

# Time for Historicism in CSCW: An Invitation

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This paper contributes to the development of an under-utilized area of focus for CSCW research and design: history. The design and evaluation of technology, as practiced in the field, has positioned CSCW as a largely forward-looking community. The enduring ‘presentism’ and lack of historical view threatens to leave out a wealth of resources that can inspire design, support comparative analysis, and develop a deeper understanding of technology development and its social consequences. This paper argues that a historicist sensibility should inform the due diligence of all CSCW research, and we present connection points for the various ways in which historical research might more deeply inform CSCW, while offering a selection of historiographic challenges to sensitize CSCW scholars as we seek to better situate our collective work within both the present moment as well as ongoing temporal change.

CCS Concepts: • **Human-centered computing** → Collaborative and social computing → Collaborative and social computing theory, concepts and paradigms → Computer supported cooperative work

## KEYWORDS

History, historicism, methods

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## 1 INTRODUCTION

In this paper we call for the establishment of an historicist sensibility across CSCW research, and HCI more broadly. We argue that even when not engaged in explicitly historical research, historicization should be part of the due diligence of all CSCW research and scholarship. While historicist methods and perspectives have certainly been a recurring facet of CSCW investigations, the argument we advance here is that all research in the field would benefit from an historicist sensibility. Whether we are engaging with questions of workplace coordination, large-scale crowdsourcing, or the impact of algorithms on public services, we encounter such phenomena as historically situated. We use the word ‘sensibility’ to denote awareness, discernment, intuitiveness, even delicate or subtle sensitivity.

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An historicist sensibility brings with it an attention to continuity and change, a skepticism towards claims of novelty and progress, and a set of conceptual tools for examining complex and emergent situations over time. In these capacities, this sensibility can help render the questions that drive contemporary CSCW research both richer and more tractable.

We consider such an orientation urgent, especially given the field's increased attention to questions surrounding the social and environmental impacts of computing technologies. While the connections between computing and social life have always been central to CSCW research, we note that in recent years CSCW researchers have expressed renewed commitment to questions of ethics and justice [24][54][58], and placed greater focus on the silences and exclusions that have characterized technology research and development in the past [83]. In this vein, CSCW research has highlighted global and post-colonial perspectives [40][83], rural issues [72][73], and made necessary and important interventions into discourses around accessibility research [13][143]. Related work has sought to position CSCW research in relation to wider social and historical context, examining questions of late capitalism and neoliberalism [95][141], environmental collapse [103][113][139], and the increasing impacts of disasters [127]. In tandem with these concerns, we also observe in CSCW an increasing scrutiny of Silicon Valley's narratives and priorities [63].

We argue that an historicist sensibility is a necessary counter to the *presentism* that characterizes much of contemporary research and popular discourse around science and technology. Indeed, absence of historical grounding can bring with it a variety of problems. For example, since the early days of the field, CSCW scholars have sought to resist narratives of technological determinism [79] and HCI researchers more broadly have challenged solutionism [18] and notions of the neutrality of technology, both as part of the design process, and in the communities they study [115][50]. What each of these issues have in common is that historicism offers a powerful remedy. While historicism is not wholly absent from CSCW as a field, we have yet to have a sustained conversation about the relationship between the underlying presentism in the study of technology and the unique perspectives that CSCW might offer towards addressing this problem.

We root arguments in this paper in CSCW research, even while drawing inspiration from fields beyond CSCW that have adopted an historicist sensibility but that have done so in such a way as to sustain interdisciplinarity. In particular, we draw from the fields of Science and Technology Studies (STS) and Postcolonial Studies. We look to STS for its detailed attention to the trajectories of science and technology –central topics for CSCW– and Postcolonialism for its wider and deeper challenging of racism, imperialism, and exploitation. Even as we draw insights from other fields, we also emphasize that an historicist sensibility will mean something distinct for CSCW. For instance, unlike STS or Postcolonialism, CSCW has always been centrally concerned with design, engineering systems, concretely evaluating or improving the user experience, and cooperative work. Such topics will take on a distinct inflection in an historicist sensibility for CSCW. Part of the goal of this paper, then, is to begin to articulate how attending to history stands to contribute to the specific concerns of CSCW, and HCI more broadly.

In this paper, we outline the main features of an historicist sensibility for CSCW, discuss ways in which it can contribute to our field, and provide a window into some of the persistent challenges of historical investigation that CSCW researchers should take into account in their own work. In proposing an historicist sensibility, we seek to add to the repertoire of approaches for confronting current design challenges and to evaluate the role of technology in societal change, whether small or large, global or local, or something else. We set forth three themes that we believe will help combat presentism and which offer what we see as the advantages of an

historicist sensibility: 1) understanding historical trajectories of change, continuity, disuse and revival; 2) investigating histories of the designer, the user, the participant, the non-user, and their historical traces; and 3) drawing on the past as a source of design knowledge and experience.

