalization of its last iteration; in many ways his argument was vindicated as the organizers failed to generate users through their connections to City Hall.

### **Community Memory as a “metis” producing machine:**

To contextualize Community Memory’s failure to fully establish itself among both the Berkeley community and the history of computing as a whole I would like to turn to a

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<sup>91</sup> Ibid, 30.

<sup>92</sup> Ibid.

<sup>93</sup> Ibid, 31.

discussion of James C. Scott's use of "metis", or practical knowledge from his 1998 book, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. I believe that applying this theoretical framework to the history of CM not only highlights its sociotechnical novelty, but also allows it to be connected to modern web movements in generative ways. This analysis will proceed by first applying Scott's conception of "high modernism" to the discourses of cybernetics that Community Memory was responding to. It will then focus on Scott's appropriation of the Greek "metis" and "techne" to describe the genius of CM's dissemination of practical knowledge. I will then briefly elaborate on connections to be made today, using trends such as the Independent Web Movement as examples of technologies that share a lineage with CM. Through these comparisons I hope to boost their arguments for a fundamentally different interaction with the modern internet.

In *Seeing Like a State*, Scott argues that one of the defining characteristics of the massive state-led projects of the nineteenth and twentieth centuries was the guiding ideology of what he terms, "high modernism". Described as "the aspiration to the administrative ordering of nature and society [that] envisioned a sweeping, rational engineering of all aspects of social life in order to improve the human condition."<sup>94</sup> Scott identifies the roots of these movements in the "discovery of society", or the moment when state officials, intellectuals, and bureaucrats began to privilege the production of information on their citizenry. Through statistical innovations, state bodies were able to expand their role in the realm of everyday life; Scott argues that whereas the health of the social body was privileged before this period, it was mainly in service of furnishing a suitable army or tax base.<sup>95</sup> Modernizing actors used these new datasets to simplify the inner workings of social life, allowing planning authorities to tackle large scale

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<sup>94</sup> James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven, Yale University Press: 1998), 88.

<sup>95</sup> Scott, *Seeing Like a State*, 91.

reconstruction projects in the realm of urban planning, public health, etc. Scott states that these planners often held progressive ideals, but that their planning aspirations often upheld a “single planning authority; in place of the plasticity and autonomy of existing social life.”<sup>96</sup> Following Scott’s arguments regarding the continued development of high modernist trends in the twentieth century, we can understand how cybernetic theories map onto his analysis.

Scott pinpoints the emergence of these twentieth century trends in both Germany’s planned economy that backed their mobilization in World War I, and the advent of Taylorism as a guiding ideology for the construction and planning of industrial labor. He argues that both of these movements viewed labor as a “mechanical system which could be decomposed into energy transfers, motion, and the physics of work.”<sup>97</sup> Through these minute studies of labor processes, researchers sought to boost productivity; in this way workers and the industrial machines in which they operated became one and the same in the eyes of state planners. Much of this reads as nearly identical to the process by which the godfather of cybernetics, Norbert Wiener, revolutionized the aiming mechanisms of anti-aircraft guns through the understanding of pilots and gunners as mechanical systems. As Fred Turner writes in his overview of cybernetic theory, “[b]y imaginatively transfiguring soldiers into mechanisms, Wiener and Bigelow suggested that human beings were at some level machines [...] human beings could be modeled as mechanical information processors.”<sup>98</sup> Scott’s identification of high modernism as arising from the development of scientific forestry in the early nineteenth century also furthers this comparison. Much of Wiener’s work on cybernetics emphasized biological metaphors to

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<sup>96</sup> Ibid, 93.

<sup>97</sup> Ibid, 98.

