Introduction

Aaron Pinnix, Axel Volmar, Fernando Esposito, and Nora Binder

Looking back on a fascinating life between New York and Berlin, recently deceased cultural historian Wolfgang Schivelbusch recalled his first train journey in the United States in the 1970s. To his great surprise, the train car had no compartments at all. Rather, it was an open coach—a single continuous space divided by a centre aisle and seats arranged in rows—an arrangement Europeans have since become accustomed to. On the other hand, "The space in which people travelled in Europe, at least over long distances, was actually a small intimate cabinet. Easily recognizable as the successor to the stagecoach, where travellers sat facing each other."[1] This "fundamentally different shaping of the same technical apparatus" prompted Schivelbusch to trace the origins of this difference.[2] Whereas the horse-drawn carriage was the starting point of the European train car, the American open coach was, according to Schivelbusch, inspired by the steamboat. In fact, "it is a ship set on land."[3] However, the reasons for the differences between the railroad cars extend beyond that and concern not only divergent settlement histories of the two continents, but also the very different "superstructures" of each continent, an observation he presented in his 1977 book *Geschichte der Eisenbahnreise*, translated 2 years later as *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century*.[4] Drawing on Leo Marx's 1964 classic text *The Machine in the Garden*, Schivelbusch argues that,

> In the United States the industrial revolution was seen as a natural development, not only because it appeared right at the beginning of American history, but also because it happened first in agriculture and transportation, and was thus related

---

1 Wolfgang Schivelbusch, *Die andere Seite: Leben und Forschen zwischen New York und Berlin* (Hamburg: Rowohlt, 2021), 120. Translation by Fernando Esposito, 2023.

2 Schivelbusch, *Die andere Seite*, 121.

3 Schivelbusch, *Die andere Seite*, 123.

4 Wolfgang Schivelbusch, *Geschichte der Eisenbahnreise* (Munich: Carl Hanser Verlag, 1977); Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (Berkeley: University of California Press, 1977).

directly to nature. [...] This immediate relation with (or embedding in) nature provided the material base for the American notion, classically described by Leo Marx, of machinery and industry as forces that do not destroy nature but actually realize its potential by cultivating it. Paraphrasing Emerson, Marx says that the industrial revolution appeared as a "railway journey in the direction of nature."[5]

Whereas people in Europe, by and large, perceived technology as destructive, public discourse in North America often perceived technology as creative. This interpretation may lack nuance, but it draws attention to *infrastructures* as multifaceted and multilayered phenomena that serve as a means of moving people, goods, and signs across physical spaces, act as topics of public debate and political struggle, as sites of individual experience, and as catalysts for collective meaning making. Infrastructure is commonly understood in ways that emphasize its material and organizational characteristics, for instance, in the form of transport, energy, or communication infrastructures or as public institutions and services. However, as *The Railway Journey* reminds us, a crucial yet frequently neglected aspect of infrastructure are its *cultural dimensions*. Railroads in the nineteenth century, as Schivelbusch argues, not only sped up the pace of material and cultural flows between distant places, they also fundamentally changed perceptions of time and space. However, this radical transformation was not caused by steel rails or the steam engine alone. Rather, it was the practices and discourses that accompanied the railroad which directed its meanings, and in turn even influenced how train cars were constructed. Drawing on Karl Marx, these different kinds of "superstructure" affected how the railroad became an *infrastructure*—of transportation, of economic exchange, of sense perception, and of political/imperialist ideology—in the first place. In a similar vein, the contributions to *Rethinking Infrastructure Across the Humanities* approach diverse types of infrastructures as the support systems of human sociality, as well as fundamentally shaped by cultural aspects like public imaginaries, social practices, and historical transformations.

Our understanding of infrastructure builds on a growing body of scholarly works which have contributed to the formation of *infrastructure studies* as an interdisciplinary research field. Infrastructure is commonly understood in ways that emphasize its material characteristics, but as recent theoretical developments in a range of fields, including science and technology studies (STS), history, anthropology, urban studies, literary studies, and media studies have argued, infrastructure comprises far more than just the roads, bridges, pipelines, dams, subways, airports, electrical grids, and other material structures people often associate with the term. Rather, as infrastructure studies has shown, the seemingly immaterial structures

---

5   Schivelbusch, *The Railway Journey*, 91; et seq. See also Leo Marx, *The Machine in the Garden: Technology and the Pastoral Ideal in America* (New York: Oxford University Press, 1964), 238.

and cultural configurations that undergird and direct life across the globe today are just as important. In his influential 2013 article, "The Politics and Poetics of Infrastructure," anthropologist Brian Larkin adopts a traditional definition of infrastructure as "built networks that facilitate the flow of goods, people, or ideas and allow for their exchange over space,"[6] while also equally calling attention to the fact that infrastructures "exist as forms separate from their purely technical functioning, and they need to be analyzed as concrete semiotic and aesthetic vehicles oriented to addressees."[7] Infrastructures, then, "are things and also the relation between things."[8] Such an approach raises questions regarding infrastructures' symbolic and cultural values, their hidden social biases and exclusions, the normativity of their assumed use practices, and the ways in which infrastructural systems are "embedded"[9] or "grounded"[10] in various physical, socio-political, and cultural environments. As humanities scholars have grappled with the notion of infrastructure, an earlier focus on the vast "underlying structures" of societies and economies has shifted toward examining infrastructural configurations on smaller scales and orders of magnitude, as well as to infrastructures of a less material and more abstract nature. By asking what it means to take such reinterpretations of infrastructure seriously, the contributions to this volume consider infrastructures as foundational parts of diverse phenomena ranging from clan structures to couple apps, as well as understanding language, concepts, ideology, religion, and genre as symbolic infrastructures.

Transformations of "Infrastructure" as a Concept

Understanding infrastructure to mean such diverse things might make the term feel rather diluted—and indeed some scholars have criticized such uses of infrastructure as a concept because of this.[11] Germany's most prominent infrastructure scholar,

---

6   Brian Larkin, "The Politics and Poetics of Infrastructure," *Annual Review of Anthropology* 42, no.1 (2013): 327–343, 328.

7   Larkin, "The Politics and Poetics of Infrastructure," 329.

8   Larkin, "The Politics and Poetics of Infrastructure," 329.

9   Susan Leigh Star and Karen Ruhleder, "Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces," *Information Systems Research* 7, no. 1 (1996): 111–134.