We begin by describing the risks of presentism for research in CSCW and HCI in Section 2. In Section 3 we draw together several CSCW strands of research that have opened the pathway for our call for an historicist sensibility. Finally, in Section 4, we elaborate three historicist assertions and how they might address issues of presentism raised above. For each assertion we also offer a caveat or qualification, because despite its potential historicism offers no easy answers. We view this paper as a broadly programmatic call to historicism [9][86][96], but we do not claim to settle the matter. Rather, what we offer is provisional guidance towards developing an historicist sensibility for CSCW. We therefore see this paper as an invitation for researchers from across the many sub-communities within CSCW to join a conversation about how we may become more attentive to history both in and of our field.

## 2 THE RISKS OF PRESENTISM

The term presentism has long served as a point of debate amongst historical investigators, for whom it captures an analytical habit of interpreting the past in terms of the present [80][109]. More recently a quite different understanding of the term has emerged around the way technologies might affect how people experience time [106][122]. For our purposes, we use the term to indicate a tendency in the discourse around computing technology to take present arrangements and trajectories of technologies as given or universal, and in doing so obfuscate the complex situations and decisions through which they came to be as they are.

CSCW and HCI are particularly vulnerable to the problem of presentism because of our focus on technological innovation, entanglements with industry, and design's proclivity to orient toward the future. Barry Wellman captures this in describing the trajectory of CSCW research:

“In their euphoria, many analysts lost their perspective and succumbed to presentism and parochialism [...] They thought that the world had started anew with the Internet. They had gone beyond groupware and realized that computer-mediated communication - in the guise of the Internet - fostered widespread connectivity. But like the groupware folks, they insisted on looking at online phenomena in isolation. They assumed that only things that happened on the Internet were relevant to understanding the Internet” [142].

Here, Wellman points to a tendency to separate an inventive technology from what came before, and from those who build, sustain, and use it. As research objects, such technologies are often surrounded by a kind of ‘rupture-talk’ [74]: a discourse which posits a break with all that came before in the form of a new technology or institutional arrangement. Rupture-talk – or perhaps more relevant for CSCW, ‘disruption talk’ – authorizes an ignorance of historical experience and an associated naturalization of contemporary arrangements.

Such a narrowly present-focused view on technology can lead us into a cluster of related issues in the way we approach key concerns of CSCW. For example, it can cause us to focus primarily on innovation and disruption, rather than on continuities. Thomas Hughes has pointed to a comparable tendency in the work of 20<sup>th</sup> century historians of technology: “they have generally written the history of technology as if it were identical with the history of invention” [78] (quoted in [43]). It manifests also in the innovation and progress narratives of techno-optimism [8] and is palpable in the language of use and utility that dominate CSCW and CHI research [38]. Finally, it can result in a narrative of technological change in which technologies always arrive as solutions in response to necessity, a narrative that CSCW and HCI scholars have worked against [18][135].

In invoking the term presentism, then, we highlight a number of persistent issues in studies of technology, and computing technology in particular, that present risks to CSCW researchers. Our purpose in calling for an historicist sensibility is to address the issues of presentism outlined above in a more concerted way, and to make use of some of the tools that history can provide for this. Critically for CSCW, historicization need not be isolated from a focus on the present or the future, nor overtake it. Done right, historicism and futurism can be allies. Novelty can more clearly be inspected when carefully set against historical trajectories of continuity; and continuities can be inspected and evaluated rather than dispensed as part of the past, or an outdated tradition.

### 3 TOUCHPOINTS FOR AN HISTORICIST SENSIBILITY IN CSCW

To historicize is to contextualize a thing, a practice, or an organization, within dynamic temporal processes of emergence, change, continuity, decline, disappearance, or revival. Developing an historicist sensibility, thus involves, at minimum, recognition that we always arrive mid-stream – *in medias res* – neither at the beginning nor the end. Several strands of CSCW have, since the early days of the field, contributed to this recognition. As members of the CSCW community working in different topic areas and who have each adopted historical approaches in our own work, we draw on our readings of historical research projects within CSCW to show the foundations for developing an historicist sensibility for CSCW. We briefly draw together some of these threads, particularly focusing on CSCW studies of: 1) coordination; 2) infrastructure, maintenance and repair; 3) technology's entanglements with power and politics; 4) environment and computing; and 5) critical and reflective practice. While we cannot offer a full review of these subfields, we offer these as touchpoints that we hope will help bootstrap a full historicist sensibility within CSCW. The themes in this section thus also serve to situate us, the authors, as we advance a particular approach to historicism that is reflective of our own intellectual background and interests, rather than as a total view of historicism for CSCW.