<sup>98</sup> Turner, *From Counterculture to Cyberculture*, 21.



better conceptualize these sociotechnical systems; and much later his work would be taken up by ecologists to describe the Earth as an informational system.<sup>99</sup>

Scott's narrative ultimately concludes with the introduction of "techne" and "metis" as a lens by which one can view both the specific statemaking projects he references throughout the text, and statemaking projects writ large. Borrowing from Ancient Greek philosophy, he employs techne as that which privileges universal and quantifiable forms of knowledge production. It is an approach to thinking which is most concerned with producing replicable and impersonal conclusions which can be easily packaged and taught from one person to another in a formal setting.<sup>100</sup> In Scott's analysis the agricultural and urban planning projects he uses as evidence of a recognizable high modernist ideology can be read as attempts to act on a view of society informed only by techne or technical thinking. This is evident in his invocation of Taylorism, in which individual workers' actions were studied at the most minute level in order to improve upon the productive capacity of the factory. In this light, we can read Norbert Wiener's cybernetics and its tremendous influence on the fields of economics, biology, political science, etc. as primarily being based on techne.

Opposite to techne, Scott dedicates most of the final chapter of *Seeing Like a State* to the concept of metis, or practical knowledge. For Scott, the tension between states imposing large scale projects on their populations is at its root a political struggle between techne and metis.<sup>101</sup> Scott defines metis as that which "represents a wide array of practical skills and acquired intelligence in responding to a constantly changing natural and human environment."<sup>102</sup> Due to the expansive nature of metis as a theoretical object and analytical lens it will be helpful to tease

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<sup>99</sup> Levine, *Surveillance Valley*, 45.

<sup>100</sup> Scott, *Seeing Like a State*, 320.

<sup>101</sup> Ibid, 311.

<sup>102</sup> Ibid, 313.

out some but not all of its characteristics. Thus this section will cover those attributes which most correspond to Community Memory's history. Specifically, this analysis will focus on Scott's arguments that metis is based on local contextuality and that its most active practitioners are those that have a direct connection to a particular community's survival.

Against the universality of *techne*, Scott argues that metis is found in the complexity of particularity; with practical knowledge through experience within a local context. He gives the example of freight ships that turn their controls over to local pilots when docking at a port; turning the controls over to a local pilot with the experience of that harbor's particularities guarantees the safety of the vessel.<sup>103</sup> Crucially this knowledge would be rendered void if the pilot was placed in unfamiliar territory. Metis in this sense is characterized by a near constant state of flux depending on the situation; because metis is inherently local it requires the specialist to adapt to the problem at hand. Using the analogy of language, Scott argues that *techne* is akin to grammatical rules whereas metis can best be compared to vernacular speech wherein one must practice through a successive process of trial and error within a specific context to reach a level of understanding.

Though Community Memory had aspirations for their technology to be used as the foundation for an expansive network of national terminals, its virtue came through its connection to the community of Berkeley. This connection to a particular place meant that the users possessed an intimate and local connection to the information that was shared. It also meant that for the system to be fully comprehensible, one needed to be immersed within the community—the simple fact that terminals were placed throughout public locations such as grocery stores, laundromats, etc. meant that users had to be out in the world in order to contribute and reference messages. Furthermore, the system was not designed to be a digital hub

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<sup>103</sup> Ibid, 316.

wherein dialogue began and ended; rather it promoted building sustainable connections that should be strengthened offline. One of the early successes for the Community Memory team came when one of the founders used the system to find where one could buy bagels in the Bay Area. Felsenstein writes of what followed, “Two responses gave the expected location of stores, but a third response gave a phone number and offered the services of ‘an ex-bagel maker (who) will teach you how to make bagels.’”<sup>104</sup> While Felsenstein uses this example to exemplify how the system validated the theories of Ivan Illich’s emphasis on schooling outside of institutions, I believe it is an excellent example of CM as a disseminator of metis. While convenient answers to the simple question of “where can I buy bagels” were provided, the most exciting for Community Memory developers was that which resulted in the acquisition of practical knowledge.

Related to the question of locality, Scott argues that the success of continuation of metis is based on its practical application in a given environment—if an agricultural and medicinal technique is successful, it will continue to be used as a solution to similar problems. This prompts a relation to one’s environment in which objects and tools are used outside of their designed context; Scott writes, “the innovations of metis will typically represent a recombination (*bricolage*, to use Lévi-Strauss’s term) of existing elements [...] the bricolage of practical knowledge has often produced complex results.”<sup>105</sup> In this light, Community Memory’s adoption of the decommissioned XDS-940 can be read as a feat of tremendous application of practical knowledge as a result of the supreme difficulty in securing access to a mainframe computer (much less owning one) in the 1970s. Furthermore their process of recruiting technicians and developers from institutions, such as Xerox PARC or the Stanford AI Lab to

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<sup>104</sup> Felsenstein, “Community Memory: The First Public-Access Social Media System,” 95.

