At the Border of the Digital Divide

San José Unified School District and Evangelina Vigil-Piñon's *The Computer is Down*

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Abstract

This article clarifies the political stakes of digital humanistic scholarship through an analysis of the "digital divide," a term that emerged in the 1990s to characterize the widening gap between the United States's information "haves" and information "have-nots." The first half of the article addresses the shortcomings of the digital divide concept, employing a case study of San José Unified School District—the largest school district in Silicon Valley—to show how this concept disregarded the very same Latino students it was intended to help. The second half of the article proposes a counter-lexical concept derived from Chicana poet Evangelina Vigil-Piñon's collection *The Computer Is Down* (1987), which, unlike the digital divide, can address digital culture in its historical, racial, and economic complexity. By theorizing the digital divide from below, I show how the ostensibly "non-digital" fields of critical race and multiethnic American studies can challenge the digital divisions—the perceived gap between information "haves" and information "have-nots"—that currently structure humanistic inquiry.

In 1987 Evangelina Vigil-Piñon published two books with the esteemed Arte Público Press. One was the work for which she is best known: her now-standard English translation of Tomás Rivera's archetypal Chicano novel, *…y no se lo tragó la tierra*. The other, which is far less well known—yet which is far more relevant to the present discussion—was her third volume of poetry, *The Computer is Down*. I will return to this poetry collection in more detail later in this essay, but, for now, suffice it to say that *The Computer is Down* is a thematic anomaly. Cherríe Moraga, Angela de Hoyos, Alma Villanueva, and the other Chicana poets who came of age amid the Chicano Renaissance of the 1960s and 1970s each traversed a broad spectrum of

topics. They wrote about nature, labor, and sexuality. They wrote about language, imperialism, and cultural fragmentation. They wrote about mundane scenes from their lives and passionate events from history. But they did not, as a general rule, write about computers. Nothing in their poetry suggested an antagonism toward computing: no hatred or fear or political objections. Computers were merely absent, no more and no less.

Today we have a term we can apply whenever we encounter an absence of computing. This term was forged in the 1990s by a network of educators, policymakers, and corporate executives who warned that a widespread lack of computing was becoming a major civil rights issue. In the pages of the *New York Times* and in the publications of the National Telecommunications and Information Administration (NTIA), readers learned that the United States was rapidly becoming polarized between information "haves" and information "have-nots," a partition signified in the suddenly ubiquitous watchword: the digital divide. This new and uncertain rift spurred a range of high-profile actors into motion. Before the end of the decade Microsoft, Intel, AT&T, AOL, and other corporate giants joined to form the Digital Divide Network, a philanthropic clearinghouse aimed at spreading access to information technology. Reverend Jesse Jackson traveled to Silicon Valley to discuss race with tech leaders, and Bill Gates traveled to Harlem to discuss MS-DOS with sixth-graders.[1] In his fifth State of the Union Address, President Bill Clinton announced a "national crusade" against the digital divide, petitioning Congress for $2.3 billion to bring computers into low-income neighborhoods.[2] From CEOs to civil rights leaders to the President of the United States, a consensus had emerged: the entire nation must become digital. No amount of money or labor was too much to digitize the non-digital side of the digital divide.

It is unclear whether Vigil-Piñon or any of her Chicana peers thought of themselves as outsiders to the so-called digital world. This essay will not attempt to answer for them. Instead, it will enlist *The Computer is Down* toward a critical genealogy of the digital divide concept. In what follows I draw on the work of Vigil-Piñon as well as early news media accounts of the digital divide in order to understand how and why we segregate non-technical phenomena into digital and non-digital spheres. Nobody could have been surprised, for instance, to discover that the digital divide corresponded to pre-existing patterns of inequity. The information "have-

[1] Katie Hafner, "A Credibility Gap in the Digital Divide," *New York Times*, March 5, 2000; Kenneth Li, "Bill Gets Gate in Sixth Grade," *New York Daily News*, March 5, 1998.

[2] Marc Lacey, "Clinton Enlists Top-Grade Help for Plan to Increase Computer Use," *New York Times*, February 3, 2000.

nots" identified in the NTIA's influential "Falling Through the Net" reports were overwhelmingly low-income, people of color, and single women. But how did it change our understanding of social division to suggest that a nation already divided by race, class, gender, and culture was becoming a nation divided by technology? Why re-cast these political problems as a technological problem?

These questions have been asked before. Twenty years ago scholars such as Jennifer Light, Alondra Nelson, and David Gunkel had already outlined the fissures that I take as my starting-point for this essay.[3] Their critiques were conceptual; while they did not deny the manifest asymmetries circumscribing computer ownership and internet access, they questioned whether the "digital divide," as a concept, was a useful tool for addressing these asymmetries. They concluded that this concept was too normative, too simplistic, and too deterministic. It assembled a heterogeneous bouquet of practices and injustices and then boiled them down into a single, ill-defined binary: digital or non-digital. It ascribed undue agency to technology itself, downplaying the political and historical contexts that invest digital devices with power. Although the potent link between technology and inequity certainly posed—and still poses—urgent political questions, the digital divide provided an anti-political framework for answering them. It replaced controversial and potentially intractable issues of social and economic injustice with the innocuous and ostensibly soluble issue of access to technology, enabling critics to expose the dark side of techno-evangelism while nonetheless embracing its underlying premise: that computers set us free.

And yet, in the two decades since these critiques were first stacked and cemented, the general impulse behind the digital divide has not abated. If anything, it has intensified. Today's cultural critics are confronted not just with *the* digital divide, but with all manner of catachrestically digital phenomena: digital literacy, digital labor, digital culture. Even the humanities can now be "digital." At a moment when it is hard to imagine anything that could not someday, somehow become digital-ized, I return to an early and influential moment in the history of digital dichotimization, when a medley of social schisms—indeed, when society itself—became re-articulated in explicitly digital terms. Through a case study of the digital divide, I intend to illuminate some of the risks we incur whenever we isolate and set apart "the digital."

[3] See Alondra Nelson, "Braving the New World: Race and Technology," in *Race and Public Policy*, ed. Makani N. Themba, (Oakland: Applied Research Center, 2000), 37-40; David Gunkel, "Second Thoughts: Toward a Critique of the Digital Divide," *New Media & Society* 5.4 (2003): 499-522; Jennifer Light, "Rethinking the Digital Divide," *Harvard Educational Review* 71.4 (2001): 709-774; Mark Warschauer, "Reconceptualizing the Digital Divide," *First Monday* 7.1 (2002).

This essay proceeds in two stages. First, I trace the beginnings of the digital divide discourse through the lens of San José Unified School District (SJUSD), the largest school district in Silicon Valley. In the 1980s SJUSD initiated two protracted processes of integration: the integration of technology into classrooms, and the integration of white and Latino students. I show how the "digital divide" flattened these complex political processes into a simple technological process, disregarding and ultimately punishing the very same Latino students these measures were designed to help. In the second section I seek a counter-lexical concept derived from the Chicana poetry movement and its dynamic theorization of the borderland. Located at the border between the digital and the non-digital, Vigil-Piñon's The Computer is Down contains an ambivalent conception of digitality that, unlike the digital divide, can address digital diffusion in its historical complexity.

