

# Making time in maintenance work\*

IGNAZ STREBEL, Université de Lausanne, Switzerland

MORITZ F. FÜRST, Université de Lausanne, Switzerland

ALAIN BOVET, Haute école de gestion Arc, and Université de Lausanne, Switzerland

In engaging technologies and the built environment within the social sciences, there increasingly have been appeals to examine the intricacies of time and temporalities in our collective interactions with science and technology more thoroughly. This seems particularly relevant when we consider the rhythms, cycles, rituals, (a)synchronicities, and time horizons of infrastructural configurations. Studying repair and maintenance practices reveals how temporal properties of infrastructure are not only conceptually relevant in understanding socio-material relations, but also of very practical concern to members of society engaging in such relations.

## 1 INTRODUCTION

“Infrastructure, in a simple (though somewhat flawed) formulation, refers to the *prior work* [...] that supports and enables the activity we are really engaged in doing.”  
(Slota and Bowker 2017: 529, emphasis added)

In engaging technologies and the built environment within the social sciences, there have increasingly been appeals to escape what Arjun Appadurai calls the “trap of trajectorism” (2013: 223) guiding a great many narratives of socio-technical change, by more thoroughly examining the intricacies of time and temporalities in our collective interactions with science and technology, and recognizing their many and diverse “temporal textures and choreographies” (Felt 2016).

This proposition seems particularly relevant when we consider the rhythms, cycles, rituals, (a)synchronicities, and time horizons of infrastructural configurations. The modernist “infrastructural ideal” (Graham and Marvin 2001) is all too often one of progress and evolution after all, and frequently linked to understanding developments over time in terms of linearity and coherence. What the modernist ideal makes provisions for are networks that evolve into publicly owned services available to everyone at any place. The modernist ideal understands infrastructure gladly as a matter of moving through a directed, systematic series of technological and innovative *additions* that make up its evolution.

Science and technology studies remind us that such ‘evolution’ is not linear. For Star and Ruhleder (1996), infrastructure evolves in a modular fashion and is never built in one go. Neither is it built from one central place nor by one single institution or person. Such modularity is instructively visualized in Thomas Hughes’ classic study

*Networks of Power* (1983). Here, a series of monochrome schemes reproduces the historical evolution of the Pennsylvania electricity network (1900, 1910, 1920, and 1930). Until 1930, an uncounted number of distributed power stations and local networks were connected in a unified and cohesive electricity system that covered the entire state of Pennsylvania. The picture of modular evolution is even more complicated, though, when Stewart Brand, in his book *How Buildings Learn* (1994), elaborates on a hotel building on the seafront at Popham Beach, Maine. As he places two photos taken 86 years apart (1905 and 1991) side by side, the degradation of the building is made clearly visible. Here, modular evolution seems to move away from the progressive understanding of linear addition and upgrading; subtraction and downgrading become relevant parts of the modularity of infrastructure. Such accounts produce an awareness of more elaborate relations to time than trajectorism provides.

Important to this reconfiguring is an understanding of an infrastructure that ‘advances’ in time not only through adding or demolishing new and old parts but through a multiplicity of other engagements, such as investment, maintenance and repair, adaption, misuse, or neglect. In the case of the Popham beach building, the absence of continued upkeep (maintenance) is the main driver leading to its downgrading over the years. Once we take “infrastructures-in-use” (Shove 2016) into view, it makes sense to not set progress or stagnation as the sole configurators of infrastructural time. Rather we would think of infrastructure “as a moving modulator regulating different intensities of engagement, redirecting users’ attention, mixing and putting people together, concentrating flows of actors and distributing them so as to compose a productive force in time-space” (Latour and Yaneva 2008: 87). Instead of asking how infrastructure moves from one state to the next along a single progressive timeline, this mini-programme invites us to wonder when infrastructure is (Star and Ruhleder 1996: 114), at what places, for whom, and how. Studying practices of repair and maintenance work opens up possibilities to understand how time is mobilized and brought to bear by different actors within infrastructural settings.

In what precedes, time is addressed from the perspective of its effects on infrastructure. But while these effects can take several forms, time itself nevertheless appears as an external and stable variable. Such a reification of infrastructural time can be avoided if we pay attention to what ethnomethodologists call “perspicuous settings” (see e.g. Garfinkel and Wieder 1992; Garfinkel 2002) – in this case, situations where time is actively produced by those involved in an infrastructure. In such settings, time is intersubjectively oriented to, defined and established as relevant, and consequential for the infrastructure at hand. In other words, and inspired by Lynch and Bogen’s study of the endogenous production of historicity in the Iran-Contra Hearings (1996), we can treat the historicity of the infrastructure as first and foremost a practical concern of its parties and practitioners.