<sup>105</sup> Scott, *Seeing Like a State*, 324.

volunteer their knowledge and labor, meant that before the system was even up and running the construction of a network of practical knowledge was being constructed. This tendency for a community of dedicated practitioners and users to develop at the sites of practical knowledge is immensely important for Scott.

For Scott, *metis* is intimately connected to the scrutinization of one's environment. This is most evident throughout the history of non-industrial agriculture, in which cultivators of the land depended on their know-how to ensure their survival. Peasant farmers had to be able to read the land and adjust their strategies accordingly so as to guarantee a bountiful harvest. He writes of the sociality of *metis* that arises within these communities, "such a cultivator is always a member of a community that serves as a living oral reference library for observations, practices, and experiments—a body of knowledge that an individual could never amass alone."<sup>106</sup> An "oral reference library for observations, practice, and experiments," directly maps onto the driving mission of Community Memory. Throughout discussion board printouts, we can see the system being used by various subcultures and groups to find like minded people and expand their connective networks off of CM. One example below is indicative of this phenomenon:

"TITLE: Lesbian community where are you?

AUTHOR: Anonymous

DATE ADDED: March 8, 1987

INDEX WORDS: LESBIAN, DYKE, PYRAMID, AIRPLANE, WOMEN!

I am disillusioned with the lesbian community in Berkeley. Where are all you women? I mean where are you? Hopefully not at some pyramid meeting working on your issues around money ... It seems that unless you fit into a certain mold around here, there's not much hope to meet another woman. Am I the only one who feels this way or what? This is a call for disillusioned lesbians to come out

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<sup>106</sup> Ibid.

come out wherever you are and start making some changes in this thing we call a community

TITLE: THERE IS A LESBIAN COMMUNITY

AUTHOR: Anonymous

DATE ADDED: March 16, 1987

REFERS TO: Lesbian community where are you?

INDEX WORDS: WOMEN, LESBIANS

DEAR DYKE - THERE ARE SOME OF US HERE WHO HAVE BEEN WORKING FOR YEARS AND KEEP ON DOING IT. FOR LOVE IN THE BEST SENSE OF THE WORD. A LOT OF US THOUGH AREN'T ALL THAT VISIBLE DESPITE HOW WE KEEP WORKING OR BECAUSE WE'VE BEEN HERE A LONGTIME WE ARE HARD TO GET CLOSE TO, WE GET BUSY, WE HAVE TO WORK, ALL THAT KIND OF STUFF. MANY MANY OF US ARE NOT ON THE AIRPLANE AND WISH THAT DYKES WERE WILLING TO GO TO THREE MEETINGS A WEEK TO TALK TO EACH OTHER ABOUT - ALMOST ANYTHING ELSE. COME TO THE SINISTER WISDOM READING APRIL 18 AT THE WOMEN'S BUILDING IN S.F. THAT SHOULD HELP.”<sup>107</sup>

This example is significant as it both conveys the usefulness of the system for subcultures and minority groups, but it also points towards another characteristic in Scott’s definition of metis. The respondent to the original post implores the original user to put in the work necessary to build community; she wishes that “DYKES WERE WILLING TO GO TO THREE MEETINGS A WEEK.” For Scott, one of the “great ironies of metis”<sup>108</sup> is the fact that it is cultivated with non-democratic means; in other words, one must actively seek out and participate in various forums to access it. He writes, “Not only does it depend on a touch or a knack that may not be common, but access to the experience and practice necessary for its acquisition may be restricted [...] the availability of such knowledge to others depends greatly

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<sup>107</sup> Douglas, “The Segmented Society: Can New Technologies Narrow the Gap?,” Community Memory records,

<sup>108</sup> Scott, *Seeing Like a State*, 334.

on the social structure of the society.”<sup>109</sup> In this light, I believe that CM should be read as a system that attempted to expand the dissemination of practical knowledge, albeit with the hope that users would move off of the system in order to make full use of it. Though CM asked this of the user, it significantly flattened the distinction between consumers and providers of information.

