

From Techne to Technocracy: Reclaiming the Ethical and Cultural Soul of Technology

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Parole chiave

Technological Determinism, Ethics of Technology, Conceptual Genealogy

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In an era marked by vigorous debates on artificial intelligence, digital surveillance, algorithmic governance, and the ethical ramifications of technological advancement, Eric Schatzberg's *Technology: A Critical History of a Concept* emerges as a timely and impactful contribution to the discourse. This meticulously researched monograph challenges the widespread myth of technology as an autonomous, value-neutral force. Instead, it reveals technology's contested origins and ideological weight. According to Schatzberg, technology is a peculiar concept, frequently tied to vague and "contradictory meanings" (p. 2) that must be unpacked. He notes, in particular, how "the dominant definitions of technology are fundamentally at odds with its etymology. The -ology

suffix suggests that technology should refer to an academic field or a system of formal knowledge, a meaning derived from the ancient Greek term *logos*, or reasoned discourse. However, in present-day usage, technology refers more to things than ideas, to material practices rather than a scholarly discipline” (p. 7).

In this regard, the book ties the history of technology to two central questions that seek to correct this reflexive oversight: what are the scope and boundaries of technology? And what is – was, and might be – its moral and social status? Schatzberg, a well-established historian of technology whose research has steadily expanded since his influential 2006 article *Technik Comes to America*, embarks on a genealogical exploration spanning two millennia. He traces the evolution of the concept of technology from the ancient Greek *techne* – a term rich in ethical and creative connotations – to its modern incarnation as a reified, deterministic force.

Although the book’s primary focus is intellectual history, its implications strongly resonate with today’s concerns about technological determinism, corporate technocracy, and the diminishing role of human agency. Schatzberg’s approach seeks to reintegrate technology into the broader realm of human creativity – one that blends manual and mental labor, the symbolic and the material, and rational inquiry with ethical reflection. His project resonates with, yet critically diverges from, foundational works in the history and philosophy of technology (Mumford 1934; Heidegger 1977; Ellul 1964). While Mumford framed technology as a dialectic between organic humanism and mechanistic tyranny, and Heidegger lamented its reduction of the world to ‘standing reserve’ and that everything is imposed upon, Schatzberg insists on a more nuanced, culturally situated understanding: technology as *material practice*, shaped by – and shaping – human values.

Schatzberg’s intervention also builds on the shoulders of intellectual historians like John M. Staudenmaier (1985), who revealed how historians’ narratives reflect ideological biases, and Leo Marx (1964), who explored technology’s symbolic role in American identity. Yet unlike Marx’s focus on literary and artistic responses to industrialization,

Schatzberg's work is wider in scope, bridging European philosophy (e.g. from Kant to Heidegger) and American pragmatism (e.g. Dewey and Veblen) to argue that *technology* emerged as a distinct modern concept only in the 19th century.

The book's most thought-provoking contribution lies in its rehabilitation of *Technik* – a German term encompassing art, craft, and technique – as an antidote to the reductive Anglo-American equation of technology with machines. Drawing on Scott Lash, he insists that *Technik's* holistic view of technology as a 'form of life' offers a path beyond the instrumentalism critiqued by Herbert Marcuse and the Frankfurt School. His framework also resonates with recent turns in 'critical technical practice' (e.g. Philip Agre, Bruno Latour) and the 'ontological turn' in anthropology, which challenge binaries between humans and tools.

From Techne to Semantic Voids

Much of the narrative of the book can be synthesized as a journey from 'techne to semantic voids.' Etymologically, 'technology' has its roots in the Indo-European root 'tek,' "a term that referred to the building of wooden houses by wattling, that is, weaving sticks together" (p. 17). In early Greek, 'tek' was probably incorporated in 'tekton' and 'techne,' both tied to wood working. From these etymological origins, the author begins in classical Greece, where *techne* (τέχνη) encompassed not just technical skill but also moral and aesthetic judgment. Unlike modern 'technology,' *techne* was inseparable from *phronesis* (i.e. practical wisdom) and *episteme* (i.e. theoretical knowledge). For instance, for Hippocratic physicians, *techne* represented the art of healing, blending empirical knowledge with ethical responsibility. However, Aristotle's hierarchical distinction between *techne* and *phronesis* sowed the seeds of its eventual degradation. Aristotle first established the concept's subordination, demarcating *techne* (artful contriving) from *phronesis* (moral knowledge) and *episteme* (scientific knowledge), thus denying "all ethical content from the process of making" (p. 21).

