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REVIEW

From Foucauldian Biopower to Infopower and Energopower: A Review of Colin Koopman's and Dominic Boyer's Novel Conceptualizations of Power

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In this double review, I compare and contrast two books published in 2019 that explore the energy transition and the digital transformation through a Foucauldian lens. In *How we became our data*, Colin Koopman traces the origins of today's information society back to its origins a century ago, making the point that we are not just represented, but performatively shaped by our data. *Energopolitics* by Dominic Boyer explores the power struggles surrounding renewable energy development in Mexico and shows how it is possible to continue the extractive logic of fossil fuels with renewable energy. Both coin neologisms inspired by the Foucauldian term biopower: energopower (Boyer) and infopower (Koopman). These concepts can jointly be applied to shed light on how power inherent to data infrastructures might become the new battlefield of the energy transition.

Keywords: infopower; energopower; biopower; foucault; energy transition; digitization

1. Introduction

Studying power in relation to questions of social change has seemed to be disreputable for quite some time in the positivistically tainted research communities of engineering, economics, and political science, which typically deal with questions of green transition or digitization (and, more importantly, are in charge of providing policy recommendations in these fields). Questions of power "were deemed too normative and hence inappropriate for scientists, because the latter were supposed to be objective and analytical."[1] All the more important, then, are two new books that put power firmly back into the center of the stage, and do so within two fields of utmost current attention—and crisis: the energy and the information sectors. Streams of energy and formats of data could be considered topics that are "singularly unexciting."[2] However, as examples of the renewed interest in infrastructure that has come along with new materialism,[3] Boyer and Koopman seem to have followed Susan Leigh Star's call to "study boring things."[4]

One of the advantages of having a philosopher and an anthropologist write about data and energy systems, respectively, is the joy of reading that comes with appealing language. Surely, the concept of baseload in engineering has never been described in such poetic terms as by Boyer:

> 'Baseload' is a thermoelectric imaginary, one that has coevolved with the fossil- and nuclear-fueled infrastructure we know as 'grid'. […] It gives voice to the energopower of steady thermoelectric generation […] all conducted with a capital-centered market imaginary tightly wrapped around it like insulation.[5]

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[1] Doris Fuchs et al., "Power: The Missing Element in Sustainable Consumption and Absolute Reductions Research and Action," *Journal of Cleaner Production* 132 (2016): 306, https://doi.org/10.1016/j.jclepro.2015.02.006.

[2] Susan Leigh Star, "The Ethnography of Infrastructure," *American Behavioral Scientist* 43, no. 3 (1999): 377, https://doi.org/10.1177/00027649921955326.

[3] Nick J. Fox and Pam Alldred, "New Materialism," in *SAGE Research Methods Foundations*, ed. P.A. Atkinson et al. (London: Sage, 2019), https://dx.doi.org/10.4135/9781526421036768465.

[4] Leigh Star, "The Ethnography of Infrastructure," 377.

[5] Dominic Boyer, *Energopolitics: Wind and Power in the Anthropocene* (Durham and London: Duke University Press, 2019), 136.

Koopman features striking alliterations in the chapter on the politics of race that "is not only a politics of bodies and bloodlines, but also a politics of algorithms and analytics, of data and documents."[6] Comparing data registration to birth by describing it as "our deliveries into databases" is an image that sticks with the reader, and to portray the ease at which we accept our lives in databases as the "swaddling" that "comforts us as informational persons"[7] certainly helps driving home Koopman's point.

What, then, is infopower and energopower? Both concepts are derived from Foucauldian biopower that was coined in his studies of sexuality and further developed in his lectures at Collège de France. The term has been used vastly to understand, for example, state control, health policies, or other forms of control over life. Along with their conceptual "mother," energopower and infopower are more methodological than theoretical terms. As Foucault states:

> The analysis of these mechanisms of power [...] are not in any way a general theory of what power is. It is not a part or even the start of such a theory. This analysis simply involves investigating where and how, between whom, between what points, according to what processes, and with what effects, power is applied.[8]

Both Boyer and Koopman read Foucault as a pragmatist and borrow his genealogical method to inquire about power in energy and information systems, respectively. In each their way, they arrive at the same conclusion regarding methodology: only through understanding the specifics we can understand the general. In the following, I zoom in on each book in turn.