Through the public nature of Community Memory’s terminals the network was able to promote this horizontal approach to communication. CM’s techno-utopian contemporaries hoped that PC users would move seamlessly from engagement on BBS or listserv services to interacting with their offline counterparts.<sup>110</sup> Community Memory bypassed this concern by simply placing their terminals in public spaces such as grocery stores, laundromats, and libraries. This expanded the potential user base by removing both the monetary and technical barriers to entry—for many, CM was the first computer system they were able to interact with. This was facilitated by volunteers manning terminal locations and most significantly, other users. In a paper written by San Francisco State University student, Susan Douglas, recounts multiple instances of helping potential users access the system:

“A female senior citizen approached me at the terminal and said she had seen computers on television but couldn’t get a sense of how they worked. After we entered a message together, she began telling me the saga of her apartment troubles and was obviously more interested in being able to share her troubles than in learning how the terminal operated [...] her real communication need may have been a shoulder to cry on.”<sup>111</sup>

She cites one more example:

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<sup>109</sup> Ibid.

<sup>110</sup> Claire Potter, *Political Junkies: From Talk Radio to Twitter, How Alternative Media Hooked Us on Politics and Broke Our Democracy* (New York: Basic Books, 2020), 91.

<sup>111</sup> “The Segmented Society: Can New Technologies Narrow the Gap?,” Community Memory records,

“I was using the terminal at Whole Earth Access another day when a young black boy who appeared to be between ten and twelve years old came up and looked on. I helped him enter a message of his own. It was a struggle spelling out each word and finding the letters on the keyboard. His message was ‘a nurse does helping;’ the boy said his father had been a nurse but had died. When he wrote his name and then entered it into the system, he was very proud and excited to see the message he had created appear on the screen [...] here was a user whose unfamiliarity with the technology required a little extra help in order to get over the obstacles to use [...] the system might serve as a learning tool.”<sup>112</sup>

The author notes that these examples signify the ability that Community Memory had to attract those that were commonly left out of newly burgeoning digital communities that relied on personal computers. The public nature of the system also meant that it had the potential to encourage more expansive discussion topics. Whereas many BBS or listserv servers were set up to facilitate discourse on specific topics, Community Memory was in many ways a blank slate. This open approach to communication meant that the system could be filled with graffiti or political bickering; but the above examples showcase how it also often prompted spontaneous interactions of community building that walked the line between on and offline.

These spontaneous interactions are an excellent indication of Community Memory’s usefulness as a system that disseminated metis and other forms of practical knowledge. At one point, Scott characterizes metis as dialogue that is “alive and responsive to the mutuality of the participants, reaching a destination that cannot be specified in advance.”<sup>113</sup> This maps onto the interactions cultivated through Community Memory and its refusal to direct how the system should be used. While the project ultimately failed, I believe that we should still take seriously its legacy as an early example of public computing that sought to trouble both techno-utopian

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<sup>112</sup> Ibid.

<sup>113</sup> Scott, *Seeing Like a State*, 323.

and techno-pessimist narratives. As a concluding remark I will now turn to present day writing and discourses regarding the direction of our current web landscape.

Community Memory's vision of public computing did not come to characterize our dominant mode of interacting with the internet, though I believe that a generative lineage between CM and web designers working today can be established. This section will focus primarily on the work of Laurel Schwulst, a designer and writer often associated with the Independent Web Movement, a heterogeneous community that seeks to distance itself from larger social media networks in favor of smaller and more personal web networks. While Schwulst and other designers do not directly invoke Community Memory, they are often working with similar ideas in spite of their historical distance. In applying this history to the writing of Schwulst and others, I hope to encourage a more expansive dialogue around questions of how CM's legacy can be applied and reconceptualized in our current moment.