Lisa Nakamura writes that looking inside digital culture requires us to question what "the digital" ought to entail. It involves seeking out people and places we do not typically associate with digital technology in order to uncover the hidden and often unjust circuits of digital belonging.[4] By writing a history of the digital divide from its allegedly non-digital side, I shed light on one way that digital culture includes what it excludes, maintaining digital divisions as part of its functional logic.[5] Through a combined historical and literary analysis of this logic, I hope to provide both a warning and a model for other humanists as they try to determine which practices and objects in their own fields count as digital, and which will be exiled to the other side of the digital divide.

The Digital Divide

On September 30, 1985, SJUSD filed a formal proposal to close San José High, the second oldest public high school in the state of California. The decision was not easy, but SJUSD trustees insisted they had "no choice." Located among the predominantly Latino neighborhoods of downtown San José, the 122-year-old school happened to

[4]Lisa Nakamura, "Indigenous Circuits: Navajo Women and the Racialization of Early Electronic Manufacture," *American Quarterly* 66.4 (2014): 937-938.

[5]For related attempts to re-think the relationship between Latinx cultural production and technology, see Curtis Marez, *Farm Worker Futurism: Speculative Technologies of Resistance* (Minneapolis: University of Minnesota Press, 2016); Catherine S. Ramírez, "Afrofuturism/Chicanafuturism: Fictive Kin," *Aztlán* 33.1 (2008): 185-194; Thea Pitman, "*Mestizaje* and Cyborgism on Either Side of the Line," in *The Cambridge Companion to Latino/a American Literature*, ed. John González (New York: Cambridge University Press, 2016), 213-230.

enroll the highest concentration of Latino students in a district that had long been segregated between Latinos and whites. By eliminating San José High and re-directing its students into the suburbs south of downtown, SJUSD could desegregate all of its remaining high schools in one fell swoop. The trustees knew that the closure would not prove popular, and they had tried to avoid it. They had considered a number of softer, voluntary desegregation proposals, but they found that these proposals failed to address the crucial problem. "There's such profound racial segregation in the city," observed one trustee, "that there had to be some sort of program that caused people to move." The greater good of the district demanded that they "sacrifice" an otherwise cherished school.[6]

Public pushback was immediate and emphatic. One day after newspapers first reported the district's plan, seven hundred students at San José High marched out of their classes in protest.[7] Alumni, parents, and nearby residents formed "Community for a Fair Desegregation Plan," a coalition dedicated to saving the beloved neighborhood institution.[8] A column in the *San José Mercury* called the proposal "unfair and racist," and by late October San José's mayor had joined the critics, declaring that the closure would "tear the heart out of a reviving area."[9] Community members posed direct questions to the media: why not close a white school instead? Why shunt the burden of desegregation onto Latinos? At a rally outside of San José High, the noted Chicana activist Sofia Mendoza posited an answer: "I think they are discriminating against us because we have dark hair and dark skin. We have a right to educational facilities in our community."[10]

As opposition mounted, SJUSD trustees began to reconsider their options. In December the *Mercury* reported that a new desegregation plan was in the works, and by January it was official: San José High would no longer be shut down.[11] Instead, it would be transformed into a high-tech magnet school. With grants from Apple, Hewlett-Packard, Corvus, as well as state and federal desegregation aid, San José High would be outfitted with state-of-the-art equipment. A feature story in the journal

[6]Aleta Watson, "Why Board Decided It Had To Close S.J. High," *San José Mercury*, October 13, 1985.

[7]Jay Goldman and Joanne Grant, "700 Leave School Classes to Protest," *San José Mercury*, October 2, 1985.

[8]Joanne Grant, "Coalition Promises Fight to Save San José High," *San José Mercury*, October 2, 1985.

[9]Ed White, "Shutting Down San José High is Unfair and Racist," *San José Mercury*, October 6, 1985.

[10]Goldman and Grant, "700 Leave School Classes to Protest."

[11]Aleta Watson, "It's 'Magnets' for Desegregation," *San José Mercury*, January 1, 1986.

Electronic Learning listed the investments: 300 computers, seven computer networks, twenty networked classrooms; software-guided instruction in keyboarding, database management, and accounting; in-classroom access to *Grolier's Encyclopedia* and an online database of bibliographic research; and a series of high-tech labs, including a music lab, library lab, intensive skills lab, business lab, and writing lab.[12] In 1985 commercial microcomputers were still less than one decade old, and the average American high school owned only thirty-four of them.[13] At almost ten times the national average, San José High immediately became one of the best-equipped schools in the country. And with this coveted distinction, SJUSD trustees hoped to draw white students from the suburbs and resolve their ethnic imbalance, establishing in the process "a model for desegregation practices nationwide."[14]

San José High's rapid technological overhaul might have struck some observers as shocking. In the span of a few months the school had gone from the edge of extinction to the cutting-edge of computing. Yet *Electronic Learning* suggested that this turnaround was not surprising at all. SJUSD happened to be the largest school district in Silicon Valley, a region that, as *Electronic Learning* explained, "has the latest hardware, most advanced software, and the fastest chips and gigabytes of memory."[15] By the mid-1980s a number of trade journals and popular publications had distilled the dizzying successes of Fairchild Semiconductor, Hewlett-Packard, Intel, Apple, and other Bay Area corporations into a generalized Silicon Valley culture: a culture marked by risk-taking, problem-solving, venture capital, and aggressive growth, all compressed into world-historical advances in digital electronics. "If it's on the cutting edge of technology," *Electronic Learning* reported, "it's in Silicon Valley." And since San José High was the oldest public high school in the largest school district in the largest city in Silicon Valley, it seemed only natural that SJUSD trustees would save the school and resolve their segregation crisis through a technological fix.

But as we will see, this technological fix was hardly a natural outcome. In fact, the district had been trying and failing for years to implement similar measures before resolving to close San José High and then, at the last minute, finally pushing through its dramatic technological revitalization. Publications such as *Electronic Learning* presented segregation as a straightforward problem with a straightforward solution, fueling a narrative that would become central to discussions of the digital

[12] Gwen Solomon, "Computers, Desegregation, and Networks at San José High Academy," *Electronic Learning* 7.3 (1987): 14-18.

[13] Joseph Becker, "Computers Proliferating in Classroom," *New York Times*, August 9, 1989.

[14] Solomon, "Computers," 18.

[15] Ibid., 14

divide over the following decade: San José High had resolved its longstanding ethnic divisions merely by installing new hardware, new software, and a handful of computer networks. But what *Electronic Learning* attributed to Silicon Valley's inherent will-to-compute stemmed in fact from a far more complicated process at the intersection of race, Reaganism, and technology, stretching backward fifteen years through a long and controversial desegregation battle.