\*Published 2019 in *Roadsides*, 1: 11-17. <https://doi.org/10.26034/roadsides-20190013>

Authors’ addresses: I. Strebel, Université de Lausanne, Institut de géographie et durabilité, Quartier UNIL-Mouline, Bâtiment Géopolis, 1015 Lausanne, Switzerland, [ignaz.strebel@unil.ch](mailto:ignaz.strebel@unil.ch); M. F. Fürst, Université de Lausanne, Institut de géographie et durabilité, Quartier UNIL-Mouline, Bâtiment Géopolis, 1015 Lausanne, Switzerland, [moritz.fuerst@unil.ch](mailto:moritz.fuerst@unil.ch); A. Bovet, Haute école de gestion Arc, Espace de l’Europe 21, 2000 Neuchâtel, Switzerland [alain.bovet@he-arc.ch](mailto:alain.bovet@he-arc.ch).

This paper is published under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC-BY-NC-SA 4.0) license.

© 2019 The Author(s), published under Creative Commons CC-BY-NC-SA 4.0 License. <https://doi.org/10.5281/zenodo.2602855>



Fig. 1. The tenant is asked to give time to the repaired tap. Photo: I. Strebel, CC BY-NC-SA 4.0

To illustrate this aspect of infrastructural time, we draw from our studies on the work of caretakers as professionals in charge of housing infrastructures in Switzerland (Bovet and Strebel 2019; Sormani et al. 2015; Strebel 2014). Among numerous ways in which time matters to the participants in these settings, we can first mention the retrospective-prospective orientation of repair interventions, where the repaired thing is compared to how it was before it failed, but also anticipated in its future, post-repair, uses. For example, when the caretaker M. invites a tenant to manipulate a repaired tap, he warns him that “it’s still running a little hard because it has new joints in it”. This formulation acknowledges that the tap is not restored to its initial state but also promises that it will improve over time. In other words, the tenant is asked to give time to the repaired tap (Figure 1).

## 2 ‘PRIOR WORK’ REVISITED: HOW TIME IS PRODUCED IN A MAINTENANCE SETTING

While in the previous case, time remains a variable external to the intervention, it can also become a defining and internal aspect of repair. We have found several instances where a central concern of the caretaker is to know who intervened before him in the housing infrastructure. This concern is institutionalized through the increasing requirement to protocolize interventions into an infrastructure, which makes available a record of what was repaired or maintained and by whom. In the absence of such a protocol, the diagnosis is part of the situated work that prepares for the intervention. Take, for

example, E., a caretaker working full time for a real estate agency, who enters the flat of a family who had called him to let him know that there is hardly any water coming out of their bathroom taps. E. goes into the bathroom and begins working on the aerators on the faucet. As this is not successful, a few moments later he moves to the kitchen. The tenant informs him that “less and less water has been running since this guy [a sanitation technician] mounted that”. E. recognizes that someone else has worked here before by mumbling, “Yes, he didn’t open up there” and pointing at the main water tap for the flat. With this conversation, the tenant and E. not only immediately establish the continued functioning of running water as a collective endeavour over time, but also acknowledge its complicated temporal configuration, going against what would be the commonsense ‘temporal sequence’ of a maintenance intervention (and, thus, of the temporal unfolding of infrastructure): It is not simply a breakdown that has ‘occurred’ and is now followed by a repair. Rather, someone else maintained this faucet *before*, and it broke down *after* such work, and because of it. In what follows, E. speculates that through talking to that previous technician on the phone he will eventually be able to diagnose and fix the problem.

## 3 CONCLUSION: TIME AS ENDOGENOUS PROPERTY OF DOING INFRASTRUCTURE

Time and the temporalities of infrastructure are not only conceptually relevant in understanding socio-material relations, but also of very practical concern to any members of society engaging in such

relations. We have shown how infrastructural time can not only be pointedly alluded to through social analysis (as in the quote from Slota and Bowker above), but how remarks of a similar nature might in fact actually be mobilized and made relevant in intersubjective orientation towards an infrastructural configuration (reference to ‘prior work’ is a very common interactional feature employed in maintenance interventions). Far from being solely a concern of social theory, or of practices of city planning and policy, time is also an endogenous property of the work that goes into the continuous doing, redoing, and undoing of infrastructure, produced in mundane, everyday situations of socio-technical engagement. Studying repair and maintenance work reveals that the production of infrastructures depends on “the coordinate nature of time” (Crabtree et al. 2011: 98). What we have discovered when looking at building caretaker work is that they use “time and temporal artefacts to coordinate the timely accomplishment of work” (ibid.). The manifold temporal choreographies or the “endless dance of maintenance” (Denis and Pontille 2019: 170) are not imposed from the outside of such work by a time schedule or by step-by-step instruction; rather, they are internally produced through such work, always in rhythm with the next move that needs to be made.

