

FORUM

## Migration and the *Deep Time* of Media Infrastructures

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*While infrastructures of media and of migration currently converge in specific ways, in this commentary, we consider how these infrastructures always reflect distinctive moments in media history, as well as in migration history. An archaeological approach to infrastructure posits that media infrastructures do not spring into action fully formed, and neither is there ever a moment when they would be fully formed. We propose the perspective of deep time of infrastructures as a way of opening up unresolved questions about what critical researchers can and should do with historically-informed inquiry of media technologies across migration contexts. We specifically operationalize the deep time of media and migration infrastructures by addressing the three dimensions of: (1) materialities; (2) practices; and (3) imaginaries.*

**Keywords:** deep time, media infrastructures, migration infrastructures, media archaeology, materialities, practices, imaginaries

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In this commentary, we propose the lens of infrastructure and attention to their *deep time* to conceptualize and expand ongoing research on forms of migration governance and borders in the field of media and migration studies. The research paradigm *infrastructure* has proven to be a helpful tool for analyzing new, digital technologies and media practices in the realm of migration, including experimental media developments in migration and humanitarianism (Martin et al., 2022), or the infrastructural roles of technologies in refugees' media practices (Latonero & Kift, 2018). Generally, infrastructures are taken-for-granted systems that enable or constrain human action (and movement) (Star, 1999). They are maintained by intermediaries, brokers, and middlemen (Lin, Lindquist, Xiang, & Yeoh 2017), and

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consist of various material objects, or “stuff you can kick” (Parks, 2015, p. 356). At the same time, infrastructures are undergirded by symbolic, economic, political, aesthetic, and socio-cultural motives (Parks & Starosielski, 2015), enacting a certain “politics and poetics” (Larkin, 2013, p. 327).

Infrastructures of media, and of migration, converge in specific ways at the present moment (reflected not least in this special issue). However, what remains without much attention, is considering that this moment in time, where large-scale digitalization and global migration intersect, is not a logical endpoint of progressive history, nor unique or unseen before. In urging to consider how media and migration infrastructures reflect distinctive moments in media history, as well as in migration history, we suggest an archaeological approach to infrastructure: we therefore posit that infrastructures do not spring into action fully formed, and reject the assumption there can ever be a moment when infrastructures would be fully formed. They are not isolated devices or external change agents, but always embedded in longer temporalities and genealogical connections over time, that are not necessarily linear or progressing to a logical destination. The perspective of *deep time* of infrastructures provides a way of opening up unresolved questions about what critical researchers can and should do with historically-informed inquiry of media technologies across migration contexts. To operationalize what a historicizing methodology can look like, we suggest the dimensions of materiality, practices, and imaginaries, as entry points. These are concepts that are often used in the study of contemporary infrastructures, but, as we demonstrate, they are also valuable for tracing how infrastructures are *built*, what people *do* around them, and what people *think* about them.

*Deep time* is a geological concept referring to vast earthly timescales spanning beyond human lifetimes. Following Zielinski (2006), the perspective of deep time can frame an archaeological investigation of media, pointing at the infinite layers and variations of mediation. This perspective helps to denaturalize the present as the only possible outcome, or the result of a natural progression. Instead, it prompts researchers to identify similarities across temporal distances. Countering assumptions of media history’s linear move towards technological perfection, the research program becomes: “do not seek the old in the new, but find something new in the old” (Zielinski, 2006, p. 3). Specifically, the metaphor of deep time invites attending to how the “deep pressure points” of colonialism (Stoler, 2016, pp. 5–6), or the “wake” of slavery that characterizes and structures anti-Blackness and White supremacy (Sharpe, 2015) haunt media-technological systems and processes of contemporary migration infrastructures. Seeming innovations of the digital “smart border,” of high-tech solutions in humanitarian governance, or alleged radical shifts in communication practices among migrants through digital technologies, are not a-historical appearances, and neither are they emerging from a unitary media historical linearity, unparalleled and unprecedented. Thus, a deep time perspective directs scrutiny to the historical circularities, parallels, and alternatives, as well as genealogies and pathways, that relations between media and migration take, as well

as their hierarchical power dynamics, and co-enabling and delimiting interdependencies (cf. media archeology, e.g., [Huhtamo & Parikka, 2011](#); [Peters, 2015](#)).

Hence, this commentary seeks to make productive approaches from media archeology and its attention to deep time, in order to reflect how historicization and attention to wider temporalities can inform critical studies of infrastructures of media and migration. To do so, we specifically consider the deep time of: (1) materialities; (2) practices; and (3) imaginaries as three dimensions of media and migration infrastructures. These dimensions address the historicity of the media *materiality* itself, of what is *done* around media, and what is *thought* about media. As we will shortly demonstrate, these dimensions can focalize and operationalize analytical attention to trace and excavate how media and migration infrastructures (re-)emerge, manifest, and are re-articulated across time; haunt present-day formations of media and migration infrastructures; and how people design, use, imagine, and experience these across time. Yet, the goal is not to identify origins or root causes, but to denaturalize and unsettle the present condition of media and migration as the only, unavoidable outcome. In the words of Foucault, such an approach “disturbs what was previously considered immobile; it fragments what was thought unified; it shows the heterogeneity of what was imagined consistent with itself” (1977, p. 147).