This battle officially began in 1971 with *Diaz v. San José Unified School District*. In the same year that Intel released the world's first commercial microprocessor and Don Hofler popularized the name "Silicon Valley," SJUSD parent Arnulfo Diaz filed a class-action lawsuit on behalf of all Spanish-surnamed students enrolled in the district, charging SJUSD with operating a segregated public school system. Five years later a federal district court ruled against Diaz and his fellow plaintiffs. While the court acknowledged that SJUSD was heavily segregated, it attributed this situation to residential patterns, not to any "segregative intent" on the part of SJUSD itself. In 1979 SJUSD unveiled a plan to assuage these residential patterns through magnet programs. District officials aimed to attract white students out of the suburbs and across ethnic lines with specialized curricula in technology and the arts, setting themselves the ambitious goal of comprehensive and fully voluntary desegregation by 1985.

But this plan quickly encountered unprecedented financial difficulties. In 1978, the year before SJUSD began implementing its magnet programs, Californians voted to approve Proposition 13, a state-level constitutional amendment that drastically slashed property taxes and, by some accounts, initiated the nationwide tax revolt that propelled Ronald Reagan into the White House.[16] Proposition 13 severely curbed the district's ability to raise tax revenue, and it plunged public schools across California into fiscal austerity. Between 1979 and 1984 SJUSD managed to invest $5.4 million into its desegregation initiatives; during this same period, however, the district cut its overall budget by $13 million, closed fifteen schools, compressed school days to the shortest length in the state of California, laid off 25 percent of its teachers, 50 percent of its librarians, and all junior and senior high school guidance counselors, until finally, in 1984, SJUSD became the first U.S. school district since World War II to file for bankruptcy. In one of the wealthiest and fastest-growing cities in the country, at the center of one of the most lucrative and fastest-growing industries in

[16] See Jack Citrin and Isaac Martin, ed., *After the Tax Revolt: California's Proposition 13 Turns 30* (Berkeley: Berkeley Public Policy Press, 2009).

the world, the schools had run out of money.[17] Magnet budgets dissolved, science labs were turned into storage rooms, and desegregation efforts fell by the wayside.[18]

And then, on top of all these unfortunate developments, the initial ruling in *Diaz v. SJUSD* was unexpectedly overturned. In 1984 the Ninth U.S. Circuit Court of Appeals reversed two of its prior decisions and concluded that SJUSD had in fact intentionally maintained segregated schools during the previous two decades. With the court's surprise ruling, SJUSD officials could no longer rely on time and good faith to resolve the district's ethnic imbalance. Regardless of its financial standing, SJUSD would now be required to achieve total desegregation, immediately.

This desegregation mandate might have seemed like a fatal blow to an already withered institution, but it soon proved to be a blessing in disguise. The official federal consent decree in 1985 rendered SJUSD eligible for numerous state and federal desegregation grants, which, according to the *Mercury*, was "like winning the lottery."[19] After a half-decade of precipitous fiscal collapse, SJUSD could suddenly acquire tens of millions of dollars in aid revenue for its cash-starved magnet programs. Three schools in downtown San José that had previously been slated for closure were instead transformed into high-tech "academies." At Peter Burnett Academy, teachers re-vamped their math and science curricula and placed a computer in every classroom. At Gardner Academy, more than 400 participants in "Project Mindstorm" used the Logo programming language to control robotic toys and generate computer animations. And at San José Academy—formerly San José High—students learned to program MIDI synthesizers in the school's electronic music lab.[20] Each academy enjoyed longer school days, smaller class sizes, newer equipment, and other luxuries unaffordable in "non-deseg" districts. In 1993 the director of SJUSD's magnet programs asserted that, with $27 million in state and federal aid pouring into the district that year alone, "desegregation has been our savior."[21]

By 1994 the *New York Times* could report that SJUSD's "integrated programs are unparalleled nationwide"—though not in the sense intended by Diaz and his fellow plaintiffs. In a story titled "Silicon Valley Schools Set Technical Standard," the Times

[17] For a detailed overview, see Elizabeth Useem, *Low Tech Education in a High Tech World* (New York: Free Press, 1986): 36-62.

[18] See Haynes Johnson et al., "San José's Choice," *Washington Post*, September 18, 1983; Aleta Watson, "5 Years, $5 Million Fail To Integrate S.J. Schools," *San José Mercury*, June 17, 1985.

[19] Joanne Jacobs, "Losing a Lawsuit Was a Financial Victory," *San José Mercury*, November 22, 1993.

[20] See Aleta Watson, " 'Magnetic' Force," *San José Mercury*, September 19, 1988; and Carlos Greth, "Where Even the Legos are Computerized," *San Francisco Chronicle*, June 6, 1988.

[21] Jacobs, "Losing a Lawsuit Was a Financial Victory."

touted SJUSD's successful integration not of whites and Latinos, but of technology and education.[22] Readers learned of a San José biology classroom where camera-mounted microscopes projected real-time images of microorganisms onto a wall. They learned of a high school ESL program where recent Mexican immigrants used computers to practice English. They learned that SJUSD had retrained nearly all of its 1,470 teachers and established an independent computing center to train parents and family members throughout the city. At a moment when even the best-equipped U.S. schools still equated computer instruction with mere "word processing and language games," SJUSD had woven computing into the very fabric of its culture. As early as prekindergarten students were becoming "computer literate," working with "computers that encouraged them to prattle on the machine, in effect, learning a new language."

Yet while SJUSD's integrated tech programs were garnering national acclaim, the federal consent decree that helped fund these programs had accomplished little in terms of meaningful ethnic integration.[23] When the desegregation order first took effect in the fall of 1986, Latino families quickly discovered what one SJUSD official called the "dilemma of desegregation":[24] that the educational improvements *in* Latino neighborhoods were not necessarily *for* Latino neighborhoods. The three high-tech academies in downtown San José, for instance, were not necessarily intended to support nearby families. They were established to lure white students out of the suburbs. The same legal victory that delivered these state-of-the-art academies into Latino neighborhoods also established ethnic enrollment quotas, which barred many Latino students from actually attending the revitalized schools near their homes. Instead, these students were bused into central and southern San José, where schools often failed to meet the particular needs of the city's northern residents.

One prominent need among these students was linguistic. Prior to desegregation, SJUSD had enjoyed a reputation for "top-quality" bilingual education. A study conducted by the California Association for Bilingual Education had found that English language learners (ELLs) in SJUSD's bilingual programs "exceed both national and district norms" in reading, math, and language.[25] But when the district began bus-

[22]William Celis III, "Silicon Valley Schools Set Technical Standard," *New York Times*, March 16, 1994.

[23]See Beatriz Arias, "The Impact of *Brown* on Latinos: A Study of Transformation of Policy Intentions," *Teachers College Record* 107.9 (2005): 1975-1998.

[24]Michelle Guido, "Hard Lessons in Language," *San José Mercury*, March 8, 1992.

