BOOK REVIEW

Finding one’s way in media and AI: metallurgy and mapping

A geology of media, by Jussi Parikka, Minneapolis, MN, University of Minnesota Press, 2015, Vol 46, 224 pp., $24.95 (paperback) ISBN: 978-0-8166-9552-2, $87.50 (cloth) ISBN 978-0-8166-9551-5

Atlas of Al, by Kate Crawford, New Haven, CT, Yale University Press, 2021, 336 pp., $28.00 (hardcover), ISBN 9780300209570

That which is most palpable of media devices – a uniform tactile screen or the sleek casing of a smartphone – often renders less visible the complex materiality of that technology. Similarly, when speaking about artificial intelligence (AI) and its apparent ability to learn, buzzwords and phrases gloss over a careful understanding of how AI works and how it arose. Jussi Parikka and Kate Crawford concern themselves with ostensibly distinct matters: the former explores what it means to think of media geologically in A Geology of Media, while the latter investigates the history and discourse surrounding AI in Atlas of Al. Nonetheless, Parikka and Crawford coincide in the thrust of their projects: there is a particular theoretical potential in media devices and artificial intelligence that is not obvious in their final, packaged form. Parikka proposes a “metallurgical way of conducting theoretical work” that foregrounds nonhuman, geologic agency in the production of modern media technology. He calls attention to the geologic materiality of media through literature, art and theory: transdisciplinarity is central to the metallurgic method. Crawford adopts a cartographical approach, cutting through the mystique of AI by mapping out what AI is, what it is not, and how it has come to wield an air of unknowable abstraction. Through their respective methods, both books seek to (re)-ground media, intelligence, and discourse and begin anew.

Geologic time and metallurgic experimentation

Parikka proposes new directions for media studies and materialism. Geology, he argues, grants the ability to think of media in terms of an “alternative deep time.” In order to make sense of their scope, geological processes require a timescale different from a system of days, months, and years. The use of the planet’s revolutions around the sun as the basis of temporal measurement ignores the physical processes within the earth and the rates at which they occur. Geologic deep time, by contrast, is the dissociation of time from linearity and its association with materiality. The image of rock strata is particularly useful: in a cross-section, geologic divisions correspond to divisions in time, with differences in depth and material characterizing their length and nature. Crucially, deep time is inseparable from material conditions. In the geologic visualization, time periods are stacked upon one another. There are physical reasons for each of the changes represented, all related to the pressure and chemistry of the earth and its evolution.
Parikka “radicalizes” the notion of deep time to apply it to media theory. To understand media, it is necessary to begin “before media become media” and continue through to when “media are not anymore media” (37). The use of deep media points toward the geologic origins of current relations between the material and the political. If a smartphone consists of materials originating from regions across the world, each enmeshed in its own geological and political contexts of exploration and extraction, then thinking in deep time and away from calendrical intervals facilitates understanding how smartphone production has become possible today. Moreover, shifting the timescales of analysis toward deep time casts the Anthropocene in new light. Although the functional lifespan of a media device is short, the effects of mineral extraction and device production are geologically related processes that will continue to follow a geologic timescale. Setting the rapid, sweeping ecological deterioration that characterizes the Anthropocene in a materially informed temporality makes available new perspectives previously clouded by the insistence on divorcing time from geology.

There is a second argumentative turn bound up in Parikka’s exploration of deep and alternative timescales. Parikka is interested in examining the agency of mediatic matter: reading artist Graham Harwood’s statement on “Coal Fired Computers,” he suggests re-thinking the role materials exercise in historical situations. Perhaps it was not Italian Fascism that made use of aluminum in the twentieth century, but rather aluminum that needed a set of circumstances – political and geological – to enter into play. If it is possible to imagine aluminum as something more than a passive resource, then perhaps it is also possible to think about the afterlife of media devices – e-waste – as more purposive than mere refuse. Piles of discarded technological devices will outlast their human users and continue existing on geologic time. Drawing now from artist Grégory Chantosky, Parikka suggests reading these piles as telofossils, the remains of a past time that serve as the basis for an “archival investigation of the future.” E-waste becomes, as a telofossil, a store of information about the present that will be legible in hindsight. Yet in imagining discarded devices as possessing insights into today, it becomes possible to think that they might somehow be read ahead of time – that is, now. A geology of media may therefore not only serve to re-historicize media devices according to their materiality but can also bring to the fore a concern for how the future will view the present.

Parikka’s endeavor is a challenging read, and not only because it aims to re-think timescales and the possible paths for new materialism. A Geology of Media blends art, theory, and literature for both its content and style. In the fourth chapter, “dust” is as much an object of study as it is an example of the metallurgic method of analysis, with which Parikka traces geology’s continuous presence before, during, and after the manufacture of a media device. A method that traverses disciplines so fluidly is decidedly creative work, but it may narrow its audience more than it does to expand it. The “Anthrobscene,” “telofossils,” and “psychogeophysics” weave Parikka’s chapters together but require a willingness to think with an experimental vocabulary. Approached with patience, the work becomes a ground from which new ideas readily spring.