A foundational concern of CSCW is the role of technology in enabling and shaping coordination across spatial and temporal distance. Work in this area poses fundamental questions about how we might better understand stasis, ebbs, and flows from a temporal, structural, and organizational perspective [117][119]. Some of the early investigations in the field sought to characterize the distinct challenges of synchronous and asynchronous communication and coordination, in person and via artifactual mediation [91]. More recent investigations, such as by Cohn [29], Lee and Paine [101], have more granularly outlined the heterogenous pacing of collaborations, from minutes to decades. Jackson et al, for instance, have called for the investigation of 'rhythms of collaboration' by sensitizing CSCW researchers to infrastructural time (e.g. entire communities of particle physicists may await decades for the construction of their instrument); phenomenal time (e.g. ecologists may inspect their scientific objects at scales of decades to centuries); biographical time (such as the career trajectories of researchers, which may include illness or pregnancy); and institutional rhythms[84][86][89].

Another key touchpoint for historicist thinking in CSCW is the concept of 'infrastructure'. Longstanding concerns in CSCW regarding collaboration have contributed to a nascent historicist sensibility, such as with Ribes' "long now" views of infrastructure [118]. CSCW readers may recall that Susan Leigh Star and Karen Ruhleder first published their paper *Steps Towards an Ecology of Infrastructure* in the 1994 conference proceedings of CSCW [132], before going on to elaborate the concept in Information Systems and STS venues. While infrastructure is not necessarily an historical concept, their formulation strongly encourages historicist thinking. For instance, they note that "infrastructure does not grow *de novo*; it wrestles with the 'inertia of the installed base'

and inherits strengths and limitations from that base”[132]. The recognition of the installed base raises questions of inheritance, path dependence and irreversibility, or technological lock-in [1]. Infrastructures studies are, at their core, studies of technology and different temporalities, positioning historical change itself as a key question, asking what stabilizes and changes in our understanding of what constitutes infrastructure. Thus, Star encourages us to consider not “what” but “when” is an infrastructure [45] [77][131][132].

The juxtapositions and sedimentations of new and old, digital and analog that are rendered visible by an historicist sensibility help to decenter design and innovation, as typically conceived, and instead call attention to longer arcs of technology maintenance and repair [84][85], design-in-and-through use [112], and decline [1]. Each of these approaches offer pathways for considering technological trajectories, complicating linear or diffusion models of technology and knowledge, with views on the role of heterogeneous actors, from designers, to governments, and industry agents, as well as the role of contingency, chance, and in/compatibility with coeval systems and practices. Studies of maintenance and repair have turned our attention to the everyday and mundane work of sustaining the old and new systems that surround us [76][85][86][89]. Such labors, and their many continuities despite ongoing sociotechnical change, are typically rendered invisible in presentist narratives, robbing us of a vital source of knowledge about how things came to be as they are, and the means by which they persist. Work in this tradition has also examined technological decay, noting that the managed decline of sociotechnical systems is similarly both the target of labor, and has the potential to proceed along multiple avenues [28][29].

There is also a strand of CSCW work that examines socio-economic, political, and cultural implications of technology which often take a much more expansive historical perspective in the examination of contemporary computing worlds. These are often situated within the history of geopolitics and the ways that they structure contemporary responses to design imperatives. This historical frame is most often present in research that addresses cultural, racial, economic, and political differences, inequalities, and their restitution. From settler colonial histories and how they shape the very structures of knowledge making that is in Ubicomp and HCI today [39], to the differentiated aftermaths of colonization [3][83], to new and old patterns of neocolonial structures [7][104] to intersectional positionalities [57][116], this body of work is attendant to the temporal processes that shape power and privilege. Foregrounding these histories works to mitigate the tendency to reproduce inequalities, and to orient CSCW along interventions that might correct them, supplant them, or even more modestly, call them out. They further remind us of the role that power has in shaping what histories get told, and who gets to tell them.

Studies of the environment and computing, nascent but burgeoning in CSCW, attune us to broader timeframes of energy and resource consumption, global circulations, waste, and environmental impact [48][49][68][102][108][127][129][140]. Mounting public concerns about the environment are almost coeval with the development of CSCW as a field, and yet questions of environmental impact are almost wholly absent from the first decades of CSCW writing. Only recently has scholarship sought to engage energy usage, sourcing of materials, or technological waste. This has been done by tracing various environmental impacts of computing, such as the water consumption of large data centers and the labor and environmental histories of the semiconductor industry [49][100]. This scholarship has also highlighted the role of computing in the management of energy resources [27][56][99]. These kinds of inquiries can help expand our understanding of our field’s relationships and accountabilities. As Finn and Rosner have argued, such investigations “...invite contemporary studies of information to consider wider swaths of

peoples, materials, and practices as ‘relevant’” [55], thus contributing to the development of an historicist sensibility as well.