[25]Stephen Krashen and Douglas Biber, *On Course: Bilingual Education's Success in California* (Sacramento: California Association for Bilingual Education, 1988), 42.

ing ELLs southward, these vaunted bilingual resources became stretched too thin. Several months after desegregation measures took effect the *Mercury* began to report complaints. The San José Teacher's Association "griped" that they did not have enough bilingual textbooks or aides. District officials struggled against a statewide shortage of bilingual instructors. Rumors spread of young Spanish-speakers who spent entire days coloring in the back of the classroom, with no faculty members who could teach or even speak to them.[26]

Meanwhile, the district's ELL population surged. In the one-year gap between 1987 and 1988, ELL enrollments climbed from four to seven thousand. In 1991 ELLs accounted for 21 percent of the district's total enrollment, the largest figure in Santa Clara County.[27] By this time SJUSD had fulfilled all of its ethnic integration quotas, but Latino educational outcomes had not improved. Latino students continued to score two grade levels below their white peers, and they continued to drop out out at twice the rate. The only difference was that, now, many Latino students faced the added burden of long bus rides to and from school. This was yet another burden they shared disproportionately with their white peers, as nearly four of every five bus-bound students were Latino. After five years and $110 million dedicated to desegregation, the bilingual caucus of the San José Teachers Association concluded that SJUSD's Latino students were now worse off than before they had won their lawsuit.[28]

In 1996 the *New York Times* revisited the high-tech schools of San José.[29] Like the original feature published two year prior, the *Times* relayed dazzling scenes from local classrooms. But now the *Times* incorporated some decidedly un-dazzling scenes, too. Readers learned of San José sixth graders who surfed the web and taught themselves programming languages, but they also learned of San José classrooms where "the old PCs are generally outfitted with software that emphasizes repetitive drills," and "where teachers often are simply trying to communicate with children who may speak any of 19 languages at home." The *Times* referred to this contrast as the "digital divide." As far as I have been able to determine, it was the first recorded instance of

[26] See Aleta Watson, "Teachers Air Gripes over Desegregation," *San José Mercury*, November 26, 1986, and "S.J. Students Face Lack of Bilingual Help," *San José Mercury*, December 14, 1986.

[27] Guido, "Hard Lessons in Language."

[28] Aleta Watson, "Hispanic Kids Benefit Little from S.J. Unified Integration," *San José Mercury*, May 30, 1991.

[29] Gary Poole, "A New Gulf in American Education, the Digital Divide," *New York Times*, January 29, 1996.

this term in a national news publication.[30]

AAccording to the *Times*, the digital divide was splitting the nation down the middle. On one side of the divide were "the children of the affluent," whose computer-intensive educations had "prepared [them] for lives and careers in the information age." On the other side were the children of immigrant and low-income families, who could only "hope, at best, for a basic traditional education." The city of San José served as a bellwether, signaling the scale of the crisis. It sent the chilling message that, even here, in the microcomputing capital of the world, students could not escape the nationwide partition between the digital and the non-digital. One side of San José was filled with digital natives, blossoming amid the Silicon Valley culture. The other side was filled with digital outsiders, severed from the high-tech lifeline of their Silicon Valley home.

But the *Times* was wrong. In the two-year gap since printing a rather clichéd piece of boosterism about Silicon Valley's schools, the *Times* had made an admirable adjustment in its coverage of educational technology. It had switched from advertising to scrutinizing the plume of wealth and hype settling down over San José. But even amid this critical turn, the Times continued to peddle the myth—a myth that persists in ed-tech coverage to this day—that there is a digital world. Whatever differences separated its initial report on digital glitz from its subsequent report on digital inequity, both Times reports presented the tech-rich schools of San José as unmediated expressions of Silicon Valley culture. They portrayed the parents of San José's schoolchildren as leaders in the information industry, and San José's local businesses as global tech giants. Computing, it seemed, was indigenous to San José, and it was only natural that it should trickle down into computer-aided ESL programs, camera-mounted microscopes, and prekindergarten computer literacy training. Amid this wave of digitalization, any suggestion of a "digital divide" amounted to a ginger assertion that, despite all its headway, this wave had not yet trickled down far enough. Some residents of San José remained outsiders, temporarily divided from their neighbors who had joined the digital world.

But as we have seen, the Latino students of SJUSD were not "divided" from this process. They were integral. They were the ones, in a sense, who had paid for it. It

[30]For a rough etymology, see Gunkel, "Second Thoughts." Gunkel notes that the precise meaning of "digital divide" has varied among different users at different times. The standard sense of a schism between "haves" and "have-nots" dates back to at least November 1994, when AOL chairman Steve Case was quoted using the term in a U.S. Newswire press release, though the term does not appear to have been picked up by any major news outlets until 1996.

was their desegregation lawsuit, not the local tech industry, that first spurred SJUSD's high-tech magnets into existence. This lawsuit provided an unexpected windfall just one year after the district had declared insolvency, and it continued to garner the district tens of millions of dollars annually well into the next decade. While these students may have insufficiently benefited from the technological advances in their school district, they were directly involved with these advances from the outset.

In its story on the digital divide, the *Times* had defined the crisis as "a widening gap—between children who are being prepared for lives and careers in the information age, and those who may find themselves held back." But in the particular case of San José—the city the Times used to illustrate this gap—this dichotomy was false. The Latino students of SJUSD were becoming fully prepared for "lives and careers in the information age," just not the lives and careers of their white peers. The racial and ethnic divisions underlying Silicon Valley's information economy have been well-documented.[31] With the termination of the Bracero Program in 1964, and with the steep decline of the region's once-dominant agriculture industry, tens of thousands of immigrant and U.S.-born Latinos moved to San José, where they found jobs in a rapidly expanding electronics sector. Very few of these jobs were professional or managerial. While Silicon Valley furiously pumped out careers in engineering and software development, Latinos generally took unskilled positions as janitors, landscapers, service workers, and—especially in the case of women—as operatives in the demanding, low-paid, and notoriously toxic field of electronics assembly. In these roles they helped form the cheap and non-unionized labor pool behind the microelectronics revolution. SJUSD's desegregation measures could therefore be described as a form of vocational training. Latino students were spending countless hours on tedious bus rides to and from school so that someone else could enjoy the high-tech academies in their neighborhoods. Later, many of these students would spend countless hours working tedious, undervalued jobs so that someone else could enjoy the high-tech fruits of their labor.

The *Times* story about San José was the first in what would quickly become a flood of national media coverage of the digital divide. Within a year, organizations such as the U.S. Department of Commerce and the World Economic Forum were sponsoring conferences to discuss teacher re-training, universal internet access, and other

[31] See David Pellow and Lisa Park, *The Silicon Valley of Dreams: Environmental Injustice, Immigrant Workers, and the High-Tech Global Economy* (New York: NYU Press, 2002); Stephen Pitti, *The Devil in Silicon Valley: Northern California, Race, and Mexican Americans* (Princeton: Princeton University Press, 2003); Christian Zlolniski, *Janitors, Street Vendors, and Activists: The Lives of Mexican Immigrants in Silicon Valley* (Berkeley: University of California Press, 2006).

potential solutions. Entrepreneurs developed websites to lure Black and Latino users online, such as *QuePasa.com, NetNoir.com,* and even a proposed "African American version" of eBay.[32] In 2005 Nicholas Negroponte launched his ill-fated One Laptop Per Child initiative to bring computers to the entire developing world. All of these palliatives entrenched what Daniel Greene has called "the access doctrine": the enduring notion that longstanding inequities can be solved merely through access to new technologies.[33] Together these palliatives suggested that owning a computer, operating a computer, and logging onto the World Wide Web were the principal gateways to success in a digital world. It is unclear, however, how these gateways applied to the Latino students of SJUSD. Too many of these students were both embedded and detached from Silicon Valley's robust digital culture. The theory of a digital *divide* simply could not capture their ambivalent role within the digital order of things.