Laurel Schwulst's work spans across multiple mediums and practices, but for the purpose of situating her web design work with the history of Community Memory I am most interested in her themes regarding the relationship between online and offline communities and the web as personal and cooperative. At the center of much of Schwulst's work, and the Independent Web Movement as a whole, is their stressing of the importance of individuals cultivating their own spaces on the web that are disconnected from larger corporate platforms. At the heart of this critique is the argument that most modern social networks are interested primarily in increasing advertising revenue. This results in websites that are designed to maximize the efficiency of advertising technologies through the monetization of users' interactions. As a rebuttal to this, Schwulst offers the construction of personal websites as a strategy of building cooperative relationships online; she writes that "the web is called the web



because its vitality depends on just that—an interconnected web of individual nodes breathing life into a vast network.”<sup>114</sup> Inherent to this argument is a do-it-yourself attitude that was also characteristic of Community Memory, while alternatives were available for the construction of communication systems, they opted for a more complex application of early computing technologies in order to construct a more open system. Both Schwulst and Community Memory desire to build their own networks that allows for more expansive uses of network technologies; for Community Memory this came in the form of people using the system in creative ways, such as users exchanging baking techniques or writing poetry. For Schwulst and her collaborators this allows for more experimentation that would not be possible on larger platforms, such as websites that are meant to mirror cafes by “opening” and “closing” (turning servers on/off) at certain times.<sup>115</sup>

For Schwulst, advocating for an independent web also functions as a technique of revealing the technical structures essential for modern social networks to function. She writes, “I believe the common prevailing metaphor—the internet as cloud—is problematic. The internet is not one all-encompassing, mysterious, and untouchable thing [...] These metaphors obfuscate the reality that the internet is made up of individual nodes: individual computers talking to other individual computers.”<sup>116</sup> I would argue that although this form of obfuscation of computing technology was not as present, (at least not at the level that “the cloud” has in modern parlance) throughout Community Memory’s history, their design still implicitly critiqued it. The very fact that the first iteration was based around the loaned XDS-940 housed at the Resource One

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<sup>114</sup> Laurel Schwulst, “My website is a shifting house next to a river of knowledge. What could yours be?” *The Creative Independent*, May 21, 2018, [thecreativeindependent.com/essays/laurel-schwulst-my-website-is-a-shifting-house-next-to-a-river-of-knowledge-what-could-yours-be/](https://thecreativeindependent.com/essays/laurel-schwulst-my-website-is-a-shifting-house-next-to-a-river-of-knowledge-what-could-yours-be/).

<sup>115</sup> Elliot Cost and Laurel Schwulst, “Exploring the independent web with Elliot Cost and Laurel Schwulst,” *Volvox Observer*, May 22, 2021, [volvox.observer/archive/ElliottLaurel](https://volvox.observer/archive/ElliottLaurel).

<sup>116</sup> Schwulst, “My website is a shifting house.”

commune is an example of this. Users not only had access to terminals, but access to the server (using modern terminology) as well. Because Community Memory relied on volunteer labor throughout much of its history, interested users had the opportunity to work intimately with the entirety of the system.

Schwulst's approach to the actual technical tools used to develop independent websites also resonates with Community Memory's design philosophy. Many of her projects revolve around utilizing only the most accessible and simple of technical tools, most prominently HTML (HyperText Markup Language) which has served as the foundation for all web pages since the mid-1990s. She writes, "HTML is universal to all websites. It's the foundation [...] adding unnecessary JavaScript that's only for superficial polish actually adds a lot of weight to pages, sometimes making them unable to load on slow connections. This is especially sad when the website contains important, life-sustaining information."<sup>117</sup> Community Memory took a similar approach in their construction of terminal housings, opting for easily accessible and replaceable materials, such as cardboard and plywood to house their computers.

This approach to technology also relates to the question of pedagogy inherent throughout CM's history and Schwulst's work. Schwulst cites the artist J.R. Carpenter's essay "A Handmade Web," which discusses the effects of the shift away from people predominantly interacting with the internet on desktop environments to mobile ones. Discussing this shift and its effects on HTML she writes, "For most of its history web pages have been read on desktop or laptop computers. Readers have had the option of right-clicking on any page, selecting View Page Source, copying, pasting, and re-writing the source code. In this manner, readers become writers."<sup>118</sup> Philip Guo, a professor of cognitive science and computer engineering at UC San

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<sup>117</sup> Cost and Schwulst, "Exploring the independent web."