Finally, the sciences of coordination, such as CSCW, do not stand outside history. As with all sciences, they shape and are shaped by circumstance. Historical reflections on the field can thus provide more clear-eyed views on CSCW’s participation in wider scientific and societal changes, and how it has contributed to these. In this way, history can act as an aid to reflexivity in CSCW. In Agre’s writing on critical technical practice, the intellectual history of AI is repeatedly used as a tool for establishing critical distance and perspective on taken-for-granted assumptions and metaphors in the field [2]. Calls for “reflective design” in HCI and CSCW also point to the contribution that awareness of historical contexts can bring to value-sensitive or otherwise social engaged research and practice [6][124]. Histories of CSCW, described above, have demonstrated this potential. However, researchers need not be conducting historical research in order to adopt an historicist sensibility in their work. On the contrary, we argue that an historicist sensibility can make contributions to all strands of CSCW research with the benefits we have discussed in this section.

#### 4 AN HISTORICIST SENSIBILITY FOR CSCW

In this section we outline three ways that an historicist sensibility can support contemporary priorities in CSCW research and practice: inspecting trajectories of science and technology; the designer, the user, and the non-user; and history as a source of design knowledge. Even as we argue in this paper that such a sensibility offers a number of benefits to CSCW, we also seek to emphasize that historicism does not provide any automatic ‘solutions’. The challenges of historiography (the methodology of historical inquiry) are thorny and persistent, and the conduct of historical research has been the subject of intellectual labor and debate for centuries. Simply put, historical methods and approaches are not ‘one thing’: they are as debated as any other research approach, occurring both within the discipline of history and across historical researchers more broadly [43][134].

Thus, in addition to offering three themes, we follow each with a related *caveat*. These sections seek to provoke discussion on the opportunities and recurrent challenges of historiographic method without providing readymade resolutions to those challenges. Our hope in these sections is to offer CSCW researchers pathways through the opportunities, but also raise some of the challenges, of learning and adopting an historicist sensibility. We offer ways in which this sensibility both complements and challenges existing work in the field, and the ways in which the limitations that historical researchers confront in their work can extend our research as well. CSCW can both learn from these debates and is positioned to offer something new to them.

##### 4.1 Understanding Trajectories of Scientific & Technological Change, Continuity, Disuse and Revival

Historical work supports our understanding of the trajectories of technological invention, innovation, and sustainability. Theoretical approaches that have strongly influenced CSCW thinking – such as the social shaping of technology [16], political theory of technology [144], distributed cognition [81], path dependency [33], or boundary objects [133]– were all developed using historical case studies (respectively drawing on the examples of the bicycle, the bridges of Long-Island, sea-based navigation, the QWERTY keyboard, and evolutionary taxonomy). These studies and their historical accounts of mounting use, disuse, or less linear fits-and-stops in the

trajectories of particular designs, have helped challenge technological determinism and reductionist accounts of how people and technologies interact.

Consider, for instance, the approach known as the social shaping of technology [126] which has sought to demonstrate recursive, long-term patterns of stakeholders intervening in the process and shape of technological design. The canonical example is of the bicycle. As Pinch and Bijker noted, what we today recognize as the bike's contemporary form, was in fact 'shaped' at various times by women's groups, people concerned with sidewalk safety, and racers, amongst others. In the social shaping of technology approach, each of these stakeholders through their adoption, rejection or protest, played a role in giving the bicycle the contemporary form we recognize today. Such historical accounts show how there are no easy divides between technological imperatives and social influences. Problematising 'the arrow of time' in this way means challenging the uncritical stance that scientific and technological change are necessarily progressive. As Tsing points out, "progress stories have blinded us" and historicizing our entanglements with nature and technology, opens our eyes to other kinds of temporal rhythms [70][71][140].

Another fruitful approach to scientific and technological change appears under the broad headers of 'materialism' and 'post-humanism'. These theorists have argued for the agentic role of non-humans. Rather than passively inscribed with our intents or values, such agentic objects play a constitutive role in combination with human intents and values [98]. Such materialist analyses are historical in that they are often investigated by tracking complex trajectories of technology development. Such technological 'lock-in' or 'closure' are also historicist in the argument that, once designed, technologies exert persistent downstream consequences. Langdon Winner [144], in his influential, though empirically contested [90][145], example, illustrated this when he argued that the bridges of Long-Island were intentionally designed too low for buses to pass underneath, with the intention to exclude the poor and people of color who relied on them to access Jones Beach. By pointing to the 'political properties' of artifacts and their design, Winner's work offers a temporally situated understanding of sustained racial and classed orders brought on or shaped by particular technologies, long after their designers and their intents have passed.