In the next section of the essay I take up a theory that can. I turn from the two poles of the digital divide toward the border between them, where the "digital" and the "non-digital" are not always self-consistent. Although the subject of my analysis will shift from school desegregation to poetry, and the locale will shift from California to Texas, the era and the political stakes will remain unchanged. I will continue to ask what it means to belong to the digital world, but this time from the border of that world, where one is neither inside nor outside.

The Digital Borderland

In 1987 Evangelina Vigil-Piñon published *The Computer is Down*, the culmination of more than a decade at the vanguard of what Tey Diana Rebolledo has called the "quiet revolution" of Chicana poetry. She had spent her formative years waging this "quiet revolution" alongside Carmen Tafolla, Angela de Hoyos, and the other San Antonianas associated with the local "revista de la Raza," *Caracol*. In her 1978 chapbook *nade y nade* and her 1982 collection *Thirty an' Seen a Lot* she exhibited an uncanny ear for the language of the barrio. "At her best," wrote Sandra Cisneros, "she captures with a sociolinguist's accuracy the Tex-Mex speech patterns of her San Antonio home."[34] Her great skill, according to Ramón Saldívar, was to take these plain,

[32]Shannon Henry, "BET Plans Site for African Americans," *Washington Post*, August 12, 1999.

[33]Daniel Greene, *The Promise of Access: Technology, Inequality, and the Political Economy of Hope* (Cambridge: MIT Press, 2021).

[34]Sandra Cisneros, "Cactus Flowers: In Search of Tejana Feminist Poetry," *Third Woman* 3.1-2 (1986): 76.

undignified speech patterns and tease forth their internal poetic luster.[35] In 1982 she brought her skills to the University of Houston where she worked as both a lecturer for the Department of English and an assistant editor for the groundbreaking *Revista Chicano-Riqueña*. The following year she edited a special edition of the revista titled *Woman of Her Word*, one of the earliest published anthologies of U.S. Latina writers. In 1987 she translated Tomás Rivera's *…y no se lo tragó la tierra* into English for an updated bilingual edition in the wake of Rivera's untimely death, and her stripped-down prose immediately garnered praise as an improvement over the initial and somewhat stilted translation from 1971.[36] By the time she published *The Computer is Down* that same year she had established herself as a trusted steward over the language of Chicana literature.

But *The Computer is Down* fell short of this reputation. Contemporary reviews balked, ranging from lukewarm summaries to outright assaults on Vigil-Piñon's "unoriginal" and "unmusical" verse. "One is sadly disappointed by these poems," wrote one reviewer.[37] The writing does "not always hit the mark as poetry," wrote another.[38] The images and descriptions "fail to generate interest," wrote a third.[39] Critics harped on the book's "inattentive" diction and its overall "obliviousness to the possibilities of language"—remarkable accusations against a poet who, that very same year, had earned so much acclaim for her sensitive translation of Rivera. If this cold reception was not an outright catastrophe then it was, at the very least, a disappointing note to end on. To this day, *The Computer is Down* remains Vigil-Piñon's final published volume of poetry.

I have chosen to revisit this obscure and, frankly, failed work of literature not despite but precisely because it proved so unsuccessful. I have chosen it, moreover, for the specific cause typically attributed to its failure. In his critical survey of *Tejana* writers, Bryce Milligan made explicit what other critics had already implied: the problem was Vigil-Piñon's chosen subject matter.[40] Her first published collection since moving to Houston five years earlier, *The Computer is Down* was, in Milligan's

[35]Ramón Saldivar, "Where the Sun Cuts a Thinner Shadow: The Fate of Chicano Poetry," *Pawn Review* 7.3 (1983): 5-6.

[36]See Carlos Alcala, "Those Who Reap the Harvest," *San Francisco Examiner*, December 27, 1987, and Carl R. Shirley, Review of *The Computer is Down*, *Western American Literature* 23.4 (1989), 389.

[37]Wendy Barker, "Hispanic Poets Draw Mixed Responses" *Texas Books in Review* 8.2 (1988): 8.

[38]Frank Parman, "Some Texas Poetry," *Contact II* 10.62/63/64 (1991/1992), 97.

[39]Gwynn, R.S. "Poetry," *Review of Texas Books* 2.2 (1987): 7.

[40]Bryce Milligan, "Ever Radical: A Survey of Tejana Writers," in *Texas Women Writers: A Tradition of Their Own* (College Station: Texas A&M University Press, 1997), 231-233.

words, "pure Houstonian." The venerable barrio of her previous poetry was gone, replaced by a "rootless" American metropolis full of muzak, spaceships, and computer terminals. This was a "harsh reality" that, according to Milligan, "affects Vigil-Piñon's ear, formerly so attuned to the music of language." A poetic sensibility honed on *corridos* and South Texas Spanish was perfectly suited to express a world of cantinas, *cocinas*, and barrio streets. But something about this sensibility seemed incompatible with a world of computers and other postindustrial contrivances. "Vigil-Piñon's book is an experiment," wrote Milligan. "Unfortunately, though, her experimentation with poetic verisimilitude to this particular reality did not produce great poetry."

The problem with *The Computer is Down*, in other words, had little to do with Vigil-Piñon's esteemed *Sprachgefühl*. The problem was that it violated an emerging—and, as I have already argued, an inadequate—set of ideas about the digital, the non-digital, and the rigid social distinctions they entail. Too high-tech for Chicana poetry, too Chicana for the digital world, *The Computer is Down* ended up somewhere in between: at the precarious border of Chicana culture and digital culture, where readers expecting *either* the barrio *or* cyberspace found it blown out into an incomprehensible, "Cassandra-like screech."[41]

Revisiting *The Computer is Down* would therefore help us do more than re-evaluate an understudied text by an understudied poet. It would help us re-evaluate the digital world itself. It would allow us to grasp this world from the incomprehensible perspective of what the digital divide excludes: not its digital side, not its non-digital side, but the border where these two sides collide. Following Gloria Anzaldúa's metaphor for the hard-won synthesis of cultural opposites, this digital border-*land* embraces the historical contradictions of digital diffusion in a way that, I argue, the digital divide cannot. If the digital divide pursues a one-way, computer-powered leap from disenfranchisement to liberation, then Vigil-Piñon depicts a far more ambivalent descent into a world of digital technologies. If the digital divide insists that computers and computational know-how constitute the primary equipment for living in a digital age, then Vigil-Piñon demonstrates that the lived experience of a Chicana writer can be a legitimate basis for knowledge about the digital world. Unlike the policymakers, corporate executives, and tech journalists who reduced the manifold uncertainties of the digital age down to a manageable binary schism, Vigil-Piñon runs with these uncertainties, pinning and mounting through poetry what was otherwise becoming illegible—what could only resemble "a Cassandra-like screech"—amid the expert-driven discourse of the digital divide.