10   Nicole Starosielski, *The Undersea Network* (Durham: Duke University Press, 2015), 19.

11   Charlotte P. Lee and Kjeld Schmidt, "A Bridge Too Far? Critical Remarks on the Concept of 'Infrastructure' in Computer-Supported Cooperative Work and Information Systems," *Socio-Informatics: A Practice-Based Perspective on the Design and Use of IT Artifacts*, eds. Volker Wulf et al. (Oxford: Oxford University Press, 2018), 177–217; David Hesmondhalgh, "The Infrastructural Turn in Media and Internet Research," in *The Routledge Companion to Media Industries*, ed. Paul McDonald (London: Routledge, 2021), 132–142.

Dirk van Laak, for instance, has recently argued against the expansion of the term, as "in the broadest sense, it describes everything that enables societal activities of any kind," and thus "runs the risk of becoming a 'diffuse all-purpose metaphor for almost any form of system,' robbing the term of analytical sharpness."[12] However, we maintain that the reason why so many different phenomena have been referred to as infrastructures in the past years has to do with the transformation—some would rightly speak of decay—of the centralized nation state model of large scale industrial technical systems and the rise of a new plurality of infrastructural regimes that we have yet to fathom.[13] Thus the shift in how infrastructure is understood—away from meaning only the technical-material arteries of "solid" modernity and toward the seemingly immaterial support systems, formal structures, and cultural forms of our "liquefied" and digitalized present—was triggered by a fundamental structural change that in the past five decades has radically altered the world and our societies.[14] At the same time, infrastructure's semantic expansion reflects a waning focus on "structure" in the wake of poststructuralism and the decline of Marxism. The concept of infrastructure has thus entered a gap left by the exhaustion of Marxist debates regarding the relationship between superstructure and base—a term rendered as infrastructure by French Marxists and 'structuralists' such as Louis Althusser for example—and poststructuralism's as well as others' critiques of the concept of structure.[15] For more on these developments, please see the second chapter in this volume, which features a detailed history of the relation between "structure" and "infrastructure" (*Christian Meyer*). In the following, we review some of the discursive shifts that contributed to this recent and expanded understanding of the "infrastructure" concept before introducing the individual contributions in greater detail.

Materially, infrastructure has existed since the oldest human-created roads, canals, and bridges. Conceptually, however, the term is far more recent. Combining the prefix "*infra*," meaning below or beneath, with "*structura*," meaning the form or arrangement and relation of the essential parts of an object, the word "infrastructure" was seemingly first used as a French railroad engineering term in 1875 to refer to the literal understructure of railways, meaning the land, embankments, and

---

12   Dirk van Laak, "Infrastructures," *Docupedia* (May 20, 2021), https://doi.org/10.14765/zzf.dok-2
215.

13   See Eva Barlösius, *Infrastrukturen als soziale Ordnungsdienste. Ein Beitrag zur Gesellschaftsdiagnose* (Frankfurt a.M.: Campus 2019), 194–198.

14   Zygmunt Bauman, *Liquid Modernity* (Malden: Polity Press, 2000). See also Manuel Castells, *The Rise of the Network Society* (Cambridge: Blackwell 1996); and Anselm Doering-Manteuffel and Lutz Raphael, *Nach dem Boom. Perspektiven auf die Zeitgeschichte seit 1970* (Göttingen: Vandenhoeck & Ruprecht, 2008).

15   See François Dosse, *History of Structuralism*, Two Vols. (Minneapolis: University of Minnesota Press, 1997); and Johannes Angermüller, *Nach dem Strukturalismus. Theoriediskurs und intellektuelles Feld in Frankreich* (Bielefeld: Transcript, 2007).

bridges over which the railway ran, as distinct from the railway's superstructures of rails, trains, and stations.[16] The term entered the English language in 1927 as a means of referring to underground military constructions like tunnels or culverts, before being used to describe the larger network of civilian networks like roadways, waterways, airports, and communication systems that could be mobilized for national self-defence.[17] In the late 1950s, the term infrastructure began to be used within the NATO—the point of entry, for instance, into German—replacing the earlier phrase of "social overhead capital," which had itself referred to much of what we might still understand today as infrastructure, including transportation and power systems, as well as amorphous large-scale systems like educational and governmental services.[18] Expanding outward from its roots in the French railway system, and greatly fuelled by its NATO-related uses in post-WWII Europe, the term "infrastructure" came to be understood as referring to the shared public (or quasi-public) installations and services that provide resources to citizens, ranging from transportation networks, electricity grids, and water and sewage systems, to services in health care, education, and commerce that continue to underlie much of contemporary existence.

In the 1970s, infrastructures began to spark the interest of scholars from within the social and human sciences, including economic sociologists, political economists, and historians of science and technology. Through the end of the 20th century, numerous studies on large-scale energy, transportation, and communication systems appeared, such as works on the emergence and development of railroads, highways, electric power, the telegraph, the telephone, the radio, and the internet.[19] Moreover, a group of European and American researchers of technol-

---

16   Dirk van Laak, "Der Begriff der 'Infrastruktur' und was er vor seiner Erfindung besagte," *Archiv für Begriffsgeschichte* 41 (1999): 280–299. See also, Ashley Carse, "Keyword: Infrastructure. How a Humble French Engineering Term Shaped the Modern World," in *Infrastructures and Social Complexity: A Companion*, eds. Penelope Harvey, Casper Bruun Jensen, and Atsuro Morita (London: Routledge, 2016), 27–39; Ara Wilson, "The Infrastructure of Intimacy," *Signs: Journal of Women in Culture and Society* 41, no. 2 (January 2016): 247–280, 267.

17   Wilson, "The Infrastructure of Intimacy," 267, and Geoffrey Bowker, "Sustainable Knowledge Infrastructures," in *The Promise of Infrastructure*, eds. Nikhil Anand, Akhil Gupta, and Hannah Appel (Durham: Duke University Press, 2018), 203–222, 212.

18   William Rankin, "Infrastructure and the International Governance of Economic Development, 1950–1965," in *Internationalization of Infrastructures: Proceedings of the 12th Annual Conference on the Economics of Infrastructures*, eds. Jean-Francois Auger, Jan Jaap Bouma, and Rolfe Künneke (Delft: Delft University of Technology, 2009): 61–75, 64–65. See also Dirk van Laak, *Alles im Fluss: Die Lebensadern unserer Gesellschaft – Geschichte und Zukunft der Infrastruktur* (Frankfurt am Main: S. Fischer, 2018), 15.