## Materialities

First, the deep time of infrastructures touches the dimension of materiality, carrying and manifesting operations of media and migration over time. While migration often follows established paths (e.g., through diasporic ties, family reunification, circular migration, or colonial connections), also media infrastructures often follow literal earlier paths, when developed over time. Scholarship historicizing media infrastructures has pointed out the layering and palimpsestic relations of their materiality. In the urban context, Shannon Mattern argues that “cities carry in them the ‘residue’ of all media technologies past” (2015, p. 96).

For example, undersea fiber optic internet cables follow colonial copper telegraph cable networks. Telegraph cables in turn were laid following the shipping routes of the transatlantic slave trade ([Starosielski, 2015](#)). Contemporary oceanic pathways are thus haunted by modes of extraction, control, and exclusion, as they were not developed to benefit formerly colonized people. New undersea fiber-optic networks linking South Asia, East Africa, and the Middle East through alternative paths can therefore be grasped as “decolonial infrastructural models,” as they envision alternate organizations of ownership, co-operation, and governance ([Thorat, 2019](#), p. 252).

Another case are refugee camps as infrastructures of migration governance, exemplifying how material continuities matter. In post-World War II Germany, mass displacement was managed within a system of thousands of camps. Yet, this infrastructure did not appear out of thin air. The existing web of concentration camps from the Third Reich provided a material basis for an expedited system of governed

mass accommodation (Seufferling, 2021). Along with concentration camps came ideas and material forms of mobile, temporary housing (in moveable, numbered barracks). Through their materiality, concentration camps arguably transferred assumptions and possible practices of isolation, containment, surveillance, disciplining governance, temporariness, and withholding to emerging refugee governance. To this day, mobile, impermanent, and contained forms of housing re-emerge, and characterize refugee governance: in shipping container camps, Berlin's "Tempohomes," or UNHCR's iconic white and blue emergency shelter tents. Hence, ways of mediating, manifesting, and building migration governance and its infrastructures are structured by historical layers, by palimpsestic re-emergences, transferring logics, and boundaries of what is deemed possible across time, often steered by already existing material foundations.

## Practices

Second, entangled with the materiality of media technologies are always the practices, which are bound to, enacting, working on, or resistant toward the physical conditions of infrastructure. Tracing what is *done* with and around media technologies in migration governance can demonstrate the re-articulations of specific practices that characterize migration over time (cf. "media archaeology of practices" by Kaun, 2016). Specific ways of knowledge production, and assumptions, expectations and fantasies around media technologies ever again stabilize in certain practices, enabled and conditioned by changing material infrastructures.

One key technology-enabled practice that characterizes border and migration infrastructures is decision-making about immigration vs. deportation. Border authorities rely on assemblages of different media technologies to facilitate deciding which bodies are eligible to pass borders, and which are not. To do that, bodies and biographies are made legible and coded through biometrics and other forensic data analytics. Contemporary digital borders, for instance, incorporate in their assessment datafied biometrics, or obligatory analyses of smartphone and social media data (Pfeifer, 2021). States further move to incorporate deep learning and neural network algorithms on the basis of particular established categories, protocols and input, making the digital border a "deep border," whose logics "enact the colonial continuities of racist discrimination and partition" (Amoore, 2021, p. 7). Louise Amoore (2021) already hints at deeper colonial and racist underpinnings in mediated practices of knowledge production and decision-making, bound to specific technologies.

Excavating historical practices of filtering at the state border can further nuance our view on how stabilized, routinized practices of knowledge production re-emerge over time. The case of the Ellis Island immigration station in New York City, USA (run between 1892 and 1954) exemplifies how such practices can be articulated and materialized in different historical contexts. A central category of mobile subjects to be determined at border control was the classification of "likely to

become a public charge” (LPC). Based on eugenicist ideas, the arriving migrants thus had to be “efficiently” inspected to make the “best” decision (cf. Dalbello, 2016). Not only did the authorities experiment with intelligence tests as a pseudo-scientific, “neutral” way of assessment, archival files also indicate registers of those migrants who became a “public charge” were kept, in order to identify in retrospect those features and characteristics that best predict LPC cases. This essentially equals what an algorithm or AI does: predict future probabilities, based on a past data set—in this case a heavily eugenicist one—and similar to Amoores’s (2021) account of the “deep border,” where through correlation “all data (...) becomes potential borders and immigration data” (p. 5). As Wendy Chun (2021) unraveled, the history of statistics and artificial intelligence is emerging from eugenics, and its fantasies of locating social features in the body and neutrally measuring it. Contemporary projects (e.g., voice biometrics or automated detection of dialects to assess origin of asylum-seekers; Kang, 2022), are an eerily similar practice of technological knowledge-production at borders today. Finally, the traveling of practices over time not only untangles how migration infrastructure is historically dependent on media infrastructure, but also vice versa: mediated knowledge production at large, such as binary, algorithmic decision making, or biometrics—prevalent more widely in society, far beyond border sites—are developed, experimented with, and emerging from seemingly marginal contexts of migration management and control.