Closer to CSCW, Star and Bowker [131] have shown how standards and categories, seemingly mundane, are packed with social consequence as well as produced and sustained by material action. Such categories, as with the bridges above, also exert persistent downstream temporal effects, and their 'mundane' or 'boring' status belie their importance. For instance, recently in CSCW, Os Keyes, has shown how biased and outdated conceptions of sex and gender – e.g., as binary, immutable, and reducible to physiology – have been inscribed within facial recognition systems that persistently (mis)classify people as unchangingly male or female [94]. The larger point is that techniques for ordering information and archives are also techniques for knowing and managing people, or as with a key phrasing in the sociology of scientific knowledge, "solutions to the problem of knowledge are solutions to the problem of social order" [126].

#### 4.1.1 Caveat: The Challenges of Science and Technology as Historical Subjects

Note, however, that approached 'as history', science and technology have proven to be some of the most conceptually challenging investigative objects. Human geographers Graham and Marvin have called science and technology one of the 'pillars of modernity', playing an outsized ideological role in the identify formation of the West [62]. As such, historical investigations of science and technology have regularly fallen into analytical and empirical traps, e.g., taking 'progress' to be an inexorable feature of technological development or scientific investigation, or alternatively approaching technology as 'exogenous' to society, as though it operates on distinct

and independent logics to human activity, politics or social organization. Others have, at times, approached science as ‘unified’ by singular methods or logics, highlighted stories of ‘great (often white) men’, and told ‘Whig histories’ that present linear trajectories to an inevitable present. Excising ourselves from modernist assumptions of science and technology has proven a challenging task, repeatedly recalcitrant to reconsideration even in the face of the most well evidenced and argued contrary accounts.

Such analytical difficulties apply not only to studies of science and technology writ large, but to our historical understandings of CSCW itself as a science of collaboration and coordination. Inspecting the historical record of CSCW will, at times, be doubly difficult for members of the community. For instance, CSCW has always been a highly interdisciplinary field, but across the years, its disciplinary contributors have shifted markedly, occasionally as the object of debate [32][38]. Beyond academic participation, so too have CSCW’s relationships to industry researchers shifted, along with industry funding and sponsorship[104]. CSCW writings on the ways that voice, participation, and power shape technological systems [13][37][58] offer discussions into how to navigate these issues, in particular reminding us that an historicist sensibility demands reflexivity towards our own research practices by situating the science and scholarship of CSCW itself.

Historiography is diverse and plentiful; it is also debated. Decades cannot be transformed into pages without making decisions about who and what counts as relevant, what activities and voices are highlighted and those that will be left out. We note that, in adopting historical method and making historical claims, including about itself, CSCW should expect its share of internal skirmishes and cross-disciplinary debate, for as we seek to show throughout the paper, there is a great deal at stake in defining the history of something or someone. Regardless of the specific position one takes in the methodological debates about investigating science and technology that we have briefly outlined above, the desire to inspect the technical and its relationship with the way that groups of people relate to each other over time is an affinity between the field of CSCW and the historical tradition which can be strengthened.

#### **4.2 The designer, the user, the non-user, and their historical traces**

Empirical understandings of use settings, user needs and lifeworlds have been central to CSCW. Examining historical trajectories of the user, work practices, organizational change, cultural shifts, and broader labor histories, too can contribute to richer understandings of the user, the human, or the participant [26][75][125]. Beyond this, an historicist approach should shed light on non-use, exclusion from use, or refusal to use. In this we are in alignment with arguments in HCI and CSCW for “post-userism”[11], the study of technology non-use [10], and related calls for attention to individuals and communities who are ignored or silenced through unfolding constellations of power and resources [75], as well as the many ways in which technology’s consequences extend beyond its direct users.

An historical view of the user and the non-user should also trouble approaches that have sought to build for a universal user, centered on Euro-American frames, most recently those of Silicon Valley [6]. From design practices, to funding mechanisms, and definitions of scale, the survivorship bias of big tech obfuscates how Silicon Valley technological visions come to take shape through everyday practices of various actors outside the San Francisco Bay Area and other assumed locations of innovation [6][7][8][104]. The breakdown of such visions and their methods in the (oft) non-Western world, has been seen as evidence of a deficit in those places, or what Chirumamilla and Pal [25] call a ‘development optic’. On the contrary, studies that carefully map



out particular moments of uptake and breakdown of specific methods or technologies often do so by following historical trajectories of particular actors to make sense of their presence and their stakes in these processes[59][104][107].