19   Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, Harvard University Press: 1977); JoAnne Yates, *Control through Communication: The Rise of System in American Managemen*t (Baltimore: Johns Hopkins University Press, 1989); Tom

ogy began to systematically examine the formation and evolvement of large-scale infrastructures, which they termed "large technical systems" (LTS).[20] Following the lead of Thomas Parke Hughes, LTS researchers argued that large technical systems unfolded according to distinct patterns or evolutionary steps. Taking the dissemination of power grids as an exemplary case, in his monograph *Networks of Power* Hughes proposes a "model of systems evolution" for infrastructure formation that consists of an invention and development phase, followed by stages of technology transfer, system growth, and system momentum.[21] More generally, as Paul Edwards points out, the LTS researchers argued that "individual infrastructures follow a life cycle, a developmental pattern visible only on historical time scales," and that "infrastructures consist not only of hardware, but also of legal, corporate, and political-economic elements."[22] The general lesson was that technological systems are "not only socially shaped," but rather "social through and through."[23]

Although the perspectives taken in LTS studies changed over time—for instance, while Hughes focused on what he called "system builders," i.e. inventor-entrepreneurs, managers, and financiers, Claude Fischer applied a "user heuristic" to emphasize how user practices contribute to further developments in technical systems[24]—the studies were nonetheless united by a common focus on infrastructures

---

Lewis, *Divided Highways: Building the Interstate Highways, Transforming American Life* (New York: Viking, 1997); Stephen Goddard, *Getting There: The Epic Struggle between Road and Rail in the American Century* (New York: Basic Books, 1994); Bruce E. Seely, *Building the American Highway System: Engineers as Policy Makers* (Philadelphia: Temple University Press, 1987); Thomas Hughes, *Networks of Power: Electrification in Western Society, 1880–1930* (Baltimore: Johns Hopkins University Press, 1983); Menahem Blondheim, *News Over the Wires: The Telegraph and the Flow of Public Information in America, 1844–1897* (Cambridge: Harvard University Press, 1994); Tom Standage, *The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's On-Line Pioneers* (New York: Walker; 1998); Susan Douglas, *Listening In: Radio and the American Imagination* (New York: Times Books, 1999); Janet Abbate, *Inventing the Internet* (Cambridge: MIT Press, 1999); Michael Hauben and Ronda Hauben, *Netizens: On the History and Impact of Usenet and the Internet* (Los Alamitos: IEEE Computer Society Press, 1997).

20   Wiebe E. Bijker, Thomas P. Hughes, and Trevor Pinch, eds., *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology* (Cambridge: MIT Press, 1987); Renate Mayntz and Thomas P. Hughes, eds., *The Development of Large Technical Systems* (Boulder: Westview Press, 1988); Todd R. La Porte, ed. *Social Responses to Large Technical Systems: Control or Adaptation* (Dordrecht: Kluwer Academic Publishers, 1991); Jane Summerton, ed., *Changing Large Technical System*s (Boulder: Westview Press, 1994).

21   Hughes, *Networks of Power*, 14.

22   Paul N. Edwards, "Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems," in *Modernity and Technology*, eds. Thomas J. Misa, Philip Brey, and Andrew Feenberg (Cambridge: MIT Press, 2003), 187–225, 199.

23   Edwards, "Infrastructure and Modernity," 199–200.

24   Hughes, *Networks of Power*; Claude S. Fischer, *America Calling: A Social History of the Telephone to 1940* (Berkeley: University of California Press, 1992), 17.

as socio-technical systems of large proportions. With the growing dissemination of digital information and communication technologies brought about by networked computing, the 1990s gave rise to rather different approaches to conceptualizing and studying "infrastructure." During an ethnographic study accompanying the development of a distributed digital information system for biologists, sociologists Susan Leigh Star and Karen Ruhleder (1996) observed that programmers ("designers") and scientists ("users") held importantly differing views regarding the purposes, and hence functionality, of the information system under construction. Based on their ethnographic work, Star and Ruhleder reframed infrastructure as "a fundamentally relational concept" based on a number of features that link infrastructures to different actors and their respective experiences, interests, and social status.[25] For more on this shift from a material, system-oriented perspective on infrastructure to a relational, actor-oriented, and praxeological understanding as well as some of its methodological implications, please see the third chapter in this collection (*Axel Volmar*).

In their co-authored book *Sorting Things Out*, Star and Geoffrey Bowker extend this relational concept of infrastructure to include *symbolic* entities, such as labels, categories, and classification systems, thereby highlighting the political dimensions and implications of such seemingly insignificant structures.[26] Several chapters in this book build upon the idea of symbolic or abstract infrastructures, exploring, for instance, how different groups maintain and shape language (in both oral and written form) as a basic infrastructure of human communication (*Bettina Braun* and *Bernhard Brehmer*), and how the intentional "engineering" of concepts and conventions of language use may affect how people perceive reality (*Jochen Briesen* and *Steffen Koch*). Other contributors understand symbolic infrastructures as comprising customs and rituals (*Rudolf Schlögl*), intepret Kurt Lewin's experimental practice as well as concept of "group dynamics" as an infrastructure of democractic change management (*Nora Binder*), or consider the hashtag as an infrastructural medium that allows for organizing online discourses and supporting the formation of collective "voices" (*Steffen Krämer* and *Isabell Otto*).

This relational understanding of infrastructure developed by Star and her collaborators not only reverberated within STS, it also impacted scholars of other academic disciplines, including historians, anthropologists, literary scholars, and me-

---

25   Star and Ruhleder defined eight features to capture the relationality of infrastructure: (1) embeddedness, (2) transparency, (3) reach or scope, (4) learned as part of membership, (5) links with conventions of practice, (6) embodiment of standards, (7) built on an installed base, and (8) becomes visible upon breakdown. Star and Ruhleder, "Steps Toward an Ecology of Infrastructure", 113.

26   Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (Cambridge: MIT Press, 1999).

dia scholars. Additionally, as more and more scholars from the humanities started to grapple with the notion of infrastructure, new understandings of the term, as well as new infrastructural approaches, emerged.