<sup>118</sup> J.R. Carpenter, "A Handmade Web," *Luckysoap*, March 2015, [luckysoap.com/statements/handmadeweb.html](http://luckysoap.com/statements/handmadeweb.html).

Diego, echoed these points on Schwulst's podcast, *HTML Energy*: "in the old days at least, and maybe even now, on your handcrafted website you can actually see the raw HTML and see that behind these web pages, or these works of design or art ... there's not really any magic. It's all human readable [...] everything is there for people to look at and to learn from."<sup>119</sup> Viewing the source of a website in this sense becomes very similar to Community Memory users teaching passersby the system's intricacies as shown above. This act not only blurs the boundaries between reading and writing as Carpenter writes, but becomes a moment of pedagogical dialogue as well. In this sense Schwulst's insistence on using simple tools to cultivate independent web environments becomes—like Community Memory—a potential site for the expansion of metis.

### **Conclusion:**

The dream of public computing is not dead. Walking through the streets of New York City today, one encounters LinkNYC displays on nearly every major street. Throughout other cities, one has the option to bypass the restrictions of internet service providers by connecting to community run mesh wifi services. These services are fraught with social and technical issues—LinkNYC displays function as massive surveillance cameras<sup>120</sup> and mesh networks often get crushed by the weight of corporate and regulatory bodies<sup>121</sup>—but nonetheless they point towards the desire for novel forms of connectivity. If the history of Community Memory teaches us anything, it is to approach the technologies present in our lives with a new lens; one

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<sup>119</sup> Laurel Schwulst, "Philip Guo 'under construction'" *HTML Energy*, podcast audio, June 25, 2020, [html.energy/philip.html](http://html.energy/philip.html).

<sup>120</sup> Claire Lampen, "Yes, LinkNYC Kiosks Are Giant Data-Harvesting Surveillance Cameras, Obviously," *Gothamist*, April 25, 2019, [gothamist.com/news/yes-linknyc-kiosks-are-giant-data-harvesting-surveillance-cameras-obviously](http://gothamist.com/news/yes-linknyc-kiosks-are-giant-data-harvesting-surveillance-cameras-obviously).

<sup>121</sup> Bliss Broyard, "'Welcome to the Mesh, Brother': Guerrilla Wi-Fi Comes to New York," *The New York Times*, July 16, 2021, [www.nytimes.com/2021/07/16/nyregion/nyc-mesh-community-internet.html](https://www.nytimes.com/2021/07/16/nyregion/nyc-mesh-community-internet.html).

carefully attuned to the expansion of technical systems that takes into account the communities that would benefit the most from their use.

The history of Community Memory is not only relevant in the realm of public computers, but in articulating new possibilities for our interactions with personal computers and social networks as well. At a time when the future of long standing forums for digital communication seem uncertain at best,<sup>122</sup> it is immensely important to begin to articulate new visions of connection. Situating the history of Community Memory among the discourses of modern designers is one path forward. This path forward, focuses our attention on how digital platforms can be used to nurture communities through localized systems of connectivity. It prompts us to reconsider the “always online” design model that has become the basis for our current advertising-centric social platforms. The history of Community Memory asks us to consider whether our technologies can be used to expand local practices of thinking as a rebuttal to the technofetishism of optimization that is present in our interactions with the internet today.

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<sup>122</sup> Brian X. Chen, “The Future of Social Media Is a Lot Less Social,” *The New York Times*, April 19, 2023, [www.nytimes.com/2023/04/19/technology/personaltech/tiktok-twitter-facebook-social.html](https://www.nytimes.com/2023/04/19/technology/personaltech/tiktok-twitter-facebook-social.html).