We also point to the importance of situating CSCW research within broader trends in society that interact with and shape the socio-technical arrangements that we encounter in our studies. Among these socio-technical arrangements are the lifeworlds of not just artifacts but also of their designers and the messy events embroiled in the making of technologies[7]. In particular, we note research from parts of Africa, Asia, the Caribbean and Latin America that have shown how particular designers, investors, politicians, and non/intergovernmental organizations come to be present ‘in the room’ when decisions are being made about particular design choices[7][8][105][107][82]. The presence of NGOs in many parts of the global south cannot be extracted from the broad history of colonial exploitation and capitalist expansion they emerged from [47]. Viewing them as separate from Silicon Valley requires purposefully obfuscating the history of Silicon Valley as itself a by-product of imperialist urges underlying military investment, academic collaboration, and waves of inclusion and exclusion of different immigrant networks that shaped the culture of Big Tech over the course of decades [97]. Understanding how NGOs and intergovernmental organizations come to take up Silicon Valley methods in the global south[82][107], even when their goals and public statements seem opposed to those very methods, requires seeing them as embedded in governance structures across the globe and being attuned to how those structures came to be over time. Making such connections require a general sensitivity or attunement to multiple temporalities [86] and looking beyond the ‘obvious actors’ to those who do not ‘fit the scene’ as much as those who seem to belong far too comfortably.

We note, too, that CSCW has an opportunity to contribute to these challenges. The designer, the user and even the non-user are increasingly “instrumented” – e.g., via GPS, cookies, or doorbells and CCTV cameras. How should CSCW scholars approach these proliferating traces? While logs, business ledgers, and population statistics have long been a part of historians’ sources, we have only begun to engage the variety of formats and modes of record that have emerged in recent years. As we continue to construct narratives around the ongoing emergence of online communities or remote work, for instance, CSCW scholars will increasingly have to think about what it means to engage scraped web pages, log files, or counts of clicks and likes as historical archives. Such archives have already proven to be dense and recalcitrant objects through which to render the experiences of life on the internet [60][111]. These problems of telling a history through a heterogeneous (and vast) matrix of trace data prompt other engagements. What record are our interactions in workplaces and social media sites building? What are the purposes and exigencies of their creation, and what examinations of the present will they afford the future? These are questions that have certainly not been resolved, nor perhaps even satisfactorily addressed in historicist scholarship, and they are questions CSCW is poised to engage. Historians and researchers of technology of all stripes have a shared need to think critically about the mode and genre of record, and to think of data – quantitative or qualitative – as something produced with constrained intents.

This perspective may be fruitful for CSCW researchers engaging the inundations of data in the form of interviews, field notes, forum posts, and meeting notes that have ensued from recent ‘waves’ of HCI user studies [20]. Engaging these kinds of data requires taking them not only as veridical traces, but as situated sources. Just as working with quantitative or qualitative data requires methodic considerations, working with historical sources implies a specific

methodological relationship, a particular habit of examination, a rigor in questioning, weighing, and looking behind the evidence from which analysis begins.

#### 4.2.1 Caveat: Silences in the Archives

Historical researchers wrestle with the invisibilities and absences of the archive. Media historian Paddy Scannell has said of ‘doing’ history that “the past in its fullness is beyond recall. Only its traces remain today, and the task of piecing together the fragments, interpreting and reworking them into coherent narrative accounts and other formats, is, of necessity, a cumulative and collaborative process” [123]. Written records are key sources of primary evidence for historical research – very often the only record, even though oral and other non-written forms of historical records abound. Written or otherwise documented accounts cannot be treated as objective representations of history. They are, always, situated accounts by someone, for someone, for something, on something, at a particular moment in time – and only some are deemed worthy to keep. Subaltern and postcolonial scholarship has long shown how worldviews were “instrumented” by colonialists [130], and that women’s history, queer history, and the history of race and ethnicity have faced comparable challenges of erasure and being “spoken for”. In other words, where people appear in the record, they appear in the worldview of the record keepers. Such scholarship warns us about the danger of descending into an archive with the intention of finding *the* record.

Donna Haraway has noted that managerial actors are the most proliferous of documenters, arguing that the historical researcher is always in danger of seduction by these plentiful and authoritative accounts [69]. The problem is tenacious, for a recognition of “managerialism” does not enable its dispensation. For instance, in the historical investigations that led to the development of the boundary object concept, Star and Greisemer recognized their managerial bias, but even so could not fully elide it: “[our analysis] still contains a managerial bias, in that the stories the museum director and sponsor are much more fully fleshed out than those of the amateur collectors or other players” [133]. It was the taxonomists and university administrators – rather than the trappers, and certainly not the birds so taxonomized – who most carefully created the record that became Star and Greisemer’s archive of a 19<sup>th</sup> century scientific endeavor. There is often no tidy way around it. Even – perhaps especially – the automated logs, self-tracking, and trace data of contemporary ubiquitous computing are tuned to some actions and not others, and serve to render some activities legible within specific regimes of accountability.