In Schwartzberg's view, Aristotle's approach marked a significant and a long-lasting turning point: by relegating craftsmanship to a subordinate role, he established a dichotomy that privileged abstract thought over material practice – a division that would resonate throughout Western intellectual history. This hierarchy contributed to a separation between means and ends: while ends were valued, the means of achieving them were not. As a result, *techne* came to be seen as “morally neutral” (p. 22).

Posteriorly, the Roman adoption of *ars* further blurred these boundaries, yet medieval scholars resurrected division of labor and hierarchies by segregating the *artes mechanicae* (mechanical arts) from the *artes liberales* (liberal arts). That is because whereas *artes liberales* were seen as intellectually and morally elevating, often associated with abstract reasoning, eloquence, and philosophical inquiry, and ultimately the educational foundation of one's freedom. Thus, while the Roman term *ars* blurred Greek divisions, its medieval inheritors invented *artes mechanicae* to exclude technology from liberal arts. In the early modern era, the centrality of technical knowledge to European power created potential for an “egalitarian relationship between philosopher and craftsman” (p. 48). Instead, the ‘natural philosophy’ of a new scientific gentry rendered craft knowledge *de facto* invisible.

Despite the growing reliance on artisanal expertise for military, economic, and scientific progress, such a process of marginalization persisted into the Renaissance. Francis Bacon's *New Organon* (1620) epitomized this tension: while advocating for the unity of science and practice, Bacon upheld the superiority of ‘natural philosophy’ over the ‘vulgar’ hands-on knowledge of craftsmen. Finally, Schatzberg observes how the notion of technology was completely neglected in the early modern discourse, which privileged instead the science-art relationship.

Semantic Voids and German Technik

The Industrial Revolution's transformative impact exposed a lexical crisis. Existing terms like ‘art’ and ‘science’ proved to be inadequate

to describe the fusion of creativity, engineering, and cultural ambition driving technological change. Schatzberg borrows Leo Marx's concept of a 'semantic void' (p. 11) to explain this gap, which German intellectuals sought to fill with *Technik* – a term encompassing both technical skill and social and cultural meaning. Figures like Franz Reuleaux and Ernst Kapp reimagined *Technik* as a humanistic project intertwined with *Kultur*, positioning engineers as cultural custodians rather than mere technicians. For Schatzberg, this notion was able to synthesize and put into dialogue both cultural and instrumental aspects of technology: "Yet the boundary between these two meanings remained porous. It was easy to move from viewing modern Technik as the material expression of an era's culture (that is, industrial arts) to seeing Technik as technique, instrumental rationality" (p. 12).

In this sense, Werner Sombart (1911) marked a high point in this tradition, arguing for a bidirectional relationship between technology and culture. Indeed, Sombart contributed to early theories on the social construction of technology. Unlike those who viewed technological progress as an inevitable and autonomous force, Sombart rejected this deterministic view of *Technik*, as for him "it encompassed both knowledge (Kennen) and ability (Können), that is, a combination of theory and practice" (p. 111). Instead, he emphasized the role of cultural forces in shaping, influencing, or even constraining technological change. However, his nuanced argument was soon overshadowed by more rigid, deterministic interpretations, which gradually dominated the discourse.

As a result, by the late 19th century, *Technik* had been co-opted by industrialists and bureaucrats to justify technological progress as an inevitable, apolitical force – a trend that crossed the Atlantic through thinkers like Thorstein Veblen. By the dawn of the 20th century, the concept of industrial modernity was increasingly framed in ways that downplayed human agency, portraying technological development as an impersonal and unstoppable force.