Surprisingly, it was not until about the year 2000 that historiography devoted itself to systematic infrastructure research. As the aforementioned Schivelbusch demonstrates, there had of course been (cultural) historical studies on large scale infrastructures like railroads or the development of municipal supply systems, but these works were not based on theoretically-supported concepts of infrastructure.[27] In fact, historical scholarship has, by and large, utilized a narrow concept of infrastructure as "fixed facilities," or as "everything stable that is necessary to enable mobility and an exchange of people, goods and ideas."[28] Often, historiography has concentrated "on the practices of negotiating, building, maintaining and using" large-scale infrastructures, as well as on the nexus between infrastructures, power, and sovereignty.[29] Whether imperial or national, infrastructures served as a means of politics: they penetrated space, integrated even the most remote territories, and helped to extract resources.[30] For instance, in the Imperium Romanum infrastructures served as monumental symbols of power that underpinned the legitimacy of rule, with the building of infrastructures legitimating the state.[31] The complementarity of state and infrastructure has led Jo Guldi to speak of the "infrastructure state."[32] As recent studies show, practices regarding provision of the public good (*Daseinsvorsorge*) are by no means limited to the modern state—such practices were already commonplace in late medieval Italian city-states.[33] Historical scholarship

---

27   See Dirk van Laak, "Infra-Strukturgeschichte," *Geschichte und Gesellschaft* 27, no. 3 (2001): 367–393, 387.

28   Edwards, "Infrastructure and Modernity," 186; and Laak, *Alles im* Fluss, 13.

29   Christian Henrich-Franke, "Historical Infrastructure Research: A (Sub-)Discipline in the Making?," in *Infrastructuring Publics*, eds. Matthias Korn et al. (Wiesbaden: Springer Fachmedien, 2019), 49–68, 50. See also: Keller Easterling, *Extrastatecraft: The Power of Infrastructure Space* (London: Verso, 2016) and Jens Ivo Engels, "Machtfragen. Aktuelle Entwicklungen und Perspektiven der Infrastrukturgeschichte," *Neue Politische Literatur* 55, no. 1 (2010): 51–70.

30   Dirk van Laak, *Imperiale Infrastruktur: Deutsche Planungen für eine Erschließung Afrikas 1880 bis 1960* (Paderborn: Schöningh, 2004), 404–409.

31   On infrastructures in antiquity, see for example: Clifford Ando and Seth Francis Corning Richardson, eds., *Ancient States and Infrastructural Power: Europe, Asia, and America* (Philadelphia: University of Pennsylvania Press, 2017); and Anne Kolb, ed., *Infrastruktur und Herrschaftsorganisation im Imperium Romanum: Herrschaftsstrukturen und Herrschaftspraxis III* (Berlin: De Gruyter, 2014). See also, in this collection Ulrich Gotter's "Command and Consilium: On Infrastructures of Decision-making in Roman Culture."

32   Jo Guldi, *Roads to Power: Britain Invents the Infrastructure State* (Cambridge: Harvard University Press, 2012).

33   See Guy Geltner, *Roads to Health: Infrastructure and Urban Wellbeing in Later Medieval Italy* (Philadelphia: University of Pennsylvania Press, 2019).

has also concentrated on infrastructures as "the connective tissues and the circulatory systems of modernity."[34] Accordingly, within the field of history there is a wide variety of works on the development and expansion of canals, roads, railroads, electricity networks, systems for supplying water, as well as communication systems.[35]

More recently, an expanded concept of infrastructure has begun gaining a foothold in historical scholarship—there too infrastructure is being transformed from an object of study to an approach. For instance, Mary Bridges has recently argued that historians should not only move away from a narrow, materialist understanding of infrastructure and adopt a function-oriented approach, but they should also focus their attention on infrastructure's latent potential or dispositions, as well as to the hidden power dynamics infrastructures set in motion.[36] In line with such debates, contributions in this book argue for an expanded understanding of infrastructure in relation to power, such as approaching Roman *consilia* as infrastructures of decision-making (*Ulrich Gotter*), and exploring the medieval parish church as a meeting ground and form of connection between the church and local communities (*Gabriela Signori*). Other chapters trace the interplay and conflicts between co-existent material, ideological, or cultural infrastructures, for instance in medieval transmediterranean relations between Christians and Muslims (*Daniel G. König*), between transportation systems and clan structures in southern France (*Manuel Borutta*), in relation to imagined infrastructure projects as expressing eurocentrist visions of "Eurafrica" (*Martin Rempe*), and in relation to imperialist road building as being driven by fascist Italy's culture of "total mobilization" (*Fernando Esposito*).

In urban studies, the idea that infrastructure can be used as a means of uncovering how power and people interrelate (or are divided) through infrastructure has become quite influential. In 2001, the collected volume *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition*, co-edited by Stephen Graham and Simon Marvin, introduced sociologists and geographers

---

34 Edwards, "Infrastructure and Modernity," 185 et seq. See Birte Förster and Martin Bauch, eds., *Wasserinfrastrukturen und Macht von der Antike bis zur Gegenwart* (Berlin: De Gruyter, 2015); and Abigail Agresta, *The Keys to Bread and Wine: Faith, Nature, and Infrastructure in Late Medieval Valencia* (Ithaca: Cornell University Press, 2022).

35 Seminal studies on the respective infrastructures are, for example: Chandra Mukerji, *Impossible Engineering. Technology and Territoriality on the Canal du Midi* (Princeton: Princeton University Press, 2009); Schivelbusch, *Railway Journey*; Hughes, *Networks of Power*; Susanne Frank and Matthew Gandy, eds., *Hydropolis: Wasser und die Stadt der Moderne* (Frankfurt am Main: Campus, 2006); Roland Wenzlhuemer, *Connecting the Nineteenth-Century World the Telegraph and Globalization* (Cambridge: Cambridge University Press, 2015).

36 Mary Bridges, "The Infrastructural Turn in Historical Scholarship," *Modern American History* (April 18, 2023): 1–18, 10 et seq.

to understanding urban environments and urban experiences through the lens of infrastructure. Within the last two decades, the goal of studying the distribution of structural inequalities through infrastructures has led to the development of various infrastructural approaches. By "plac[ing] infrastructure at the heart of understanding the social and political composition of cities worldwide,"[37] urban studies has sought to address the inequalities brought about by the design and execution of urban infrastructures, in turn pioneering understanding infrastructure as an indirect means of rule and governance.[38] Recent studies have moved toward identifying the social and political impacts of less visible infrastructures, such as how "municipal debt has proven to be a durable means of structuring racial privileges, entrenching spatial neglect, and distributing wealth and power."[39]

In a similar vein, anthropologists have mobilized infrastructural approaches as a means of observing infrastructure's political implications. Drawing on previous works, the collection *The Promise of Infrastructure* considers how infrastructure functions as a "technology of liberal rule," reminding us that "this form of governance known as liberalism must always be understood, from its inception, as guaranteeing the liberties of some through the subordination, colonization, and racialization of others,"[40] activities which are themselves enabled through infrastructures. Locally, access to infrastructures and infrastructural needs often spark debates and may lead to informal political constellations.[41] For instance, in relation to the "economic collaboration among residents seemingly marginalized from and immiser-

---

37   Alan Wiig et al., "From the Guest Editors: Splintering Urbanism at 20: Mapping Trajectories of Research on Urban Infrastructures," *Journal of Urban Technology* 29, no. 1 (2022): 1–11, 2.