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[6] Colin Koopman, *How We Became Our Data: A Genealogy of the Informational Person* (Chicago and London: University of Chicago Press, 2019), 150.

[7] Koopman, *How We Became Our Data*, 65.

[8] Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977–78*, trans. Graham Burchell, ed. Michel Senellart et al. (London: Palgrave Macmillan, 2007), 16.

2. Infopower: How We Became Our Data

Reading *How we became our data* by the American philosopher Colin Koopman is like reading a detective novel. In tracing datafication through the history of three selected cases, namely of birth certificates and social security numbers, of psychological personality traits, and of racial segregation of housing credit policy, he slowly convinces "even the most committed informational luddite"[9] of the deep historical entrenchment of the current state of our datafied world. Meticulously, he uncovers the performativity of data infrastructure, that is, the power inherent to data formats, which he names infopower. By adapting the Foucauldian biopower term, Koopman wants to show how the very nature of power itself is shifting. Inspired by Ian Hacking,[10] Koopman defines infopower as a "political assembly of information […] which is political because it disposes us as subjects of data prior to any communicative exchange."[11] Thus, his genealogy shows: phenomena that are today discussed under labels like surveillance capitalism[12] or the network society[13] are nothing new; in fact, their foundations were laid a century ago.

   As a reader, I was most surprised and subsequently most convinced by the chapter on personality traits. Ever since taking a personality test, I have identified strongly with the outcome, a personality "trait bag" summarized in a four-letter acronym which places me in a certain corner of the four-by-four matrix of the Myers-Briggs personality profile widely used in recruiting. However, now I know that what I thought is part of my "real me" was constructed with the birth of personality psychology. The elusive concept of character was turned into what was perceived as objective and measurable traits that "became like inches or volts: Measure them and they are really there."[14] Similar to the

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[9]   Koopman, *How We Became Our Data*, 66.

[10] Ian Hacking, "Biopower and the Avalanche of Printed Numbers," *Humanities in Society* 5 (1982).

[11] Colin Koopman, "Information before Information Theory: The Politics of Data beyond the Perspective of Communication," *New Media and Society* 21, no. 6 (2019), https://doi.org/10.1177/1461444818820300.

[12] Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (New York: Public Affairs, 2018).

[13] Manuel Castells, "A Network Theory of Power," *International Journal of Communication* 5 (2011).

[14] Koopman, *How We Became Our Data*, 88.

way 'big data' constructs correlations today, Gordon Allport, the father of personality psychology, was convinced that "we shall be able to give reliable quantitative results before we understand the precise nature of that with which we are dealing"[15] already a century ago. The hermeneutic psychoanalyst was turned into an information scientist. Being myself an economist, it is of no surprise to me that Allport had an undergraduate degree in economics. His approach to psychology can be understood as a case of what Flyvbjerg calls physics envy,[16] because it displays the "arithmomania"[17] that became prevalent not only in psychology, but in social sciences in general since the turn of the last century. Since reading Koopman, I feel like a social media profile on two legs—except that the creator of that profile's formatting was not Mark Zuckerberg, but Gordon Allport, again: almost a century ago. Paraphrasing Koopman, I have "become my personality."[18] Koopman emphasizes that his genealogical work shares "a vigilant attention to conduct"[19] with actor-network theory. If personality tests are seen as a calculative device, then, in the language of actor-network theory, the infopower of formatting personhood into traits can be understood as the performativity of calculative devices, or even as economization[20] through calculative devices.

In his historical account, Koopman manages to sprinkle in many current references, like the Cambridge Analytica scandal.[21] He also unknowingly anticipates events like the Jena declaration,[22] in which German scientists argue that there is no

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[15] Koopman, *How We Became Our Data,* 84.

[16] Bent Flyvbjerg, *Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again*, trans. Steven Sampson (Cambridge: Cambridge University Press, 2001).

[17] Nicholas Georgescu-Roegen, "Methods in Economic Science," *Journal of Economic Issues* 13, no. 2 (1979), 323.