In Schatzberg's narrative, and not without certain irony, Veblen emerges as a tragic hero. Initially, Veblen championed *Technik* as a populist concept emphasizing human agency, translating it into 'technology' for American audiences. However, his vision was diluted by followers like Charles Beard, who reduced technology to an engine of historical determinism. Schatzberg's analysis of mid-20th-century debates is particularly perceptive. He contrasts Jacques Ellul's bleak *technological autonomy* – the idea that technology follows its own logic, impervious to human control – with Herbert Marcuse's Marxist critique of technology as a tool of capitalist domination. Both perspectives, Schatzberg argues, poignantly reinforced determinism by negating human agency. As already mentioned, even Lewis Mumford's humanistic framework (1934) failed to counteract the rising tide of technocratic optimism during the Cold War. As in the Strangelove optic, everybody seemed to stop worrying and loved the technological 'bomb.'

The concluding chapter offers a panoramic of post-war debates on technology in three main fields: innovation studies based technology as a source of modernization; broad humanistic approaches to technology that tended to critically deconstruct the notion of technique, and the rise of the academic field of history of technology and the revival of the cultural view.

Among the academic programs that contributed to institutionalize the field of history of technology, Schatzberg examines post-WWII institutions, including the Society for the History of Technology (1958), which further entrenched instrumentalist views, framing technology as a neutral tool devoid of cultural context. Despite their efforts to create a more elaborate perspective and field of study, they struggled with the conceptual history of technology itself. Schatzberg highlights a significant irony: the very scholars who sought to historicize technology often failed to recognize that the concept of technology itself had a history: "historians of technology appeared to know nothing about

the history of the concept of technology itself, or even to be aware that the concept had a history” (p. 211).

Finally, the book ends with *Manifesto for a Critical History of Technology* where Schatzberg urges scholars to rehabilitate technology by: rejecting instrumentalism and determinism; reintegrating ethics and creativity into technological discourse; reconnecting technology with its pre-modern roots in *techne* and *ars*; and lastly challenging the hierarchical separation of “head” (theory) and “hand” (practice) (pp. 235-6).

Dismantling Determinism and Instrumentalism and possibly... filling the void

In my view—and although the author does not state it explicitly—Schatzberg’s central thesis ultimately hinges on the concept of reification: the process by which social practices and discourses solidify into seemingly immutable, material realities. Technology, as he presents it, encompasses mental conceptions, material social practices, and tangible artifacts. The challenge, for Schatzberg, is to avoid privileging any one of these dimensions in isolation. By tracing the historical stripping away of technology’s cultural and moral dimensions, he reveals the ideological foundations of its dominant definitions—whether as applied science divorced from ethics, or as an autonomous force driving historical change. His critique is not merely academic; it is a call to reclaim technology as a fundamentally humanistic endeavor, inseparable from creativity, ethics, and social purpose.

As a testimony of that critical lens, across the two-millennial span of the history of technology, Schatzberg places commentators in one or other of two camps: instrumental and cultural approach. On the one side is the instrumental approach, which adopts the language of means and ends and which thereby portrays technology as a narrow technical rationality, uncreative and devoid of values. Aristotle, Hugh of St Victor, and Johann Beckmann for example, were for the author instrumentalists. Sociologist Talcott Parsons’s definition of technology exemplifies this perspective, describing it as “the simplest means-end

relationship” (p. 4). On the other side is the cultural approach, in which technology, defined initially as “the set of practices humans use to transform the material world, practices involved in creating and using material things” (p. 4), is further seen as a “creative expression of human culture (...) imbued with human values and strivings in all their contradictory complexity” (pp. 2-3). The Kultur-oriented German engineers of the nineteenth century, Lewis Mumford, and the 1960s critics of technology took the cultural view of technology.

For Schatzberg, both conceptions describe important aspects of technology. However, traditionally, the hegemonic discourse that links technology with progress and modernity tends to privilege the instrumental view. While Schatzberg moves against the reduction of technology to a rationale of problem-solving, applied science, and to the belief that technology operates as an autonomous force, he clearly champions a renewed culturalist adoption based on German Technik. As per his closing Manifesto, Schatzberg provides arguments to reject the instrumentalist approach and embrace the cultural. That means recuperating technology’s moral compass, and rescuing it from both enthusiastic and pessimistic determinism that views technology as driven by its own ends, as a “self-directed system isolated from conscious control” (p. 235). His recipe to push back against that view is to reconstitute and popularize a cultural view of technology, “such a view would reject the divorce of technology from art, and restore the idea of technology as a creative expression of human values and strivings, in all their contradictory complexity” (p. 232).