38   For more on this topic, see, for instance, Adrienne Brown, *The Black Skyscraper: Architecture and the Perception of Race* (Baltimore: Johns Hopkins University Press, 2017); Stephen Graham, *Disrupted Cities: When Infrastructure Fails* (New York: Routledge, 2010). For related topics that move beyond the urban, strictly defined, to include rural and contested spaces, see Ashley Carse, *Beyond the Big Ditch: Politics, Ecology, and Infrastructure at the Panama Canal* (Cambridge: MIT Press, 2014); Huub Dijstelbloem, *Borders as Infrastructure: The Technopolitics of Border Control* (Cambridge: MIT Press, 2021).

39   Destin Jenkins, *The Bonds of Inequality: Debt and the Making of the American City* (Chicago: University of Chicago Press, 2021), 1.

40   Nikhil Anand, Akhil Gupta, and Hannah Appel, eds. *The Promise of Infrastructure* (Durham: Duke University Press, 2018), 4, 5.

41   One such example for the emergence of nonofficial social infrastructures is Nikhil Anand's study on the water system in Mumbai, where slum-dwellers engage powerful patrons to negotiate access to the water system by promising electoral support. Nikhil Anand, "Pressure: The Politechnics of Water Supply in Mumbai," *Cultural Anthropology* 26, no. 4 (2011): 542–564. Another example is Antina von Schnitzler's investigation of biopolitical subject formation through an infrastructural lens by linking the introduction of water meters in South Africa with a campaign that seeks to educate people in how to monitor and moderate their water consumption. Antina von Schnitzler, "Citizenship Prepaid: Water, Calculability, and Techno-Politics in South Africa," *Journal of Southern African Studies* 34, no. 4 (2008): 899–917.

ated by urban life" in Johannesburg, AbdouMaliq Simone suggests considering "people as infrastructure."[42] As Hannah Appel, Nikhil Anand, and Akhil Gupta emphasize, anthropological approaches have rightly stressed the fact that infrastructures are "critical locations through which sociality, governance and politics, accumulation and dispossession, and institutions and aspirations are formed, reformed, and performed," and therefore deserve our utmost attention.[43] Adding to this line of infrastructure research, the contributions to this volume trace the interplay and co-dependency of transportation infrastructures and infrastructures of spirit in Zambia (*Thomas G. Kirsch*), and highlight the power of metrics as a narrative infrastructure that guides the development of the solar off grid energy sector in Kenya (*Eva Riedke*).

In the last decade, media scholars have turned to infrastructure studies to complement traditional approaches to studying media infrastructures, question common narratives of technological progress, or reconsider widespread conceptions of "media." In their collection *Signal Traffic: Critical Studies of Media Infrastructures*, Lisa Parks and Nicole Starosielski draw on insights from previous scholarship on infrastructure to suggest attending to today's "contradictory global mediascapes and multiple *media infrastructures*" by considering their interrelatedness on multiple scales, their relationality and interconnectedness with other systems, as well as their environmental conditions and affective relations.[44] In *The Undersea Network*, Nicole Starosielski uses site-specific histories of distinctive "nodes" of the Pacific undersea cable network to trace how cable infrastructure intersects with, and is embedded within, physical, socio-political, and cultural environments. Based on this topographic approach, Starosielski suggests an understanding of the global cable infrastructure that is rather counterintuitive to popular narratives of networking: "wired rather than wireless; semicentralized rather than distributed; territorially entrenched rather than deterritorialized; precarious rather than resilient; and rural and aquatic rather than urban."[45] In turn, by bringing together infrastructural thinking with cultural techniques research and emphasizing the logistical and infrastructural role of media, John Durham Peters attempts to reconceptualize "media" in his book *The Marvelous Clouds* as less a means of conveying information and unifying society than more generally as "devices of tracking and orientation"

---

42   AbdouMaliq Simone, "People as Infrastructure: Intersecting Fragments in Johannesburg," *Public Culture* 16, no. 3 (2004): 407–29, 408, 410.

43   Hannah Appel, Nikhil Anand, and Akhil Gupta, "Introduction: Temporality, Politics, and the Promise of Infrastructure," in *The Promise of Infrastructure*, eds. Nikhil Anand, Akhil Gupta, and Hannah Appel (Durham: Duke University Press, 2018), 1–38, 3.

44   Lisa Parks and Nicole Starosielski, eds., *Signal Traffic: Critical Studies of Media Infrastructures* (Urbana: University of Illinois Press, 2015), 1, 7. Italics original.

45   Nicole Starosielski, *The Undersea Network* (Durham: Duke University Press, 2015), 10, 19.

or, in other words, as "media that stand under."[46] Following Star and Bowker's attention toward the infrastructuredness of symbolic objects, media scholars have addressed seemingly immaterial and mundane phenomena, such as the sociotechnical patterning of time as an infrastructure comprised of artifacts, technical standards, human labor, social norms and conventions.[47] Adding to these works, contributions in this volume consider couple apps as mobile infrastructures of "relationship work" (*Anne Ganzert*), and the hashtag as an important infrastructure of the internet's public sphere (*Steffen Krämer* and *Isabell Otto*).