While such challenges cannot be fully dispensed, historiographers have sought to ameliorate the matter via the development of practical and conceptual tricks of the trade. Responding to this problem of partial perspective in the archive, some historiographical practices approach official histories with what Ricouer termed a “hermeneutics of suspicion” [52]. The historical investigator notes presences as well as absences, looks always for gaps in the record and missing individuals without whose invisible labor the objects of their investigation would never have come to be. Oral histories, peoples’ histories, and other social and cultural “histories from below” have especially attempted to recover these perspectives. Diaries from everyday people of the era, clerks’ accounts from within a company, print paraphernalia and object histories provide alternative ways of accessing those stories missing from the formal or authoritative archive [41]. Within CSCW, Finn and Oreglia in their studies of crises [53], for instance, have examined the competing and confused tensions which come to bear on the production of humanitarian “situation reports” in moments of crisis and disaster. Such an approach suggests the importance of not taking a source as given, but recognizing that it was actively created by people using the tools and tone that were available to them at the time.

### 4.3 The Past as A Source of Design Knowledge

Can the past be approached as a repository of design knowledge and experience? Or, as Wyche, et al put it, can we use “the past to design the future?” [146]. Designers who seek to leverage historical understanding, or history of artifacts and contexts, as an approach to design often combine analysis of both historical designs and contemporary needs. For instance, Wyche et al [146] describe an historical analysis of aging and housework to inform the design of household technology. By asking elderly participants to recall products or recount their personal histories with artifacts, Blythe et al [17] produce a close reading of everyday objects to generate implications for the future. In contrast, Bødker [19] called for historical analysis of the development of artifacts and their dueling uses as a way to examine “conflicts between the roles of a specific artifact in use”. Such examinations of past actual uses can often be surprising and unexpected, thus providing instances of “real life” use, rather than tidy imagined or intended design uses. “Learning from history” in a design context can also work towards avoiding repetitions of mistakes [4][5][10], or create critical distance from present outcomes that can nudge us to recognize that contemporary arrangements could be otherwise.

Those who study the social shaping of technology, such as Bijker, Pinch, and Douglas [16], have shown many possible branches of technology’s genealogical tree, leading us away from unidirectional historical narratives, into one in which many different flowers once bloomed and many paths were possible. They highlight the many different and competing groups that sought to use technology to resolve local problems, as well as the multifarious ways in which such flexible interpretations were ultimately “closed down”. In her classic piece, *How the refrigerator got its hum*, Ruth Schwarz Cowen demonstrates how the rise of the electric fridge over the (“superior”) gas alternative, was due to techniques of market capture and commercial infrastructure, rather than some pure technical efficiency or utility [31]. Digging into the historical moments of a technology’s selection, then, we observe that there are in fact many different ways of engaging a problem. That only one of those ways moved forward is not necessarily an indication of the technology’s success in and of itself, but rather an indication of the local contingencies in which sociotechnical decisions were made.

Returning to older models or abandoned pathways suggests alternative ways in which design could have gone – and yet still could go. This is not a call for technological nostalgia, but rather for reclaiming options in a design space. For instance, some of our collaborators, in an effort to evade detection by ad trackers and corporate databases, have taken to resurrecting old phones that are not predicated on today’s dominant model of the personal data economy [personal communication]. These enthusiasts work collectively to keep Pebble smartwatches or classic Nokia phones running – but disconnected from their current corporate owners’ databases. The Sailfish operating system, for instance, is built upon an abandoned Nokia smartphone operating system: not abandoned because it did not work, but because Microsoft purchased Nokia and imposed their own mobile OS instead. This fully functional mobile OS offers users the kind of control over the phone that was expected in the pre-iPhone era, including a Linux terminal for command line access and a store free of tracking devices. Such examples demonstrate how turning to paths not taken can be a source of inspiration and even optimism for technological futures that reorient power imbalances between technology companies and the public.

#### 4.3.1 Caveat: The Objectifying and Instrumentalizing Gaze of History

On one hand, then, inspecting history for design experience and inspiration may follow from George Santayana’s felicitous aphorism, “those who do not learn history are doomed to repeat it.” We can learn by inspecting the past with an eye to its design knowledges. But treating history

as a repository for design carries the danger of flattening such histories and human experiences. In the retrospective gaze of history which seeks design knowledge by learning from the past, the “failures”, “impacts”, “unintended consequences”, and “disruptions” of broken people and places are reduced to “data”. Attempting to extract knowledge from such design choices in order to transfer, translate or generalize design from one historical context to another can become an exercise in objectification and instrumentalization if not undertaken with care. And, even when undertaken with care, outcomes often remain fraught. We see this reflected in debates around, say, participatory design in CSCW, which has at times been an approach associated with progressive labor organizing, and at other times instrumentalized as a productive design method, as shown by Harrington, Erete, and Piper [65].