Mapping AI

As a term, ‘Artificial intelligence’ has come to evoke more a mythos of modern technology than a definition of what it is or how it functions. Kate Crawford’s Atlas of AI seeks to cut through the mystique with a six-part investigation. The book is framed as an atlas: a means by which one can orient oneself in the history, mechanisms, and current state of AI. Crawford’s central argument through the atlas imagery is that AI is neither “artificial” nor “intelligent” and that earthly resources, human labor, and state-power relations undergird the discourse surrounding AI. Crawford’s book is intended for a wide readership such that AI’s political and social nature comes into public view.
Crawford first grounds AI in the material needs of its hardware, detailing the demands for lithium extraction in Nevada and Bolivia, for electricity to power data centers, and for waste deposits in Mongolia. Tracing the hidden material requirements of AI is the first step to understanding the technology’s sociopolitical dimensions. Drawing from Lewis Mumford, Crawford describes AI as a mega machine: despite impressions that AI consists of intangibles—algorithms and data sets from which intelligence emerges—it entails massive resource costs, not only in mineral extraction but also in the construction of the infrastructure required to transport raw materials. Even when the hardware is built, artificially intelligent systems continue to be labor-intensive. Crawford discusses the immense work humans do in adjusting and correcting incoming data such that AI products can appear more autonomous and capable than they are. This labor, frequently said to be crowdsourced, is at once underplayed when talking about AI and underpaid. Crawford gives a historical overview of practices intended to make labor more efficient and more machinelike, alighting on a central irony of AI’s promise of efficiency: what is advertised as independence from human error and inefficiency relies on human ability, time, and labor, not only to function, but also to keep up appearances. Crawford historicizes the novelty of AI with an analysis of Taylorism and its accompanying rhetoric.

Data collection and classification continue Crawford’s atlas. By tracing the historical disregard privacy and consent in data collection and the subjective classificatory practices that produced the first iterations of artificially intelligent products, Crawford discusses how AI assumed a narrative of objectivity. Data became, in public discussion, a decontextualized, abstracted resource to be collected. If a system yields racist or sexist results, the abstraction makes it easier to frame such results as mistakes caused by insufficient data. This framing diverts attention from the underlying social assumptions and political contexts under which the system was created. Mugshot databases and gang-crime prediction tools operate on flawed datasets rife with errors that later produce discriminatory results. Yet the roots of the problem—the reason for the database biases and the tacit acceptance of the policing practices that produce the data—go unquestioned. Just as there are far more human labor inputs into AI technologies than are openly admitted, the insistence on its objectivity denies the inherent ethics and subjectivities at work in its structure and function.

Crawford’s final chapters discuss the close collaboration between state institutions and Silicon Valley tech companies. Systems that have applications in both civilian and military contexts are more readily funded for development. A race for global technological superiority has historically inflected AI research and development with national geopolitical interests, but domestic interests also shape the direction of Silicon Valley research today: Palantir’s work to develop facial-recognition technology for the United States’ Immigration and Custom Enforcement is one salient example. Crawford discusses the transformations that reliance on facial recognition databases can have on policing, shifting its primary task from enforcement to intelligence, wherein criminal incidents and actors are profiled on the information available in police databases. Here, the critical threads of Crawford’s preceding chapters come together: certain demographics are deemed as requiring elevated surveillance based on circular logic, while the responsibility for such a conclusion is shifted onto a blameless algorithm.

Atlas of AI is a compelling overview of the history of “AI” and the vagueness that shrouds what data, algorithms, and AI actually do. True to an atlas, Crawford’s book covers much ground, succeeding in dissembling AI as a single “thing.” In the opening description of the book, Crawford emphasizes that her atlas-making is done against colonial mapping logics and epistemological commitments: it does not set out to create a “global atlas.” Instead, it maps the visions of AI as developed in the tech industry and its collaborators in the United States, thereby calling attention to the specificity and contingency of AI’s evolution. To
close, she offers a through-thread: AI is not the neutral technology it is made out to be. Instead, it operates as if the world consisted of games to be optimized under parameters subject to the politics of labor, classification, and power. This is the worldview that Crawford’s atlas maps out, laying bare its biases, political inflections, and the root of its mythos of objectivity.

In a sense, Parikka embarks on a similar cartographical project that Crawford does, if only through different venues. Both books contribute to the disorientation and reorientation of understanding what media materiality and AI are. Parikka describes the metallurgical as an “ambulant science” that lets itself be guided by matter. What Parikka achieves by looking to imaginaries of the geologic underworld – a tradition spanning from Lyell to Caillois to the archives of the future – Crawford does through attention to discourse and historicization. Both represent valuable tools for orientation, offering anticipatory, critical pathfinding in current mediatic enmeshments and those to come.

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