In the realm of literary studies, the concept of "infrastructure" has gained traction as a means of analysing and understanding literary forms, as well as a means of considering how material and social infrastructures affect our lives. In 2010, Caroline Levine proposed "infrastructuralism" as a new formalist mode for analysing texts, an approach that takes seriously the institutions that lie beneath social life in order to discover the abstract patterns that are repeated across time and space, and in turn identifying social and literary structures as themselves forms of infrastructure.[48] For instance, Levine considers the television show *The Wire* as "demand[ing] that we read multiple institutions for their discrepant temporalities, their multiple speeds, their replication over long stretches, and their unpredictable shifts and disruptions of one another's power." [49] Competing infrastructural traits are expressed in a range of jostling and competing institutions that get depicted both within the show's narrative and in viewers' experience of the show. The term "infrastructuralism" was picked up again five years later by Michael Rubenstein, Bruce Robbins, and Sophia Beal in their introduction to a special issue of *MFS: Modern Fiction Studies* on infrastructure, in which they argue for the importance of attending to infrastructure as a means of engaging with the assumptions and ambiguities that mark individuals' encounters with infrastructures, including the "'planned violence' of infrastructures of control and coercion."[50] Similarly, the scholar Dominic Davies has pub-

---

46   John Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media* (Chicago: University of Chicago Press, 2015), 7.

47   See, for instance, Sarah Sharma, *In the Meantime: Temporality and Cultural Politics* (Durham: Duke University Press, 2014); Axel Volmar and Kyle Stine, *Media Infrastructures and the Politics of Digital Time. Essays on Hardwired Temporalities* (Amsterdam: Amsterdam University Press, 2021): 9–38, 11–12, 15. https://library.oapen.org/handle/20.500.12657/50573.

48   Caroline Levine, "Infrastructuralism, or the Tempo of Institutions," in *On Periodization: Selected Essays from the English Institute*, ed. Virginia Jackson (Cambridge: The English Institute, 2010), para. 53–96, 65.

49   Levine, "Infrastructuralism," para. 95.

50   Michael Rubenstein, Bruce Robbins, and Sophia Beal, "Infrastructuralism: An Introduction," *MSF Modern Fiction Studies* 61, no. 4 (2015): 575–586, 581, 585. This understanding of infrastructure as a form of "planned violence" is further explored in the collected volume *Planned Violence: Post/Colonial Urban Infrastructure, Literature and Culture*, edited by Elleke Boehmer and Dominic Davies (Cham: Springer, 2018).

lished two books on colonial and postcolonial literature and media that focus on how infrastructures can function as structural forms of violence.[51] For instance, *Urban Comics: Infrastructure and the Global City in Contemporary Graphic Narratives* considers how graphic narratives produced by artistic collectives in cities across the globe subvert genre norms in order to express anti-colonial sentiments.[52] Here, infrastructure includes the formal aspects of graphic narratives, such as comics' "grids, gutters and panels," as well as material infrastructures (or the lack thereof) that are represented in these texts, such as roads, electrical wiring, or security cameras.[53] As these examples show, in literary studies infrastructure can be understood as referring to genre norms and literary forms, as well as referring to material infrastructures, how such material infrastructures are represented in texts, and infrastructures' effects of people's lives, with special attention paid to how such effects are represented within literature.[54] In line with such studies, the contributions of literary scholars in this volume explore such topics as how the formation of infrastructural systems in the 19th and 20th century shaped the modern novel and expectations of literature (*Timo Müller*), how infrastructures can themselves be used as allegories for understanding abstract concepts like sustainability (*Katalin Schober*), how romance functions as genre infrastructure and how such genre norms can be subverted, especially in relation to contemporary queerings (*Anja Hartl*, *Jonas Kellermann*, and *Christina Wald*), how 17th century South American Indigenous water infrastructures are represented in Indigenous documents in ways that argue for the benefit of Indigenous models for organizing society (*Kirsten Mahlke*), how written correspondence among religious actors in early Christianity functioned as infrastructures of knowledge production and circulation (*Barbara Feichtinger*), and how poetry can guide us in attending to, and accounting for, the life-disrupting byproducts of infrastructures (*Aaron Pinnix*).

In the central studies discussed above very different aspects of infrastructure, both as a topic and a concept, have been brought to the forefront. What unites these different studies, both within the humanities and STS, is that they consider infrastructure as complex and multi-layered cultural phenomenon. Moreover, the heightened scholarly interest on infrastructure as a topic and concept has inspired re-

---

51   In addition to *Urban Comics*, discussed next, Davies also published *Imperial Infrastructure and Spatial Resistance in Colonial Literature, 1880–1930: Race and Resistance across Borders in the Long Twentieth Century* (New York: Peter Lang, 2017).

52   Dominic Davies, *Urban Comics: Infrastructure and the Global City in Contemporary Graphic Narratives* (New York: Routledge, 2019).

53   Davies, *Urban Comics*, 6.

54   See, for instance, Michael Rubenstein, *Public Works: Infrastructure, Irish Modernism, and the Postcolonial* (Notre Dame: University of Notre Dame Press, 2010); Manu Karuka, *Empire's Tracks: Indigenous Nations, Chinese Workers, and the Transcontinental Railroad* (Oakland: University of California Press, 2019); Lauren Berlant, "The Commons: Infrastructures for Troubling Times," *Environment and Planning D: Society and Space* 34, no. 3 (2016): 393–419.

searchers to develop and apply what could be called infrastructural approaches or methodologies. The notion of "infrastructuralism" that has emerged from these different interests is an exciting concept that we believe will guide future research and allow us to rethink infrastructure across the humanities.[55] What exact features may constitute infrastructuralism as a broad set of theoretical and methodological approaches shared across the humanities, and whether such an approach may be able to take up the legacy of older paradigms, such as structuralism and poststructuralism, remains an open, yet alluring possibility. What insights might we gain if we consider our disciplines' phenomena using infrastructure as an analytical tool? And how best might an infrastructural methodology, especially one that traverses disciplinary boundaries, proceed? These questions are far-reaching, certainly too far-reaching to be answered here, and yet they came to the fore as we—an interdisciplinary group of scholars at the University of Konstanz—began discussing the concept of "infrastructure" as an object of study, an analytical term, and a methodology. *Rethinking Infrastructure Across the Humanities* in part documents these conversations and is intended as an exploration of the possibilities of infrastructure research within the humanities.

Rethinking Infrastructure Across the Humanities

Rather than organizing this collection's chapters according to strictly academic fields, we have grouped the chapters into six unique thematic arrangements that invite the possibility of transdisciplinary conversations and connections. Taking seriously the idea that infrastructures can be understood as foundational support structures of human sociality, the following sections are organized around unique, and perhaps surprising, conceptual foci: "Setting out Some Definitions," "Infrastructures and Communication," "Infrastructures and Sociality," "Infrastructures and Religion," "Infrastructures and Genre," "Infrastructures and the Environment," and "Infrastructures and Colonialism." This organizational approach emphasizes how infrastructural research within the humanities can traverse and conjoin a wide range of academic fields, while also articulating aspects of infrastructure that often remain underexplored and underarticulated. Overall, we hope that this collection

---

55   See the above conversation regarding literary scholars Caroline Levine and Michael Rubenstein, Bruce Robbins, and Sophia Beal. In his 2010 memorial for Claude Lévi-Strauss, anthropologist Marshall Sahlins also proposes "infrastructuralism" as a means of conjoining concepts and the material within social anthropology (Sahlins, "Infrastructuralism," 374–375). In 2015, John Durham Peters suggests "infrastructuralism" as "a way of understanding the work of media as fundamentally logistical" (Peters, *The Marvelous Clouds*, 37–38). Clearly, the relevance of infrastructuralism as a conceptual tool is growing.

will help to foster a robust conversation within the humanities about infrastructure as both topic and methodological tool.