[18] Koopman, *How We Became Our Data,* 70.

[19] Koopman, *How We Became Our Data*, 24.

[20] Koray Çalışkan and Michel Callon, "Economization, Part 1: Shifting Attention from the Economy towards Processes of Economization," *Economy and Society* 38, no. 3 (2009): 369–98, https://doi.org/10.1080/03085140903020580.

[21] Koopman, *How We Became Our Data,* 67.

[22] Martin S. Fischer et al., "Jena Declaration: The Concept of Race Is the Result of Racism, Not Its Prerequisite," Friedrich Schiller University Jena, accessed October 24, 2019, https://www.uni-jena.de/unijenamedia/Universit%C3%A4t/Abteilung+Hochschulkommunikation/Presse/Jenaer+Erkl%C3%A4rung/Jenaer_Erklaerung_EN.pdf.

such thing as race, genetically speaking. Also, very topically, Koopman mentions the social construction of gender as an example of the workings of infopower:

> […] birth certificates have functioned for over a century to render gender into formatted data […]. Only some gender identities are allowable, and […] it was long obligatory that one choose (or rather have chosen for one at birth) one specific gender from among those allowable on the form.[23]

After the German federal constitutional court ruled that the binary gender choice is not in accordance with fundamental individual rights,[24] Germany has installed a third gender in identity documents.[25] This political decision has broad social implications: job offers, for instance, are now being announced as m/w/d, that is, male/female/diverse, wriggling gender out of the fastening of the original birth certificate format.

3. Energopower: A Cautionary Tale of Wind Power in Mexico

Based on several rounds of field work in the Isthmus of Tehuantepec in Mexico with Cymene Howe, *Energopolitics* by the American anthropologist Dominic Boyer is part of what the authors have termed a duograph. The other monograph by Howe entitled *Ecologics*[26] focuses on 'Mareña Renovables,' a failed wind park megaproject. Following Timothy Mitchell's notion of carbon democracy,[27] which tracks the genealogy of modern (problems of) democracy to the materiality of fossil energy carriers, Boyer wants to "draw attention to the energo-material contributions of fuel and electricity

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[23] Koopman, "Information before Information Theory," 11.

[24] Bundesverfassungsgericht, "Personenstandsrecht muss weiteren positiven Geschlechtseintrag zulassen," accessed October 24, 2019, https://www.bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/DE/2017/bvg17-095.html.

[25] Bundesministerium des Innern für Bau und Heimat, "Zusätzliche Geschlechtsbezeichnung 'Divers' für Intersexuelle eingeführt," accessed October 24, 2019, https://www.bmi.bund.de/SharedDocs/pressemitteilungen/DE/2018/12/drittes-geschlecht.html.

[26] Cymene Howe: *Ecologics: Wind and Power in the Anthropocene* (Durham and London: Duke University Press, 2019).

[27] Timothy Mitchell, "Carbon Democracy," *Economy and Society* 38, no. 3 (2009), https://doi.org/10.1080/03085140903020598.

to political power."[28] Alongside Mitchell, the German politician and political thinker Hermann Scheer is a second source of inspiration for Boyer, and in paraphrasing both Scheer and Mitchell, he states:

> The invisible codependence between our contemporary infrastructures of political power and our infrastructures of energy [...] generate[s] an energo-material path dependency [...] that resists the imagination of alternatives to the long-chained fossil-fueled status quo. For to imagine an alternative to 'the grid' is, in essence, to imagine an alternative to centralized political authority, bureaucracy, and 'the state' as well.[29]

To Boyer, energopower is a conceptual lens that helps to bring into focus fuel and electricity as force relations, but it does not represent "a singular form of power per se."[30] This is in contrast to Koopman, to whom infopower is precisely a "distinctive modality of power layered on the biopolitical, disciplinary and sovereign powers characteristic of a more familiar moment in modernity."[31] If Koopman reads like a crime novel, the experience of reading Boyer is rather that of Samuel Beckett's *Waiting for Godot*, culminating in a picture of the "empty seat of energopower;"[32] an image showing the abandoned office of the coordinator of renewable energy in the State of Oaxaca, Mexico. Especially in the Yansa-Ixtepec case, a community wind power project that "deliberately sought to decentralize traditional institutions of political authority like masculine domination of the bienes comunales,"[33] the outlook remains bleak. Until today, the project has not come to fruition, due to hinderances by the vertically integrated state-owned utility also responsible for transmission and distribution, Comisión Federal de Electricidad (CFE)—or, as Boyer puts it, "the electricity parastatal":[34] "It is both possible and common to build wind

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[28] Boyer, *Energopolitics*, 5.