### **Bibliography**

- Athanasiou, Tom. "High Tech Alternativism: The Case of the Community Memory Project." *Radical Science* 16 (January 1985): 37-51.
- Broyard, Bliss. "'Welcome to the Mesh, Brother': Guerrilla Wi-Fi Comes to New York." *The New York Times*, July 16, 2021.  
[www.nytimes.com/2021/07/16/nyregion/nyc-mesh-community-internet.html](http://www.nytimes.com/2021/07/16/nyregion/nyc-mesh-community-internet.html).
- Carpenter, J.R. "A Handmade Web." *Luckysoap*, March 2015.  
[luckysoap.com/statements/handmadeweb.html](http://luckysoap.com/statements/handmadeweb.html).
- Chen, Brian X. "The Future of Social Media Is a Lot Less Social." *The New York Times*, April 19, 2023.  
[www.nytimes.com/2023/04/19/technology/personaltech/tiktok-twitter-facebook-social.html](http://www.nytimes.com/2023/04/19/technology/personaltech/tiktok-twitter-facebook-social.html).
- Analytical Engine. "CONVIVIAL CYBERNETIC DEVICES: From Vacuum Tube Flip-Flops to the Singing Altair." *The Analytical Engine: Journal of the Computer History Association of California* 3.1 (November 1995): 2-25.
- Community Memory. "Co-Op Community Memory Project Questionnaire." Community Memory records, Lot X3090.2005, Box 18, Folder 4, 102734449, Computer History Museum.
- Community Memory. "Community Memory News Winter 1987-88." Community Memory records, Lot X3090.2005, 102734457, Computer History Museum.
- Community Memory. "Community Memory News #3." Summer 1987. Community Memory records, Lot X3090.2005, 102734457, Computer History Museum,  
[www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).
- Community Memory. "Focus Group for Community Memory Forum Hosts." Community Memory records, Lot X3090.2005, Box 2, Folder 3, 102734456, Computer History Museum.
- Community Memory. "City of Berkeley Consent Calendar Information, June 21, 1989." Community Memory records, Lot X3090.2005, Box 1, Folder 3, 102734467, Computer History Museum.
- Community Memory. "City of Berkeley Consent Calendar Information, December 10, 1991." Community Memory records, Lot X3090.2005, Box 1, Folder 3, 102734467, Computer History Museum.
- Community Memory. "Community Memory News #2," 1984-85, Community Memory records, Lot X3090.2005, 102734457, Computer History Museum,  
[www.computerhistory.org/collections/catalog/102734421](http://www.computerhistory.org/collections/catalog/102734421).

Computer History Museum. "Timesharing as a Business - CHM Revolution." *Computer History Museum*, Accessed February 26, 2023.  
[www.computerhistory.org/revolution/mainframe-computers/7/181](http://www.computerhistory.org/revolution/mainframe-computers/7/181).

Douglas, Susan. "The Segmented Society: Can New Technologies Narrow the Gap?." Community Memory records, Lot X3090.2005, Box 19, Folder 15, 102734480, Computer History Museum.

Emerson, Sandy. "Editorial: Networking," *Journal of Community Communications* 3, no. 3, 1979. Community Memory records, Lot X3090.2005, Box 12, Folder 26, 102734478, Computer History Museum.

Felsenstein, Lee. "Community Memory: The First Public-Access Social Media System." in *Social Media Archeology and Poetics*, edited by Judy Malloy, 89-101. Cambridge: MIT Press, 2016.

Felsenstein, Lee. "Hardware Imperialism," *Journal of Community Communications* 3, no. 3, 1979. Community Memory records, Lot X3090.2005, Box 12, Folder 26, 102734478, Computer History Museum.

Felsenstein, Lee. "ABOUT: CM MYTH, CLASS ANALYSIS," May 8, 1984. Community Memory records, Lot X3090.2005, Box 3, Folder 6, 102734457, Computer History Museum.

Felsenstein, Lee. "'Community Memory' Now Wires Us Up Together." *Berkeley Barb*, August 17-23, 1973. Independent Voices.

Halvorson, Michael. "Judith Milhon: Hacking on the edges of polite computing society." *Medium*, March 27, 2021.  
[halvormj.medium.com/judith-milhon-hacking-on-the-edges-of-polite-computing-society-5128e03ee141](https://halvormj.medium.com/judith-milhon-hacking-on-the-edges-of-polite-computing-society-5128e03ee141).