Similarly, instrumental uses from inspecting history must be weighed against the danger of objectifying human experience for narrow utilitarian gains. Facebook’s original motto “Move Fast and Break Things” evokes this sense of learning from mistakes and leveraging negative outcomes. However, as Ruha Benjamin rightly asks, “what about the people and places broken in the process?” [14]. Further, inspecting histories of design may lead to conclusions even more difficult for CSCW members to consider, such as design refusal, conscientious objection, or confronting outright inhumane uses of technology once warmly described as “collaborative tools” [23][137]. An historicist sensibility is not always kind to the subjects of history and can be uncomfortable when it implicates our own work. However, such reflexivity is critical if we are to continue the trajectory of CSCW that takes up difficult questions of power, environment, and reflexivity that we described in Section 3.

## 5 CONCLUSION

This paper has set out to open pathways for conversations about an historicist sensibility in CSCW. We have argued that an historicist sensibility would benefit all CSCW research. Put more strongly, working towards an historical awareness is part of the due diligence of any researcher. For some, this may mean conducting primary historical research or collaborating with historical investigators. But it may also more modestly mean engaging existing historical literatures as sources of insight for precedents and repetitions; inspecting long trajectories of technological design, adoption, rejection, decline or revival; or, better considerations of downstream consequence, amongst other things. We have also argued against pervasive presentism, rupture-talk or disruption-talk: ways of addressing the present as an inevitable outcome, that cast innovation as wholly breaking with the past, or as wholly determining of futures. Instead, we have called for analyses of continuities and discontinuities in technologies, organizations, and practice, with respect to impacted communities of users and non-users, humans and non-humans, amongst others. Finally, we have also argued that historicism and futurism can offer each other a great deal, informing and critiquing each other, more so than narrow presentist accounts that eschew the wealth of historical knowledge, reflection and insight. An historicist sensibility approaches its investigations *in medias res*, inspecting circumstances as neither at a beginning, nor an end, but in the middle of all things.

Throughout the paper we have also emphasized that an historicist sensibility, on its own, is no automatic solution for either good research or for weighing downstream consequence. The phrase “history is written by the victors” serves to remind of the purposefulness and partiality of historical claims. Franz Fanon, describing the erasures of Black and indigenous populations in the colonial archive, wrote: “He has no culture, no civilization, no ‘long historical past.’”[51] These phrases are only a taste of the thorny challenges of historical method. Here, we have emphasized the incompleteness of the historical record and sought to sensitize the reader of the tempting dangers

of managerialism. We have also noted long tendencies in historical research to treat science and technology as exceptional cases, occasionally even as outside of, or determining of, history. And we have sought to crack open windows into the variety of historical approach, and how these approaches are the topic of lively past and present debates. These are central topics to engage in cultivating an historicist sensibility.

In addition to enjoining CSCW to draw on historical method, throughout this paper we have also sought to emphasize how the field is well-positioned to contribute novel approaches to historical research. In particular, we believe the field's commitment to wrestling with questions of design position historical research uniquely for CSCW. Here we have asked: Can history be approached as a repository of design knowledge? How can history inform reflexivity in design? How can historical method be fruitfully combined with studies of the user, their experience, and their requirements? And, how can users mobilize their histories to shape technological choices? Pressing questions about how to approach the explosion of online documents, logs, and other digital traces are already central topics for CSCW. There are questions of method – how to interpret or quantitatively analyze such digital traces – as well ethical questions for using such data; the longevity of the archive; concerns with consent and disclosure; or the dangers of privacy, surveillance, and manipulative technique. Here, CSCW is also positioned to make a broader contribution, for as these logs and traces are becoming the everyday research materials of historical investigators, they too are facing such issues of method and ethics. Contemporary research has only touched upon these pressing questions, and there remains much more ink to be spilled.

We conclude by reissuing our invitation to develop an historicist sensibility in CSCW. We emphasize that we have offered a provisional outline for that sensibility. What an historicist sensibility will entail for CSCW will be elaborated over time, within our community of scholars and in relation to other movements in sibling fields. It will, we hope, be a topic of lively debate, one that will preserve space for competing formulations of 'good historical work' and the varied contributions it might make to our field. In addition, we hope this conversation will include and draw-in participants from across the many different sub-communities within CSCW and without, and not only those who "do" historical research. We argue that adoption of an historicist sensibility will benefit many different research and design aims, and we have offered some points for consideration, along with some avenues of unresolved discussion. We consider this a conversation in process, neither at the beginning nor at its end.

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