[29] Boyer, *Energopolitics*, 16.

[30] Boyer, *Energopolitics,* 8.

[31] Koopman, *How We Became Our Data*, 189.

[32] Boyer, *Energopolitics*, 96.

[33] Boyer, *Energopolitics*, 33.

[34] Boyer, *Energopolitics*, 16.

parks firmly within a model of resource extraction that is typical of global fossil fuel and mining industries."[35]

What is refreshing, despite the depressiveness of the conclusions, is the clarity of Boyer's gaze. As an anthropologist, he is not enmeshed in day-to-day energy policy work, and sees clearly: "Wind power [is left] in the thrall of finance capital, state biopolitics, and energopolitics."[36] This development is also seen in Europe, but it is seldomly questioned. After several regulatory changes, the former pioneering countries of the energy transition, Denmark and Germany, are also home to depressing stories of failed cooperative wind and solar energy developments, but they remain largely unnoticed. It might take a "policy outsider" like Boyer and narratives from Mexico to open the eyes of European energy practitioners.

4. Styles of Criticism: Where Koopman and Boyer Divert

Confronting power can be "downright uncomfortable,"[37] and the way this is done is the point where the paths of the two authors divert. In the genealogy of personality traits, Koopman explicitly distances himself from "the suggestion that these formats are unjustifiable tricks by which researchers mathematically reduce more complex qualitative phenomena" and declares that "such a critical gesture of denunciation" is not his intent.

> Taking into account this broader array of actors helps unsettle predictable convictions about the intentions of those who would make us into our data. Behind big events there do not always lurk grand strategies like military campaigns, capitalist schemes, state power and fantasies of social abstraction.[38]

Hence, he leaves "to others to contest whether we *ought* to be fastened by"[39] the infopower of formatting, and takes up the role of pulling infopower out of the shadow, for everyone to see.

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[35] Boyer, *Energopolitics*, 35.

[36] Boyer, *Energopolitics*, 24.

[37] Fuchs et al., "Power: The Missing Element," 306.

[38] Koopman, *How We Became Our Data*, 179.

[39] Koopman, *How We Became Our Data*, 90.

Boyer, too, is not condemning, but sympathetic to incumbents like the state-owned utility Comisión Federal de Electricidad: "CFE's engineers and administrators felt victimized by the invasion of 'political' motives into the 'technical' world of the grid."[40] Boyer perceives them as potential losers of the transition:

> […] the future of the grid that sustained them had been taken away from CFE. […] Wind power might very well become a significant part of Mexico's electrical future, but none of that energy would be supplied by CFE. […] CFE would be left managing the engineering challenges of maintaining a grid that had to cope with increasing intermittency.[41]

However, Boyer sees it as his task not only to shed light on, but also to actively critique the causes of the injustices that his fieldwork with Cymene Howe made him uncover. Maybe due to the location of his research in time and space, Boyer, in contrast to Koopman, is not hesitant to phrase this critique as one of capitalism and neoliberalism by describing Mexican and Oaxacan politicians and technocrats as "steeped in neoliberal certainties and petropolitical anxieties," yearning "for foreign direct investment to extend and improve the biopolitical functions of governance in the form of health, security, and prosperity."[42] That neoliberalism as a concept for critique can, however, leave "us more confused than enlightened,"[43] might be the take Koopman shares on this issue, who "doesn't want to rely on generalities like neoliberalism [to] make sense of our data present."[44]

Nevertheless, both authors offer critique in the Foucauldian sense, they "show that things are not as self-evident as we believed."[45] Boyer and Koopman "make facile

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[40] Boyer, *Energopolitics*, 141.

