

# Bernard Dionysius Geoghegan, *Code: From Information Theory to French Theory*

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## Abstract

Assembling a distinctive genealogy of cybernetic thought situated in relation to Progressive Era technocracy, industrial capitalism, (de)colonial relations, and eugenic machinery, *Code* uncovers the vital interdependence of informatics, the humanities, and the human sciences in the 20th century. Rather than figuring cybernetics as emerging from Second World War military technologies and post-war digital computing, *Code* argues that liberal technocrats' inter-war visions of social welfare delivered via 'neutral' communication techniques shaped the informatic interventions of both the Second World War and the Cold War. Tracing how an organizing concept of code linked the work of diverse structurally-minded thinkers, such as Norbert Wiener, Warren Weaver, Margaret Mead, Gregory Bateson, Claude Lévi-Strauss, Roman Jakobson, Jacques Lacan, Roland Barthes, and Luce Irigaray, Bernard Dionysius Geoghegan reconstructs the cybernetic apparatus that spawned new fields, including structural anthropology, family therapy, and literary semiology – and grapples with the unfolding implications of such socio-technical dynamics for 21st-century critical theory, digital media, and data analytics.

## Keywords

colonialism, cybernetics, digital humanities, French Theory, philanthropy, Progressive Era, technocracy

Bernard Dionysius Geoghegan

*Code: From Information Theory to French Theory*

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In reconstructing the political impetus of longstanding efforts to render diverse and unwieldy phenomena as forms of code, this outstanding book offers a new history of cybernetics and digital media with far-reaching epistemological, ideological, and ethical implications. Bernard Dionysius Geoghegan's rich and surprising account of the

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common inheritance shared by information theory and French Theory in the era of liberal technocracy, industrial capitalism, and colonial crisis will change how we think about the nature, risks, and possibilities of data analytics, critical theory, and the digital humanities now and for years to come.

As an interdisciplinary science of communication, computation, and control, cybernetics has long been associated with Second World War military innovations and post-war digital computing. In offering an alternative periodization which arcs back to Progressive Era liberal technocracy in the US, *Code* assembles a novel account of the birth of cybernetic thinking which foregrounds the social engineering of welfare over technologies of warfare. Vital to the emergence of cybernetic epistemologies, in this view, were robber baron philanthropies such as the Rockefeller Foundation and the Josiah Macy Foundation which, in the aftermath of the First World War, sought to engage technical management as a noncoercive means of addressing international political violence and domestic matters of inequality and ‘social hygiene’.

A key player in *Code*’s account of these dynamics is the scientist Warren Weaver who, in his role as director of the Rockefeller Foundation’s Division of Natural Sciences from 1932 to 1955, approved major projects by the mathematicians Norbert Wiener and John von Neumann, the computer engineer Vannevar Bush, and other leading cybernetic researchers. Weaver was, of course, a prominent cybernetician in his own right, as illustrated most famously in his 1949 reinterpretation of the information theorist Claude Shannon’s article ‘A Mathematical Theory of Communication’, in which he argued that written letters, spoken words, musical notes, and visual images could be treated indiscriminately as symbols subject to computational analysis (Dionysius Geoghegan, 2023: 22). One of the book’s most significant contributions is, in this vein, its incisive analysis of the impact of the ideological orientations of private foundations (comprised of some of the wealthiest industrial magnates in the US) on the technocratic directions and possibilities of 20th-century scientific research.

These dynamics take on new contours today given how the worldviews of Silicon Valley tech elites are actively coalescing with right-leaning political movements to ‘advance an illiberal agenda and authoritarian tendencies’ (Troy, 2023). Providing important historical context for current developments, the book illuminates how a widespread focus within histories of cybernetics on ‘spectacular violence between nation states’ has contributed to obscuring ‘more subtle forms of technocratic violence’ (Dionysius Geoghegan, 2023: 52). Crucially, however, stretching cybernetics’ traditional timeline to encompass the 1920s and 1930s also foregrounds the importance of colonial relations, eugenics, and indigenous cultures to the rise of cybernetic methods and epistemologies – while shifting the focus of analysis from engineering, computing, and statistics to anthropology, psychology, linguistics, and critical theory.