Section I, "Setting Out Some Definitions," extends the work begun in this introduction by further clarifying and defining infrastructure in regard to its historical development and growth as a concept today. In addition to this introduction, this section features chapters drawn from the fields of sociology and media studies to articulate infrastructure's conceptual development and explore how infrastructure can offers us unique conceptual insights. Following the introduction, sociologist *Christian Meyer*'s "From Structure to Infrastructure: Some Glimpses on a Theoretical Movement in the Social Sciences and Humanities" clarifies and historicizes the concept of infrastructure, including the shift from structure to infrastructure. As Meyer shows, while today's understanding of infrastructure was originally subsumed under the concept of structure, there remain important ontological differences between both. In the next chapter, "From Systems to 'Infrastructuring': Infrastructure Theory and Its Impact on Writing the History of Media," Axel Volmar revisits how the notion of infrastructure became an analytical tool in the social and human sciences since the 1990s and how the rise of infrastructural thinking is tied to a conceptional shift from a systemic to a praxeological understanding of infrastructure. Volmar exemplifies the impact of this shift with regards to theoretical and methodological changes within media studies and more particularly, the historiography of media.

Drawing from the fields of linguistics, philosophy, media studies, and history, Section II, "Infrastructures and Communication," explores how communication, which is often understood as foundational for human experience, can itself function as a form of infrastructure. First, in "Language as Infrastructure," linguistic scholars *Bettina Braun* and *Bernhard Brehmer* explore how language is a basic means of information exchange, how language is routinized, and also undergoes change. Braun and Brehmer present specific examples proving their claims, including how speech sounds are produced by the body, the differences between oral and written language, and how communities maintain and navigate language, including in relation to material infrastructures like public signs. In the next chapter, "Conceptual Infrastructure and Conceptual Engineering," philosophers *Jochen Briesen* and *Steffen Koch* consider conceptual systems and languages as a form of abstract infrastructure that could be purposefully engineered to help certain terms and concepts stand out favourably, with the overall goal of improving our social, political, and personal lives. As Briesen and Koch show, since language and concepts are maintained they can also be purposefully guided. In the following chapter, "Practices of Classification: The Hashtag as Infrastructure for Interaction," media scholars *Steffen Krämer* and *Isabell Otto* consider the hashtag as infrastructural media that mediates between platform technologies and cultural processes, while also being generative and relational in its own right, as the #metoo movement shows. Krämer and Otto

persuasively use the hashtag to argue for understanding infrastructures, practices, and cultural formations as both recursively interrelated and able to produce new narratives and social movements. This section concludes with historian *Rudolf Schlögl*'s "On the Symbolic Infrastructure of Communication Among Those Present in Early Modern Society: Simple Successful Media," which explores how communication mechanisms in Early Modern European society served as infrastructures for differentiating and reproducing social systems. Drawing on sociologist Niklas Luhmann's concept of the interplay of Alter and Ego, Schlögl demonstrates how forms of communication like gifts and rituals functioned as infrastructures by providing local opportunities for reinforcing large-scale social hierarchies and processing social problems.

With research drawn from the fields of history, media studies, and history of the humanities, the chapters in Section III, "Infrastructures and Sociality," argue for considering how interpersonal relations themselves function as infrastructures, revealing important outcomes for how socialization and relationships occur within society. As historian *Ulrich Gotter* shows in "Command and Consilium: On Infrastructures of Decision-Making in Roman Culture," decision-making processes in middle and late republican Rome (4th–1st century BCE) functioned as infrastructures of political space. Gotter first considers the example of the elevation of a victorious army commander to imperator before discussing the more historically common, though thus-far-undertheorized, *consilia*, which were advisory councils that often consisted of people from a range of cultural backgrounds. *Consilia* enabled channels of communication between lower- and upper-ranking individuals, while also influencing other structures, such as the social distribution of roles. Moving to the digital age, media studies scholar *Anne Ganzert*'s "Couple Apps as Relationship Infrastructures" considers couple apps as infrastructures that both emerge within media practices and mediate human relationships. Arguing for the importance of understanding apps as infrastructures, this chapter shows how apps shape the user's behaviour, value perceptions, and social interactions. In "Infrastructures of Democracy: Lewinian Group Dynamics and the Managment of Social Change (1930s-1940s)," historian of science *Nora Binder* considers the invention of group dynamics by social psychologist Kurt Lewin and his student Ronald Lippitt in the 1930s and 1940s, in order to argue that in Lewinian group dynamics the interplay of the group's relational features and its generative capacity account for its exploitation as a powerful infrastructure of democratic re-education. This section concludes with historian *Daniel G. König*'s "Conflicting Infrastructures: Ideological vs Social Infrastructures in Transmediterranean Communications of the Twelfth and Thirteenth Centuries," which explores how an ideological infrastructure, namely European-Christian crusading ideology, interrelated with a social infrastructure, as expressed in the *fondaco*-system in which a separate quarter in a Muslim-ruled port city was populated by European-Christian foreigners, mostly traders. Consid-

ering Genoa between 1250 and 1270, Koenig's chapter shows how the ideological and social infrastructures of crusading zeal and long-standing commercial interests coexisted.