Because the distinction between the instrumental and cultural approaches serves not only an analytical purpose but also carries a normative thrust, it seems to me that the book could have developed the cultural perspective more fully and connected it more extensively with closely related views. What, exactly, does Schatzberg mean by the cultural view? While the instrumentalist approach is criticized for being overly reductive, does the cultural perspective need to be all-encompassing? If all material practices—from everyday activities like weaving textiles or preparing food to more complex ones like writing code

or designing machines—are included under its scope, does the term risk losing its specificity?

His sympathy for a cultural approach seems closely aligned with the materialist conception of culture articulated by Raymond Williams. Perhaps incorporating Williams's perspective—particularly his understanding of cultural forms as embedded within economic, social, and political structures, with technology both reflecting and shaping what he calls the 'structure of feeling'—would have enabled the author to more fully realize a synthesis of linguistics, philosophy, and material cultural history. Such a move, in turn, would have more closely aligned with his genealogical and etymological analysis, and with his aim to account for semantic shifts within the broader context of ideological struggles.

Furthermore, while Schatzberg in the introduction is explicit on concentrating on Western epistemologies, his definition of technology seems to be more of an anthropological kind: as "the set of practices humans use to transform the material world" (p. 2). Thus, from this point of view, the Islamic notion of *sina'a* and Chinese *gongyi* – since both notions challenge the divide between ethics and mastering techniques – could have played a more important role in acknowledging the non-deterministic nature of technology and how technology have developed differently across different contexts. In my view, the issue is not merely to challenge Western exceptionalism, but also to remain more faithful to the Foucauldian genealogical method that Schatzberg employs—one in which the discontinuities and ruptures in the nonlinear history of technology are deeply rooted, for example, in power relations.

This last point brings me to another aspect of this book that I consider worth discussing. Does an intellectual history (of technology) must interrogate and voice only intellectuals' views? Especially in relation to his materialist definition of technology, it seems to me that accounts of material and concrete practices are rather intermittent in this book. If truth claims about technology are indeed deeply embedded with dominant material and value structures, which actively shape discourse, then Schatzberg's treatment of technology as a social and cultural practice sidesteps the brutal realities of *whose* practices are valorized or erased.

And in turn, that denies an important component of the history of technology, its value extractive rationality. His omission of categories such as labor, class relations, and a mode production that is mostly driven by technological dynamism limits his critique's depth in addressing capitalism's structural role in shaping technology. Is that a conscious and strategic choice? If so, maybe it would have required an explicit discussion of it. If not, integrating political economy categories would have strengthened his critical intervention, offering a more transformative understanding of technology's societal impact. This is particularly important when it comes to the incisive but also very synthetic concluding manifesto about rehabilitating technology. Furthermore, by neglecting these intersections of power, Schatzberg's narrative risks ending up sanitizing technology's history. In fact, if one of Schatzberg's explicit goals is to problematize its framing as a neutral march of progress, then an important way of doing it is to also treat and historically acknowledge technology as a contested terrain of violence and resistance.

Finally, as my opening paragraph may indirectly suggest, I think that in the current context, where technology has become the undisputed avatar for modernity, progress, and even apocalyptic views, the decision of ending the narrative with the late 1960s leaves readers stranded at the precipice of one of modernity's most transformative eras. In fact, computational thinking, the rise of information and communication technologies – marked by Silicon Valley's rise, algorithmic governance, and biotechnology – remains a ghost in Schatzberg's framework. In the end, the chronological cutoff in the 1960s, while maybe pragmatically justified, feels increasingly anachronistic, and by truncating the timeline, Schatzberg avoids wrestling with whether his framework can accommodate technology's accelerating entanglement with capitalism, ecology, and human identity.

To conclude, I want to point that my critiques do not mean to diminish Schatzberg's contribution but reveal instead a fertile ground for growth for this field of interest. *Technology: A Critical History of a Concept* stands as a successful effort that reshapes our understanding of one of modernity's most fetishized concepts. His book represents

an important corrective to dominant narratives that presentably shape both lay and academic discourse. By advocating for a more holistic and human-centered understanding of technology, Schatzberg effectively reorients the field toward a perspective that acknowledges the active role of human agency, cultural values, and historical contingency in shaping technological change.

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