[41] Ibid., 232.

We do not have to read deep into *The Computer is Down* to uncover Vigil-Piñon's concern with the social divisions that accompany new technologies. The very first lines of the very first poem, "space city," confront us with a technological hurdle: "it is imperative / that you own a spacecraft."[42] From the outset, then, we find ourselves thrown into a world pre-divided among technological "haves" and "have-nots." The remainder of the poem unfolds in a desultory romp down Interstate 45, flanked on either side by a crimson sunset and Houston's "dark monolithic structures / glittering in geometrics." As it races across the terrestrial highway the spacecraft becomes a metaphor for dis-contemporaneity, when each new moment feels like a prologue to a future that is perpetually one more moment away. Even in the final lines the poem is still just beginning:

> so, native
> traveler,
> extra-terrestrial!
> slip on your shades!
> fasten the seatbelt!
> adjust the space helmet!
> enjoy this one-way glide
> through time
> speeding to
> the future![43]

For some readers, this represented a clean break. By embracing the latest high-tech gadget and zooming toward the future, Vigil-Piñon appeared to be severing her Chicana roots and leaving her past behind. "Gone is the comforting philosophy of her grandmother," wrote one critic; "the speaker is functioning entirely in an Anglo realm, that of technology."[44]

But as we will see, Vigil-Piñon introduces this technological rupture between a Chicana past and an Anglo future not in order to cross it. She introduces this rupture in order to grab hold of it, explore it, and assimilate the undeniable fact of sociotechnical division to the shared spaces and systems in which these divisions inevitably circulate. *The Computer is Down* contains numerous variations on this same theme of division within and against unity. In a poem titled "the bridge people," for

[42]Evangelina Vigil-Piñon, *The Computer is Down* (Houston: Arte Público Press, 1987): 5

[43]Ibid., 6.

[44]Kimberly Kowalczyk, "Bisensibility in the Works of Evangelina Vigil-Piñon," in *Conflictos Culturales en la Literatura Contemporánea* (Mayagüez: University of Puerto Rico, 1993), 62-64.

instance, Vigil-Piñon directly revisits and revises the exhilarating skyline presented in "space city," drawing its underlying social tensions onto the surface:

> against the futuristic buildings
> and hustle and bustle of downtown
> the winos, the bums
> the downtrodden
> hold their ground[45]

Where we once saw only affluence we now see affluence and indigence "co-existing, side by side." Even when "the downtrodden" are pushed into the fringes, beneath bridges, and out of sight, their existence is fundamentally a co-existence with Houston's space-age industries. Vigil-Piñon punctuates this image in a final line, in its own stanza, which effectively encapsulates the entire collection: "precarious is the balance."

In a poem titled "telephone line," Vigil-Piñon keys into a specific moment within this precarious balance. The poem follows "a pair of Mexicanos" through the customer service offices of AT&T, where an employee asks them whether they would prefer a blue, red, green, yellow, white, or black telephone cord. Impatient customers pile up in line behind them as they struggle to weigh the relative merits of each color. In the apartment of undocumented workers where they live, a home telephone is not a mere decoration. Rather, it represents an escape from toil:

> no more waiting in line at the Stop-n-Go pay phones
> no more quarters lost
> no more standing for hours by the Seven-Eleven phone boothes
> waiting on that call
> from San Francisco del Rincón[46]

Between these two "telephone lines"—the line outside a convenience store payphone and the line of irritable customers waiting to pay "Ma Bell"—the Mexicanos span the uneven obstacles and incongruous cultural meanings that separate different users from one and the same telecommunications network.

The most sustained inquiry into technological borders emerges in a poem titled "the system." Like "space city," the poem opens with a disembodied commandment: "it is imperative that you verify the balance." What follows is an exercise in bureaucratic

[45] Vigil-Piñon, *The Computer is Down*, 40.
[46] Ibid., 22.

drudgery as we navigate several labyrinthine telephone calls to three large organizations: MBank, the IRS, and Southwest Airlines. The scripted politesse and redundant instructions make for deliberately mechanical verse:

> *You have reached MBank.*
> *All lines are busy.*
> *Your call has been automatically placed on hold.*
> *Please continue to hold,*
> *and the next available teller will assist you.*
> *Please do not hang up,*
> *as this may delay the servicing of your call.*
> *Thank you for calling MBank.*
> Click![47]

The poem continues through a gauntlet of on-hold music, automated messages, and dropped lines. Occasionally we "break through / that monstrous network / of private confidential information" and reach a human, who informs us that we cannot check our account balance, or that we cannot reserve a flight, because, invariably, "the computer is down." Once this phrase is uttered, all dialogue stops. The computer gets the last word, and "there is nothing so final."

As its title and central refrain, the phrase "the computer is down" bears special significance for Vigil-Piñon's collection. Today, this phrase is relatively unremarkable. But when Vigil-Piñon was writing in the 1980s it captured an acute excess that—to borrow an expression from Raymond Williams—was still "at the very edge of semantic availability."[48] Its roots stretch back to the 1940s, when the term "down time" began appearing in technical journals and trade newsletters to characterize those frequent intervals when a machine became inoperative. Downtime was wasteful time, in contrast to useful time, or "uptime." During the early decades of electronic digital computing downtime was an accepted fact of life. Iconic mainframes such as the ENIAC and the UNIVAC were regularly down more than a quarter of the day. Principal innovations in these years aimed to minimize downtime and optimize uptime until gradually, with advances in solid-state electronics and fault-tolerant systems design, downtime dwindled from an expectation to an exception.[49] By 1980 NASA was working toward a "no-downtime computer," which would fail at a rate

[47] Ibid., 12.

[48] Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1977): 134.

[49] See Algirdas Avizienis, "Approaches to Computer Reliability—Then and Now," *AFIPS National Conference Proceedings*, 45 (1976): 401-411.

of roughly once every million years.[50] Yet as downtime grew more sporadic, it also grew more menacing. In the "old days," as one IBM manager put it, downtime was an anticipated inconvenience among a small group of machine operators, but "when a modern 'real-time' system goes down, thousands of people are affected adversely…[A] production line stops, insurance policies can't be written, cars can't be rented, and remote bank terminals fail to operate."[51] Throughout the 1980s the distress signal of downtime—the utterance "the computer is down"—pushed its way into everyday discourse. Laypeople castigated it as "the most frustrating, hateful, and scorned expression of the decade."[52] Computing experts dismissed it as "the most tired of all computer-related clichés."[53] In 1983 the fault-tolerant minicomputer manufacturer Stratus Computer launched a series of advertisements around the phrase, featuring images of flustered customers beneath the headline: "Four Little Words that Strike Fear in the Heart in the 1980's."[54]

These "four little words" felt so pithy because they mobilized the contradictory cultural status of digital technology at the time. On the one hand, computers were firmly entrenched in American society. By 1980 software applications had already transformed multiple industries, including banking, finance, manufacturing, telecommunications, engineering, retail, and transportation.[55] On the other hand, as historian Paul Ceruzzi recalls, computers "had hardly entered the public's consciousness."[56] Devices of this era were expensive and scarce. They were primarily employed by large organizations, where they were maintained off-premises or in special rooms restricted to data-processing professionals. Any layperson who paid a utility bill or cashed a check had almost certainly interfaced with a computer, but only remotely, without knowing it, at the tail end of an obscure, multi-step process leading back to a cloistered computing unit. The computer only announced its presence if this process broke down, when a computational error grounded a flight, botched a reservation, delayed a tax return, inserted a typo, or, occasionally, induced a catastrophe, such as the stock market crash of October 1987, when "program trading" algorithms were

[50]Robert Bernhard, "The No-Downtime Computer," *IEEE Spectrum*, 17.9 (1980): 33-37.