Religion, marked as it is by an emphasis on belief and an engagement with the spiritual, may initially seem like an odd choice for being understood in infrastructural terms, but as the chapters in Section IV, "Infrastructures and Religion," show, religion can have profoundly infrastructural roles. Including research from the fields of anthropology, classical philology, and medieval history, in this section authors argue that expressions of faith codify and cultivate larger social structures. First, in "Spiritual Infrastructures," anthropologist *Thomas G. Kirsch* considers Pentecostalist practices in Zambia's Gwembe Valley as a spiritualist infrastructure that forges relationships among religious practitioners and with the spiritual realm. Drawing on Kirsch's ethnographic fieldwork, the chapter first considers how the expansion of Zambia's road infrastructure contributed to the evangelizing mission of Bishop Rabson of the Spirit Apostolic Church (SAC), before considering how a spiritual entity like the Holy Spirit can organize and influence adherents who might otherwise have little connection with each other. Next, in "Infrastructure of Faith: Some Considerations on Correspondence in Late Antique Christianity," classical philologist *Barbara Feichtinger* explores how long-distance written correspondences among bishops, clerics, and Christian ascetic movements were constitutive for the historical spread of Christianity in the Mediterranean region. Feichtinger argues that the circulation of letters functioned as an infrastructure of knowledge production and dissemination that fostered a common understanding of Christianity, and she presents the writings of Saint Jerome as a prime example of how text migration shaped early Christianity. This section concludes with medieval historian *Gabriela Signori*'s "Religious Infrastructure: The Parish Church," which considers the 13th century parish church as the basic ecclesiastical administrative unit of the German Christian church. Late medieval churches were both embedded within and influenced the local community, a relationship that was in turn developed by community members through altar and mass endowments that expressed their appreciation of the liturgy of the Mass, thus allowing the laity to influence the church.

Drawing on literary scholarship and anthropology, the following section, "Infrastructure and Genre," considers how the stories we tell and are told are themselves infrastructured in ways that have specific, locatable effects. In "Infrastructural Poetics," literary scholar *Timo Müller* compares Charles Dickens's *Bleak House* (1852–53) and James Joyce's *Ulysses* (1922) as a means of tracking how the increased infrastructuration of modern society influenced the modern novel. As Müller shows, the increasingly complex and intertwined world caused by the growth of new systems of mobility, communication, and mass media profoundly shaped the modern novel, including the internal organization of texts, as well as shaping the idea of what literature is and does. Next, in "Queering Infrastructures of Romance," literary scholars

Anja Hartl, *Jonas Kellermann*, and *Christina Wald* argue that romantic love is a mental, social, and cultural infrastructure that informs and guides experiences of love, and which in turn has been built and rebuilt over centuries. Showing how infrastructures of romance can be subversively repurposed, Hartl, Kellermann, and Wald consider William Shakespeare's *Romeo and Juliet* (1597) and its queer adaptation in Douglas Stuart's novel *Young Mungo* (2022) as one example of how modelled forms of love undergo change in response to diversifying sexualities and gender identities. This section concludes with anthropologist *Eva Riedke*'s "Counting the Impacts in the Solar Off Grid Sector," which addresses how the metrics used to measure off grid solar energy production attract investment. While metrics incentivize relations between solar off grid companies and investors, they are also future-oriented in ways that affect their function. For instance, companies use measurements that reflect the number of people in a household who could *potentially* use a lantern. This anticipatory praxis is a narrative embedded within the metrics of off grid energy production that affects which projects become realized.

Infrastructures are always specifically *located*, and as such affect and influence the people and the environments around them. Drawing on the fields of the literary and film studies, the chapters of Section VI, "Infrastructures and the Environment," explore infrastructures' substantial ecological and political effects. Literary studies scholar *Kirsten Mahlke*'s "Water for a Good Government: Andean Infrastructures in Guaman Poma de Ayala's Chronicle (1615)" focuses on Indigenous scholar Guaman Poma's arguments made to the Spanish king regarding the importance of valuing existing Indigenous water infrastructures. Challenging Spaniards failure to respect water, Guaman Poma advocated for a holistic Indigenous understanding of infrastructure in which Andean irrigation knowledge is understood as simultaneously material, cultural, and spiritual. Next, in "The Dangers of Infrastructure Byproducts and What We Can Learn From Muriel Rukeyser's 'The Book of the Dead,'" literary studies scholar *Aaron Pinnix* argues that we should attend to how even miniscule material byproducts of infrastructures affect the operations of life. Considering the high mortality rates of miners from silica poisoning, as discussed in Muriel Rukeyser's documentary poem series "The Book of the Dead" (1938), Pinnix connects this avoidable tragedy to the contemporary, but relatively underexamined, poisoning of salmon from tire wear and road runoff to argue that both intentional and unintentional byproducts of infrastructures should be accounted for, especially in relation to how such byproducts disrupt the operations of life. This section concludes with literary studies scholar *Katalin Schober*'s "Afrofuturist Infrastructure as Allegory: Picturing Sustainability in Wanuri Kahiu's *Pumzi* (2009)," which considers how infrastructures are allegorized can both conceal and reveal alternatives. Considering the titular short Afrofuturist film *Pumzi*, Schober argues that the film functions as an extended allegory that reflects infrastructures' capacities and shortcom-

ings by helping to shift viewer's understanding of infrastructure away from overexploiting natural resources and toward alternative infrastructures of sustainability.

Rethinking Infrastructure Across the Humanities concludes with a focused consideration of how infrastructure has been utilized in transmediterranean colonial relationships and projects. Fully drawn from the field of history, the chapters of Section VII, "Infrastructures and Colonialism," explore how infrastructures, both real and imagined, have organized relationships between Europe and Africa. The section begins with historian *Manuel Borutta*'s "Canals & Clans: Mediterranean Infrastructures," which focuses on the idea of an integrated "Eurafrica." Beginning with Michel Chevalier's 1832 concept for a Euro- Mediterranean system of canals, railways, steam ships and telegraph lines, Borutta next focuses on Marseille as an exemplar city of Chevalier's plan before concluding with a consideration of the influence of Corsican mobsters on Marseille, pointing toward an alternative form of transmediterranean social infrastructure. Next, in "Imagined Infrastructures: Eurafrica and Worldmaking in the Mid- Twentieth Century," historian *Martin Rempe* explores unrealized infrastructure projects that sought to physically connect Europe and Africa. These include architect Herman Sörgel's *Atlantropa* project (1932), which proposed constructing a gigantic dam at the Strait of Gibraltar in order to lower the level of the Mediterranean and gain territorial connectivity to Africa, as well as subsequent imagined infrastructures envisioned a world spatially arranged and demarcated according to European imaginaries. Finally, in "Imperial Roads and the Fascist Culture of Total Mobilization," historian *Fernando Esposito* considers the Fascist invasion of Ethiopia from an infrastructural perspective, paying particular attention to the concept of movement and its relationship to imperial roads and total mobilization. Overall, Esposito shows how Fascist attempts to conquer Ethiopia relied on a massive road building project fuelled by a culture of total mobilization.

Acknowledgements