The book argues, in this vein, that cybernetic efforts to theorize society in digital terms were informed by ‘three grim human enclosures’: the colony, the asylum, and the camp – each of which were approached as ‘delimited social milieus’ for studying ‘human communication in its elementary forms’ (2023: 1). With respect to the colony, the 1930s colonial ethnography of anthropologists (and founding members of the Macy Conference in Cybernetics inaugurated in New York City in 1942) Margaret Mead and Gregory Bateson becomes central to *Code*’s genealogical narrative. In their media ethnographies of Balinese tribes carried out between 1936 and 1939, Mead and Bateson mobilize film,

photography, and magnetic tape to ‘recast indigenous life as symbolic systems shaping activities as diverse as kinship, breastfeeding and dance’ (p. 63) – thus developing the outlines of early cybernetic analysis, which, *Code* argues, served as a crucial basis for Rockefeller and Macy funded work to position cybernetic approaches at the heart of the emergent human sciences.

Yet, as Dionysius Geoghegan underscores, the anthropologists’ framing of Balinese cultural patterns as symbolic systems depended ‘on the unacknowledged role of Dutch colonial violence in isolating and impoverishing indigenous life’ (p. 56), which made it particularly accessible to the ethnographic gaze. In this reading, Mead and Bateson’s 1942 book *Balinese Character: A Photographic Analysis* is revealed as ‘an exercise in media surveillance’ not dissimilar to the ‘obsessive records gathered by the Dutch administrators for colonial control’ (p. 63). *Code* thus exposes the imperial political technologies underscoring both cybernetic imaginaries and liberal technocratic visions of social improvement. It also, however, reanimates the rich indigenous life forms underlying the ‘impersonal cultural patterns’ that would steer both post-war communication engineering and post-millennial data analytics.

A similar critical treatment is given to Bateson’s work with the Palo Alto group in the 1960s, which mobilized media ethnography to frame the family itself as a cybernetic machine. In the group’s system-based conceptualization of family therapy, ‘families, not individuals, were sick, and the person labelled ill . . . undertook their own communicative amelioration’ (p. 54) – an approach which would shape psychotherapeutic interventions for decades to come. Yet Dionysius Geoghegan argues that in the Palo Alto group’s activities, as in Bateson’s later ecological thinking, what is consistently and problematically hidden from view is the dependence of such cybernetic ideas on ‘concrete places, like colonies, asylums, zoological institutes’ (p. 55). From this perspective, longstanding debates about (dis)embodiment in cybernetics take on new emphases.

The literary scholar and philosopher of science N. Katherine Hayles famously pinpointed the mathematician Alan Turing’s influential 1950 article ‘Computing Machinery and Intelligence’ as marking the ‘inaugural moment of the computer age’ in which ‘the erasure of embodiment is performed’ – an elision arguably supported by Wiener’s and Shannon’s conceptualizations of ‘information as an entity distinct from the substrates carrying it’ (Hayles, 1999: xi). *Code* wagers, however, that the most significant erasure may have been ‘more political than technological’; starkly evident, that is, in how ‘dreams of cybernetic posthumanism depended on disappearing the bodies of native persons and other subjects regarded as less than human’ (2023: 10) – an argument resonant with contemporary analyses in Black studies and critical data studies which figure histories of machine learning as ‘conditioned by a set of atmospheric conditions that have attempted to organize both humans and technical objects around assumptions of race’ (Amaro, 2022: 13; Benjamin, 2019).

It is important, in this vein, that *Code* explicitly links the interactions among anthropology, biology, and computing animating early cybernetics to eugenic frameworks. Vannevar Bush, for instance, left MIT in 1939 to assume the presidency of the Carnegie Institution, a sponsor of the Eugenics Record Office, a proponent of ‘deep and abiding biological racism’ which Bush sought to resuscitate on ‘rigorous scientific foundations’ (2023: 36). As Dionysius Geoghegan notes, Bush was particularly interested in

Shannon's 1940 PhD thesis in genetics which explored how genetic transmission and eugenic data might be understood and managed mathematically 'much like he would devise for telephone relays and chess-playing computers' (p. 37). While Shannon ended up abandoning this work to focus on wartime engineering problems, Dionysius Geoghegan's careful unpacking of cybernetics' ominous entwinements with both colonial surveillance and eugenic methodologies provides crucial foundations for current mappings of the integration of 'eugenic and segregationist thinking' into machine learning systems (Chun, 2021: xi).