[41] Boyer, *Energopolitics*, 142.

[42] Boyer, *Energopolitics,* 195.

[43] Kean Birch and Simon Springer, "Peak Neoliberalism? Revisiting and Rethinking the Concept of Neoliberalism," *Ephemera Theory & Politics in Organization* 19, no. 3 (2019): 468.

[44] Colin Koopman, *Historicizing the Critique of Power*, audio recording of a talk given in Zurich on March 20, 2015, time stamp 11:55, https://voicerepublic.com/talks/historicing-the-critique-of-power.

[45] Michel Foucault, "Practicing criticism," in *Politics, Philosophy, Culture: Interviews and Other Writings, 1977–1984,* trans. Alan Sheridan et al., ed. Lawrence D. Kritzman (New York: Routledge, 1988), 154.

gestures difficult" by "pointing out on what kinds of assumptions, what kinds of familiar, unchallenged, unconsidered modes of thought, the practices that we accept rest [on]."[46] In that sense, the authors practice the kind of criticism "absolutely indispensable for any transformation"[47] like the energy transition and digitization.

Another point where Koopman and Boyer divert is communication theory. Koopman emphasizes that he is dealing with information before the war-era cybernetics and the mid-century grand theorists of communication, while Boyer is coming from media anthropology, which is indebted to these. Koopman criticizes Habermas for presupposing what he wants to analyze, namely, information. His continuous emphasis on the phrase "information before information theory"[48] emerges from this conflict with information theory: Koopman argues that grand theories of communication, such as Habermas' theory of communicative action, cannot in any relevant way help understand our current endeavor into the information age. Rejecting Habermasian communication theory for understanding the information age must, according to Koopman, also lead to a rejection of notions of deliberative democracy as a solution to the democratic deficits we encounter today, because they are unable to question the fundamental units of communication: information itself. This way, Koopman actually delivers a very acute diagnosis of today's political inaction regarding the concentration processes taking place in the digital space. They cannot be counteracted as long as information itself is made invisible by communication-focused conceptualizations of digitization.

5. Layering the Conceptual Minima of Info- and Energopower

Both Koopman and Boyer are advocates of a "pluralism about power."[49] They express this advocacy by adding novel terms to the genealogical toolbox, describing how different modes of power relate through "layering"[50] or as sets of "conceptual minima."[51]

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[46] Foucault, "Practicing criticism," 154.
[47] Foucault, "Practicing criticism," 155.
[48] Koopman, "Information before Information Theory," 1.
[49] Koopman, *How We Became Our Data,* 171.
[50] Koopman, *How We Became Our Data,* 171.
[51] Boyer, *Energopolitics,* 7.

Referring to recent discussions within genealogical political philosophy, Koopman suggests that the "relationship between infopower and other of power's modalities is neither negative nor substitutive, but rather additive, or layered."[52] Boyer in turn understands his concept of energopower as part of a power triad of capital, biopower, and energopower, considering each of these concepts to be "conceptual minima" whose explanatory power is exceeded when confronted with the "epistemic maxima" of the field.[53] He encourages the reader to "broaden the set of conceptual minima"[54] by adding more conceptual frameworks to the set, and does so himself, too. I read this is as an invitation to combine the two power concepts. In fact, the combination of infopower and energopower might fill a void in today's energy and digital transition research and practice. Taken together, infopower and energopower can be very enlightening concepts to understand the energy transition that we are going—or should go—through, as I will sketch out in the following paragraphs.