[51]Arthur Strube, "The Challenge of Reliability," *IEEE Circuits and Devices Magazine* 1.3 (1985): 43.

[52]Mary Freedman and Larry Carlin, "The Computer as Scapegoat," *Library Journal* 110.12 (1985): 44.

[53]John Barry, "Computer Illiteracy," *Infoworld*, December 12, 1983.

[54]For an example, see *Computerworld*, Dec 10, 1984.

[55]For a comprehensive overview, see James W. Cortada, *The Digital Hand*, 3 vols. (New York: Oxford University Press, 2004-2007).

[56]Paul Ceruzzi, "A View From 20 Years as a Historian of Computing," *IEEE Annals of the History of Computing* 23.4 (2001): 52.

blamed for what was, at the time, the largest single-day drop in U.S. stock market history.[57]

The rise of commercial microcomputers after 1977 altered these circumstances, but not immediately. Throughout the 1980s computing devices migrated *en masse* into classrooms, living rooms, and cubicles, where anyone—not just trained researchers or technicians—might access them. Microprocessors became standard components in consumer products ranging from automobiles to microwaves to wristwatches, and point-of-sale systems became common fixtures in supermarkets and retail outlets. Yet by the end of the decade the vast majority of Americans still did not use a computer in their day-to-day lives.[58]

The title and central refrain of *The Computer is Down* crystalized this experience of a digital world before *the* digital world. Computers had already established their ubiquitous presence, but since relatively few people actually owned or knew how to operate one, this presence could not yet be restricted to plugging in, logging on, and crossing a so-called digital divide. It had to be interpreted, instead, from its imprints upon everyday life. It had to be diagnosed through its malfunctions and traced from its effects.

IIt is this interpretive process that Vigil-Piñon models in "the system," where computers feel most intimate precisely when they are down. The result is less a wholesale digital dystopia than a sober acknowledgment that "every technology," as Paul Virilio once put it, "carries its own negativity."[59] Computerized systems, for instance, promise us unprecedented speed. They allow MBank to wire money instantly, and they allow Southwest Airlines to coordinate non-stop flights to any point on the globe. Yet in the poem the dominant experience of these systems is one of deferral. We spend our time tethered to a telephone while we wait to speak to a human, only to end up waiting, once again, for a computer to come back online. In the lethargic queue from "telephone line," customers in the offices of AT&T could at least observe one another to gauge their gradual progress. But on a telephone call there is no way to predict when a voice will greet us from the other end of the line, "so you wait / and wait / no answer / and wait." We begin to confront waiting itself in the abstract as we continue to "wait / not fifteen / but thirty minutes / to make sure."

[57] For a list of examples, see Peter Neumann's ongoing series in *Software Engineering Notes*, which is compiled in Peter G. Neumann, *Computer-Related Risks* (New York: ACM Press, 1995).

[58] Robert Kominski, *Computer Use in the United States: 1989* (Washington, DC: Bureau of the Census, 1991).

[59] Paul Virilio, *Politics of the Very Worst* (New York: Semiotexte, 1999): 89.

For computer non-users, these moments of intensified tedium are not exceptions to the fast pace and excitement of the digital world. They *are* the digital world. They are one of the contradictory forms through which a digital world becomes tangible in the immediate absence of computers themselves. Rather than divide the speed of uptime from the slowness of downtime, Vigil-Piñon holds both dialectical phases of technological progress together in a single constellation.

More importantly, she goes on to test the scope of this dialectical constellation. After the muzak, the pre-recorded greetings, and the useless exchanges with customer service representatives, the poem suddenly shifts locale. We travel from the virtual space of the telephone to the corporeal space of San Francisco, where two visiting *Tejanos* have just finished a city stroll and now find themselves at a bar along the recently redeveloped tourist strip, Fisherman's Wharf. The *Tejanos* order "two cold Miller Lites" just as happy hour commences at four o'clock, but their request is denied:

> "I'm sorry, sirs,"
> the bartender politely responds
> "but I cannot serve you
> until the computer signs on."
> "What?"
> "¿Qué dice?"
> "What do you mean, bro'?
> The sign right there says
> 'happy hour four to seven.' "
> "Yes, sir, but it's not quite four.
> That clock is ahead."
> and the two thirsty tourists
> look at each other
> in disbelief
> it simply does not compute.[60]

Downtime is something we might expect—and even come to accept—at a bank, an airline, or a revenue service, which all rely on computers to process millions of daily transactions. But the *Tejanos* are not dialing into the "monstrous networks" of MBank or Southwest Airlines. They are standing in a bar, attempting to conduct a hand-to-hand exchange of money for beer. And there is nothing overtly digital, so to speak, about such a straightforward affair.

[60]Vigil-Piñon, *The Computer is Down*, 16-17.

Or, at least, this is what the *Tejanos* believe when they order their Miller Lites. During the same historical juncture that brought the digital divide into view, Vigil-Piñon articulates an instance of this common-sense distinction between the digital and the non-digital falling apart: where a computer is something we can no longer associate exclusively with whatever is most obvious—with IRS clerks feeding tax forms into digital databases, or NASA engineers sending satellites into orbit, or SJUSD highschoolers programming MIDI synthesizers—but with an event as quotidian and therefore as seemingly non-digital as two *Tejanos* ordering drinks at a bar. If a computer can show up even where "it simply does not compute," then there is no ready-to-hand criteria for dividing what does and does not properly belong under the remit of computation. Thus the problem facing the *Tejanos* is not that they are divided from the so-called digital world. Just the opposite: the problem is that they cannot escape a digital world that comes crashing down upon them when they least expect it. What would soon be labeled a digital *divide* confronts them instead as a breach, a sudden opening onto a wide expanse wherein anything could be, might be, though is not necessarily soldered into the sociotechnical circuits of digital technology. It is a breach that opens up in a moment of downtime, somewhere between the digital and the non-digital, when a world organized around digital tools remains the digital world that it has come to be, but without the computing power that made it the digital world that it is.