A further innovative aspect of *Code* is its detailed account of 'the cybernetic apparatus' – how a new epistemic system emerged not simply via the outputs of famous engineers and their machines but rather via a vibrant 'network of institutions, methods, techniques, researchers, conferences, instruments, laboratories, clinics, infrastructures, and jargon' (Dionysius Geoghegan, 2023: 13). Alongside the Russian linguist Roman Jakobson, the French anthropologist Claude Lévi-Strauss, a key thinker in the rise of structuralism and structural anthropology, is central to this discussion. Founding his Laboratory for Social Anthropology (LSA) at Paris's École des Hautes Études en Sciences Sociales (EHESS) in 1960, Lévi-Strauss established 'logical structures of primitive life with codes, punch cards, mathematics and structural analysis' (p. 105) in ways that extended Mead and Bateson's cybernetic colonial ethnography.

Yet the LSA also cultivated a new kind of social knowledge sympathetic to 'the political infrastructures of 1960s global science' and its changing technocratic logic in which 'debates shifted from concrete embodied facts to the capacity to navigate, synthesize, and rearrange relations among data' (p. 132). Foreshadowing the global post-modern condition to follow, Lévi-Strauss ultimately succeeded, *Code* contends, in shifting 'the location of culture and the task of human sciences from physical artefacts possessed and witnessed by human minds to abstract models whose reality was attested to by machines' (p. 121) – processes with considerable relevance to ongoing debates around the investments, risks, and potentialities of the digital humanities, and the wider use of quantitative, algorithmic, and data-oriented tools to study human-embodied, affective, socio-cultural life.

For those of us who cut our intellectual teeth on post-structuralism, cultural theory, and feminist and postcolonial critique, the most thought-provoking aspect of *Code* may be the implications it raises for contemporary critical thought. Although critical theory may still be presented today as straightforwardly critical of scientific or instrumental reason, Dionysius Geoghegan teases out how 'practices of objectification, quantification, imperial control, [and] data capture and analysis' are far from foreign to the humanities (p. 174). From *Code*'s perspective, then, critical theory, informatics, and data-driven analysis by Google, Facebook and Amazon emerge from shared cybernetic roots. Differently to mid-century communications engineering, however, 'digital cultural analytics premised on pervasive informatic enclosure [now] appears to be an imminently realizable endeavour' (p. 171) – yet only, of course, for those who control the 'codes that mark access to information or reject it' (Deleuze, 1992: 5).

What, therefore, does all of this mean for the capacity of current critical theories and speculative philosophies to inform robust interventions with respect to algorithmic governance, surveillance capitalism, and digital discrimination in contemporary

computational cultures? While it is not *Code*'s project to provide definitive answers to such emergent ontopolitical questions, the book's latter chapters suggest that the transformative power of cybernetic legacies may lie in exploiting their ambivalent contours and potentialities. As illustrated by the work of diverse thinkers such as Roland Barthes, Julia Kristeva, Jacques Lacan, Luce Irigaray, Jacques Derrida, Michel Foucault, and Michel Serres, the book argues that French Theory was shaped by cybernetic ideas in significant and previously unacknowledged ways – and yet with often unpredictable consequences for technocratic reason.

While the psychoanalyst Lacan's reading of Shannon and Weaver's 'Mathematical Theory of Communication' informed his conceptualisation of psychoanalytic treatment 'as a form of symbolization', for instance, the result was something more akin to 'cacophony theory' which pushed against the seductive cybernetic assumption 'that noise and errancy might be engineered out of the human condition' (Dionysius Geoghegan, 2023: 144–5). As a young graduate student based in Lévi-Strauss's laboratory, moreover, the feminist philosopher and psychoanalyst Julia Kristeva drew on Weiner's cybernetic research 'as a resource for developing "a science of critique" that would be coextensive with "a critique of science"' (p. 164).