### Imaginarities

Third, with the notion of imaginaries, we can trace how technological, infrastructural developments have historically reflected particular beliefs and fantasies about migration, containment, and mobility. Socio-technical imaginaries are “collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive, of advances in science and technology” (Jasanoff, 2015, p. 4). As Jasanoff notes, we researchers are tasked to “clarify why, at significant forks in the road, societies opt for particular directions of choice” (2015, p. 14). The embrace of techno-solutionism in the domain of migration governance is one such decision which merits critical scrutiny: expectations and hope are projected on new technologies to combat crisis situations, solve large problems, and also overall to increase accuracy, efficiency, and interoperability.

Attending to the infrastructural imagination promotes ideological critique of selected technological systems otherwise seen as “neutral.” For this purpose, Enright invites us to trace how racist, colonial and patriarchal forms of knowledge are entangled in infrastructures by asking “Who and what imagines infrastructure? With what effects?” (2022, p. 101). The beliefs and expectations historically projected on biometrics, such as fingerprint scanning, facial, iris or voice recognition provide an important case in point. “Biometric imaginaries” reflect a deep time of forensic fantasies of exact identification on the basis of eugenic and anthropometric

ideals (Kang, 2022). Through time, across various contexts and eras, the body has been approached a site of biometrical technological measurement for the purpose of racial differentiation. There is important scope to further tease out the cyclical history of such imaginaries.

For example, in 1850's Colonial India, the biometric technology of inked fingerprint identification was developed by William Herschel, an administrator in the Hooghly District of Bengal in search of finding a solution for the Orientalist problem of British officials who were not able to distinguish "one Indian from another" (Pugliese, 2010, p. 49). Fifty years later in the European colonial centers, biometrics were deployed to racially differentiate between desirable and undesirable mobile subjects. In the early 20th century, French authorities invented a "anthropometric nomad passbook," a technology imagined to racially identify growing numbers of undocumented "gypsies" and "nomads" on scientific human measurement of features including skin tones (Kang, 2022). These examples indicate how biometric imaginaries were from the outset based on a default of "infrastructural whiteness" (Pugliese, 2010, p. 56). The contrasting of data and bodies against White templates haunts contemporary biometric technologies of migration management that surveil Blackness (Browne, 2015).

Ultimately, these examples demonstrate imaginaries projected on specific media technologies further promote historical attention to how media and migration infrastructures converge across time, what ideologies and logics drive them, and how imaginaries, such as techno-solutionism, inform how changing media technologies are used to govern mobility and migration, and in turn how migration provides an important site of imagination for how media technologies can be used and developed.

## Conclusion

In this article, we have outlined a deep time perspective on media and migration infrastructures. We demonstrated how the dimensions of *materiality*, *practices*, and *imaginaries* offer analytical entry points to grasp historical layers and residues of media and migration infrastructures, and how the present moment relates to the past. These are not three isolated, exhaustive areas. Rather, as we argue, the intersections of how what is *built*, *done*, and *thought* with and around media technologies characterizes the deep time of media and migration infrastructures, and offers means to develop archaeological and genealogical insights into how constellations of media technologies and experiences of migration (re)emerge at different points in history.

These insights are necessary, as a deep time perspective enables more than an excavation of historical parallels, alternatives, and forgotten avenues. Instead, historicizing the present, and seeking the present in the past, "is also *Zeitkritik*: it speaks to the present and critiques the present in examining its historical objects. It does this primarily by imposing limits on the viability of linear extrapolation of perceived (and imagined) conditions into the future" (Kluitenberg, 2011, p. 51). In this

sense, present-day technological developments and change through digitalization of migration at large is not the necessary progression, towards perfection in the future. Scholars often make “firstist” claims on the “newness” of technological innovations and experiments. Yet, a historical perspective encourages us to develop a counterpoint, politicize the assumption of technological progression per se, and debunk claims about the exceptionality or uniqueness of technology in the context of migration and mobility. Seemingly high-tech, advanced technologies of the present are not the culmination of linear progression, causal process of innovation, nor random, but always particular, distinctively located and contingent, and experienced differentially. Thus, attending to the historicities of materiality, practices, and imaginaries, and how they manifest across time, offers grounds to reflect upon and readapt our analyses of contemporary media and migration infrastructures. This can, not least, include de-legitimizing the necessity of specific contemporary technologies, moving attention away from the question how technologies can be made better, more fair, inclusive, or less biased, and instead move to an investigation of how and why they have emerged in the first place, what haunts their functionalities, assumptions and impacts, in order to understand that existing migration and media infrastructures are not without alternatives.

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