Hubner, John. "Computer Power to the People!," *San Jose Mercury News* August 7, 1983." Community Memory records, Lot X3090.2005, Box 12, Folder 25, 102734419, Computer History Museum.

Lampen, Claire. "Yes, LinkNYC Kiosks Are Giant Data-Harvesting Surveillance Cameras, Obviously." *Gothamist*, April 25, 2019.  
[gothamist.com/news/yes-linknyc-kiosks-are-giant-data-harvesting-surveillance-cameras-obviously](http://gothamist.com/news/yes-linknyc-kiosks-are-giant-data-harvesting-surveillance-cameras-obviously).

Levine, Yasha. *Surveillance Valley: The Secret Military History of the Internet*. New York: PublicAffairs, 2018.

- Markoff, John. "White Rabbit: Interview with Lee Felsenstein," Computer History Museum. Recorded October 15, 1999. YouTube video, 59:28. [youtu.be/ey6PPunF\\_rk](https://youtu.be/ey6PPunF_rk).
- Noble, David. "Present Tense Technology." *democracy* 3, no. 1 (February 1983): 8-24.
- Noble, David. "Present Tense Technology: Part Two." *democracy* 3, no. 2 (May 1983): 70-82.
- Noble, David. "Present Tense Technology: Part Three." *democracy* 3, no. 3 (August 1983): 71-93.
- Optic Nerve, dir. *Project One*. 1972. Berkeley, CA: [archive.org/details/cbpf\\_000052](https://archive.org/details/cbpf_000052).
- Potter, Claire. *Political Junkies: From Talk Radio to Twitter, How Alternative Media Hooked Us on Politics and Broke Our Democracy*. New York: Basic Books, 2020.
- Resource One. Newsletter Number 2 April 1974. Community Memory records, Lot X3090.2005, 102734457, Computer History Museum, [www.computerhistory.org/collections/catalog/102734421](https://www.computerhistory.org/collections/catalog/102734421).
- Savage, J.A. "Nonprofit firm seeks to create low-cost network." *Computer World* October 8, 1990. Community Memory records, Lot X3090.2005, Box 12, Folder 25, 102734419, Computer History Museum.
- Schwulst, Laurel. "My website is a shifting house next to a river of knowledge. What could yours be?." *The Creative Independent*, May 21, 2018. [thecreativeindependent.com/essays/laurel-schwulst-my-website-is-a-shifting-house-next-to-a-river-of-knowledge-what-could-yours-be/](https://thecreativeindependent.com/essays/laurel-schwulst-my-website-is-a-shifting-house-next-to-a-river-of-knowledge-what-could-yours-be/).
- Schwulst, Laurel and Elliot Cost. "Exploring the independent web with Elliot Cost and Laurel Schwulst." *Volvox Observer*, May 22, 2021. [volvox.observer/archive/ElliottLaurel](https://volvox.observer/archive/ElliottLaurel).
- Schwulst, Laurel. "Philip Guo 'under construction'." *HTML Energy*. Podcast audio. June 25, 2020. [html.energy/philip.html](https://html.energy/philip.html).
- Scott, James C. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press, 1998.
- Swaine, Michael and Paul Freiberger. "Lee Felsenstein: Populist Engineer." *InfoWorld* 5, no. 45, November 7, 1983.
- Turner, Fred. *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism*. Chicago: The University of Chicago Press, 2006.
- Tusman, Lee. "Community Memory and the Computing Counterculture." *Artists and Hackers*, March 18, 2021. [www.artistsandhackers.org/Community-Memory](https://www.artistsandhackers.org/Community-Memory).

Williamson, G.S. “Ambivalent Memories of Virtual Community.” *Processed World* 26/27 (Summer 1991): 26-31. [archive.org/details/processedworld2627proc](https://archive.org/details/processedworld2627proc).

Zuegel, Devon. “Pamela Hardt-English on Enabling Computer Access in the 1970s.” *Notion*, February 25, 2021. [www.notion.so/fr-fr/blog/pamela-hardt-english](https://www.notion.so/fr-fr/blog/pamela-hardt-english).