Rich examples such as these provide compelling historical evidence to support Dionysius Geoghegan's overarching claim that 'critical and digital inquiry are more interesting as mutual composites rather than as critical opponents' (p. 175). They also assemble suggestive new resources to enrich emergent critical AI projects which explore how 'data analytics can enable us to engage in what discriminatory data foreclose' (Chun, 2021: 244) and, in turn, how machine learning might be re-made in more imaginative, liberatory, and socially just ways by valuing entropy and 'the dissonance that emerges in relation with analytics' (Amaro, 2022: 60).

If I have one (rather minor) critique of this excellent book it is that its narrative of the close alignment between early cyberneticists and liberal technocracy, while highly compelling, sometimes felt a bit too neat. Although much attention is paid to the ambivalences and indeterminacies animating cybernetic experiments in anthropology, linguistics, semiotics, and French Theory, the varied scientists, mathematicians, and engineers associated with cybernetics' spectacular rise (and fall) do not generally receive this same nuanced treatment.

*Code*'s portrayal of figures like Weiner, McCulloch, Shannon, Bush, and Weaver as primarily technocrats (or willing handmaidens to liberal technocracy) gives us less insight into their wider fascinations, motivations, and speculations – and how, in some cases at least, their affiliations with industrial capitalism and the social management oriented aims of robber baron philanthropies might have been rather more conflicted.

Norbert Weiner's trajectory, in particular, might have warranted further contemplation, given his highly ambivalent relationship to the political and economic impact of cybernetic innovations, scientific funding linked to military technologies, and the socio-technical legacies of coloniality and slavery (Chude-Sokei, 2019; Conway and Siegelman, 2005; Pedwell, 2022) – alongside his abiding interest in the speculative possibilities inherent in 'the neglected no-man's land between the various established disciplines' (Weiner, 2013 [1948]: 2).

I also wonder what *Code*'s account of early cybernetics might have looked like had it been less US-centric – attending, for instance, to parallel and interconnected developments in the UK, including the Ratio Group (a British counterpart to the Macy conferences), which did not have the same links to robber baron philanthropy or technocratic social management (Hodges, 2014 [1983]; Pickering, 2010; Wilson, 2010). Or, moving further along in the field of cybernetic resonances, if it had engaged the early work of the Birmingham Centre for Contemporary Cultural Studies, including Stuart Hall's 'encoding and decoding' with its explicit influences in and implications for Marxism, postcolonial studies, and critical race theory.

While all of this is no doubt asking too much of what is already a remarkable, incisive, and expansive book, I would have been intrigued to see where Dionysius Geoghegan could have taken such potentially disparate strands – not least because negotiating the risks and possibilities of post-cybernetic logics and (infra)structures may require that we retrieve and reactivate the ambivalence and complexity underlying both the 'hard' and 'soft' contributors to the 20th century life of code, across early and later cybernetic interventions and imaginaries. *Code* remains, however, a stunning contribution to transnational histories of cybernetics, digital media, and critical thought – we can only hope for a second volume from Dionysius Geoghegan that takes us from the 1970s to the present day!

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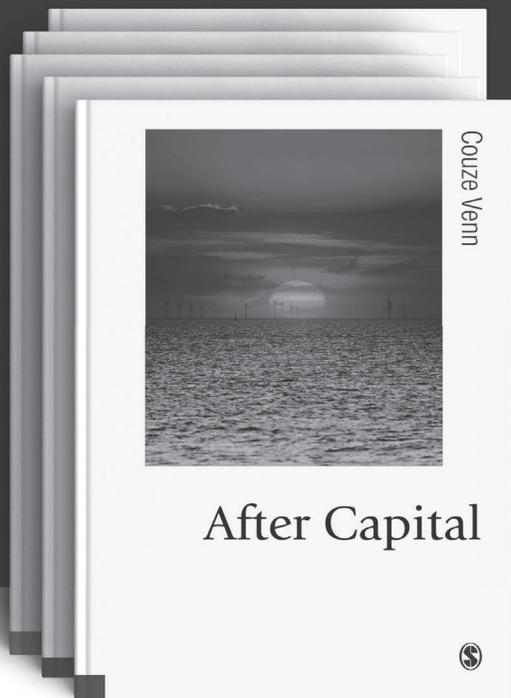
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