## ACKNOWLEDGMENTS

The authors would like to thank Christina Schwenkel and Agnieszka Joniak-Lüthi for their comments on an earlier version of this paper, and the editorial team of *Roadsides*.

## REFERENCES

- Appadurai, Arjun. 2013. *The future as cultural fact: essays on the global condition*. London: Verso.
- Bovet, Alain and Ignaz Strebel. 2019. “Job Done: What Repair Does to Caretakers, Tenants and Their Flats.” Pp. 89–125 in *Repair Work Ethnographies: Revisiting Breakdown, Relocating Materiality*, edited by Ignaz Strebel, Alain Bovet, and Philippe Sormani. Singapore: Palgrave Macmillan.
- Brand, Stewart. 1994. *How buildings learn: what happens after they’re built*. New York: Viking.
- Crabtree, Andy, Mark Rouncefield, and Peter Tolmie. 2011. “The temporal order of work.” Pp. 91–107 in *Ethnomethodology at Work*, edited by Mark Rouncefield and Peter Tolmie. Farnham: Ashgate.
- Denis, Jérôme and David Pontille. 2019. “The Dance of Maintenance and the Dynamics of Urban Assemblages: The Daily (Re)Assemblage of Paris Subway Signs.” Pp. 161–185 in *Repair Work Ethnographies: Revisiting Breakdown, Relocating Materiality*, edited by Ignaz Strebel, Alain Bovet, and Philippe Sormani. Singapore: Palgrave Macmillan.
- Felt, Ulrike. 2016. “The temporal choreographies of participation: thinking innovation and society from a time-sensitive perspective.” Pp. 178–198 in *Remaking participation: science, environment and emergent publics*, edited by Jason Chilvers and Matthew Kearnes. London/New York: Routledge.
- Garfinkel, Harold. 2002. *Ethnomethodology’s Program: Working Out Durkheim’s Aphorism*. Lanham, MD: Rowman & Littlefield Publishers.
- Garfinkel, Harold and D. Lawrence Wieder. 1992. “Two incommensurable, asymmetrically alternate technologies of social analysis.” Pp. 175–206 in *Text in context: contributions to ethnomethodology*, edited by Graham Watson and Robert M. Seiler. Newbury Park: SAGE Publications.
- Graham, Stephen and Simon Marvin. 2001. *Splintering urbanism: networked infrastructures, technological mobilities and the urban condition*. London; New York: Routledge.
- Hughes, Thomas P. 1983. *Networks of power: electrification in western society, 1880-1930*. Baltimore: Johns Hopkins University Press.
- Latour, Bruno and Albena Yaneva. 2008. “Give me a gun and I will make all buildings move”: an ANT’s view of architecture.” Pp. 80–89 in *Explorations in Architecture: Teaching, Design, Research*, edited by Reto Geiser. Basel: Birkhäuser.
- Lynch, Michael E. and David Bogen. 1996. *The spectacle of history: speech, text, and memory at the Iran-Contra hearings*. Durham: Duke University Press.
- Shove, Elizabeth. 2016. “Infrastructures and practices: networks beyond the city.” Pp. 242–257 in *Beyond the Networked city: infrastructure reconfigurations and urban change in the North and South*, edited by Olivier Coutard and Jonathan Rutherford. London: Routledge.
- Slota, Stephen C. and Geoffrey C. Bowker. 2017. “How Infrastructures Matter.” Pp. 529–554 in *The Handbook of Science and Technology Studies*, edited by Ulrike Felt, Rayvon Fouché, Clark A. Miller, and Laurel Smith-Doerr. Cambridge, MA: The MIT Press.
- Sormani, Philippe, Ignaz Strebel, and Alain Bovet. 2015. “Reassembling Repair: of Maintenance Routine, Botched Jobs, and Situated Inquiry.” *Technoscienza: Italian Journal of Science and Technology Studies* 6:41–60.
- Star, Susan Leigh and Karen Ruhleder. 1996. “Steps Toward an Ecology of Infrastructure: Design and Access for Large Information Spaces.” *Information Systems Research* 7:111–134. doi:10.1287/isre.7.1.111
- Strebel, Ignaz. 2014. “Der Hauswart – Warum unsere Städte nicht auseinanderfallen.” *Arch+* 218:114–116.

Received January 2019; revised February 2019; accepted March 2019