In a fossil energy system, it is the storability of fossil energy carriers that makes supply and demand meet. Supply is demand-driven, and the storability of fossil energy means that adjusting to fluctuating demand is physically and socio-technically possible. Power, more specifically, energopower, is exerted as control over this storage. In a renewable energy system, sectoral integration—that is, the interaction between electricity, heating, and transportation systems—takes over the role of balancing supply and demand.[55] However, there is a 'glue' that sticks the sectors together: information and communication technologies and the data flows within them are what makes system balancing through sector coupling possible. Hence, the ability to store energy in the fossil energy system is replaced by information systems that manage the fluctuating nature of variable renewable energies. Therefore, control exerted over information takes a similar role as control over storage in the fossil energy system (a point made by Timothy Mitchell).[56] This means that it is no

52 Koopman, *How We Became Our Data,* 172.

53 Boyer, *Energopolitics,* 5–6.

54 Boyer, *Energopolitics,* 19.

55 Brian Vad Mathiesen et al., "Smart Energy Systems for Coherent 100% Renewable Energy and Transport Solutions," *Applied Energy* 145 (2015), https://doi.org/10.1016/j.apenergy.2015.01.075.

56 Mitchell, "Carbon Democracy."

longer sufficient to understand the power inherent in energy, energopower, when analyzing renewable energy systems; we must also understand the fundamental power dynamics of information systems, infopower. The new books by Boyer and Koopman are significant contributions to do just that.

There is another potentially productive inter-reading of Koopman's and Boyer's concepts by applying Koopman's term 'fastening' to Boyer's work. Fastening denotes how formats of data both "tie us down and speed us up"[57] as informational persons. Infopower acts by fastening information into infrastructures which path-dependently reproduce whatever injustices were molded into the earliest data sheets. Inspired by this insight, energopower could be understood as the fastening of energy into infra-structures (which are, today, fossil infrastructures), path-dependently reproducing the problematics of the fossil era.

The analytical advantage of this parallelism can be illustrated as follows. The heydays of the internet spread the slogan "Information wants to be free."[58] What Koopman shows is that although information may be "freely" transmitted, it is fas-tened by formats exerting infopower. Similarly, although the primary energy sources of renewables, wind and sun, may deliver free energy and hence result in electricity produced at no marginal costs, it is fastened by energopower, the political power inherent in infrastructures, which continue fastening renewable energy in the same power structures as fossil energy.

However, this kind of operationalizing of energopower might not be what Boyer intended. As mentioned above, energopower is not defined as a singular form of power as such. Energopower is more of "a hashtag if you will."[59] Thus, we are dealing with two very different power concepts. While Koopman tirelessly argues for the explanatory power of infopower, Boyer emphasizes the analytic limits to energopower (along with the other power concepts of capital and biopower that he applies), because for him, Boyer, power is also and always locally shaped. While both call for more close-up studies as enablers of resistance to info- and energopower at the end of their books, Koopman

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[57] Koopman, *How We Became Our Data*, 12.

[58] Koopman, *How We Became Our Data*, 187.

[59] Boyer, *Energopolitics*, 19.

names specific locations to look for infopower in the making: "It may be a design lab. It may be a code studio. It may be a tech incubator. It may be an engineering firm."[60] Mentioning the engineering firm, he unknowingly bridges to energopower, which in the case studies of Boyer is to a large extent enacted by the engineers of the public utility CFE and those of the wind turbine manufacturer Vestas and other stakeholders. Thus, the two books are more closely related than the authors might think: inside the calculative devices of the energy transitions resides an infopower of formatting that enables the continuous enactment of energopower. In other words, every physical energy infrastructure today is information before it becomes material, so infopower lingers underneath or inside energopower.

Resistance to energopower, hence, becomes resistance to infopower, which requires attention to the politics of technics as Koopman calls it: "A critical inter-rogation of the complexities and contingencies of technics can bring us into decisive confrontation with the operations of power, and therefore with the possibilities of resistance."[61] The problem is that in order to have access to these sites of formatting one must pass the rites of passage of engineering, economics, and computer science, designed to set aside anything normative, political, or power-related and to assume an air of positivistic objectivity. Gaining access to the sites of formatting thus requires a more techno-optimist attitude. Koopman emphasizes the image of the "humble tech-nician" who unknowingly builds infopower into products. However, is the solution to this problem not precisely to teach "humble technicians" to take the possible social implications of their work into consideration? Then, educating engineers, economists, and "technicians" of all kinds to a sensitivity of power might be the strongest take-away message of both books.

Acknowledgements

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[60] Koopman, *How We Became Our Data*, 194.
[61] Koopman, *How We Became Our Data*, 193.

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