The final poem in *The Computer is Down*, "aims at you between the eyes," generalizes the uncontainable possibility of downtime into a larger framework for interpreting the modern world. The poem moves rapidly, piling up images onto either side of a simple dichotomy. On one side, we encounter images of violence: "invisible contaminants," "twentieth century timebombs," "assaults / in the first degree / at airports," and other spectacular hazards that are "all around" us.[61] On the other side, we encounter images of domesticity. Vigil-Piñon describes us, the readers, sitting at home "in the comfort of an easy chair." She depicts us leisurely scanning newspapers and television screens, where we find the aforementioned hazards "pronounced in predictable patterns / of inflection":

> pause
> monotone
> flashing images
> of modern day miracles
> miseries

[61] Ibid., 61.

scientific breakthroughs
setbacks
explosive scenes
shocking tragedies
which you can compute or reject
by remote control[62]

The poem presses upon the inherent contradictions of mediation. Newspapers, television screens, and other media interfaces deliver the world's distant hazards directly into our living rooms, but only by translating these hazards into "predictable patterns." They encourage us to connect and respond to these hazards, but only in the limited sense of "computing or rejecting" them. They sustain a fantasy of both total immersion and total separation, simultaneously revealing and obscuring the extent to which we might be implicated in or subject to the brutality that surrounds us. Faced with these fundamentally insoluble contradictions, Vigil-Piñon gestures toward a particular practice of interpretation. She directs our attention once again to a newspaper, where "the headlines will tell / of likely and unlikely victims":

Darwinian theory affirmed
the world as it's always been
wherein laws
can instantly become nonfunctional
like a computer, down
a bankrupt bank of objective intelligence[63]

Digital media theorists from Friedrich Kittler to Wendy Chun will remind us that most users never really see a computer. Instead we see windows, icons, command lines, and other software interfaces that render the machine visible to the extent that they also hide it, allowing us to ignore the millions of logic gates and voltage differentials that make digital computing possible. "What is software," Chun asks, "if not the very effort of making something explicit, or making something intangible visible, while at the same time rendering the visible (such as the machine) invisible?"[64] Drawing a border between a computer's software and hardware—between the user-friendly programs we all recognize and the esoteric machinery these programs mediate—is an interpretive puzzle that has tied numerous media theorists into knots.

[62]Ibid., 62.

[63]Ibid., 62.

[64]Wendy Chun, "On Software, or the Persistence of Visual Knowledge," *Grey Room* 18 (Winter 2004): 44.

But this puzzle vanishes, at least momentarily, whenever a computer goes down. During uptime a computer might be a video game console or a communication channel or an artist's palette, but during downtime it becomes what it always was: a box of transistors.

The digital divide asks us to evaluate the contradictory progress and regress of the so-called digital age through a utopian commitment to uptime. It suggests that the ever-increasing functionality and accessibility of digital tools reflects the authentic teleology of our era, and that, some day, everyone will partake in the emancipatory potential of these tools. Vigil-Piñon, by contrast, invites us to interpret the digital age through the ineluctable fact of downtime. At any moment the device that we use to build websites or read restaurant reviews or type love letters might crash and reveal itself for what it is: "a bankrupt bank of objective intelligence." And at any moment we might confront "the world as it's always been," where the technological borders separating "haves" from "have-nots," victims from beneficiaries, or Latinos from Anglos "can instantly become nonfunctional / like a computer, down," and in that instant reveal the objective, bankrupt intelligence that insists upon the divisions it precludes.

The Digital Humanities

Throughout this essay I have used the word "digital" somewhat recklessly. Sometimes I have embraced the *digital* divide and the *digital* world, and other times I have prefaced them with a cautionary "so-called." I would suggest this ambivalence has less to do with my own indecision than with the history of the word itself. "Digital," in its modern computational sense, marks a technical schism. It emerged sometime during World War II, when the researchers who were computing ballistics tables, wind-tunnel data, and other strategic figures for the U.S. military identified a conspicuous dichotomy among the machines employed for their calculations. Some of these machines represented quantities in the form of continuous physical rates—the speed of a rotating shaft, or the voltage across a circuit—while other machines represented quantities in the form of discrete numbers. These latter devices were described variously as "numerical," "discrete," and "impulse," until finally, for no apparent reason, researchers settled on a word derived from the decimal system and its ancient connection to human fingers: "digital."[65] Thus an obscure term found primarily

[65] Ronald R. Kline, "Inventing an Analog Past and a Digital Future in Computing," in *Exploring the Early Digital*, ed. Thomas Haigh (Cham: Springer, 2019), 20-25.

in physiology journals and proctology manuals came to connote the quintessence of techno-sophistication. Any media apparatus that processed data in the form of discrete digits would henceforth be set apart and exalted as digital.

Yet humanists frequently invoke "digital" to mark a cultural schism, not a technical one. The digital divide, for instance, is only loosely based on this rupture between two fundamental modes of data representation. It stems instead from what David Gunkel calls the "great divide theories" propagated by Marshall McLuhan, Walter Ong, and other colporteurs of a rupture between two other, equally fundamental modes of data representation: orality and literacy.[66] In fact the first widespread mobilization against computational inequity in the United States—and the immediate rhetorical precursor to the digital divide—was the computer literacy movement of the 1980s, which portended that American society would become so utterly transformed by computers that computer illiterates would fall outside history.[67] Rather than a technical opposition between digits and waves, the digital divide was modeled on this cultural opposition between literates and illiterates, incorporating all the millenarian fantasies that have long been used to distinguish Western from so-called primitive societies.

Together these two schisms—the technical and the cultural—bend the word "digital" into enigmatic shapes. When critics employ cultural concepts such as "digital native," "digital aesthetics," or "digital democracy," they are not literally suggesting that some people, some philosophies, and some societies process discrete digits while others process analog waves. They are suggesting that these particular forms of life have a special relationship with digital technology, which sets them apart from the rest. Throughout this essay I have highlighted our confused grasp of the "special relationship" that makes digital culture *digital*—a confusion that will no doubt proliferate as "digital" becomes affixed to more and more cultural phenomena.

I am not arguing that the digital is not cultural, or that digital culture does not exist. Quite the contrary, I am arguing that the digital is profoundly cultural, and that digital culture is far more pervasive than we typically assume. If humanists want to claim a space for the digital in the humanities, then they will need a theory of digital culture that proceeds not from some imaginary digital-*an-sich*, but rather from the border between the digital and the non-digital. This essay has modeled one

[66] Gunkel, "Second Thoughts," 505-506.

[67] See Andrew Molnar, "The Next Great Crisis in American Education: Computer Literacy," *Journal of Educational Technology* 7.3 (1978-79): 275-285; Arthur Luehrmann, "Should the Computer Teach the Student, or Vice Versa?," *AFIPS Spring Joint Conference Proceedings*, 40 (1972): 407-410.

such approach by moving computer non-users—people who are not technologically equipped for the digital world yet who must live in it regardless—from the margins to the center of digital history. I hope I have demonstrated that "digital" will be a worthless disciplinary marker unless it can accommodate the Latino students of SJUSD, or *The Computer is Down*, or even, perhaps, the countless Chicana poets who never wrote about computers, yet whose poetry mediates the digital age in which they live. As Chicana poet and San José native Lorna Dee Cervantes writes: "I come from a long line of eloquent illiterates / whose history reveals what words don't say."[68] This represents a whole new challenge for digital humanists: not the technical challenge of acquiring digital literacy, but the cultural challenge of rediscovering the eloquence in what the digital leaves unsaid.

[68]Lorna Dee Cervantes, *Emplumada* (Pittsburgh: University of Pittsburgh Press, 1981): 45.