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2018

https://doi.org/10.25969/mediarep/18691

Veröffentlichungsversion / published version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Schabacher, Gabriele: Abandoned Infrastructures. Technical Networks beyond Nature and Culture. In: *ZMK Zeitschrift für Medien- und Kulturforschung*. Mediocene, Jg. 9 (2018), Nr. 1, S. 127–145. DOI: https://doi.org/10.25969/mediarep/18691.

Abandoned Infrastructures

Technical Networks beyond Nature and Culture

Gabriele Schabacher

In discussions of the Anthropocene,[1] infrastructures play an eminent role as expression of man's deep interference with nature. Because of their networked character, they are said to mediate the planet by fundamentally shaping the relation between man and environments with long-lasting effects and by transforming social, cultural, and aesthetic conditions. »Anthroturbation« modifies the earth in several ways. It transforms the surface by changing landscapes, soils, oceans, and the atmosphere (human constructions, excavations, and other interventions in urban and agricultural settings); and it alters subsurface layers through structures built at a shallow level (i. e. systems of energy supply, sewerage, and transportation such as underground urban networks, subways and tunnels) as well as through »deep anthroturbation« (especially mining and boreholes).[2] According to the various forms of anthroturbation, different actors and activities are said to be the prime movers of the anthropocene, for which corresponding terms have been coined: the »plantationocene«[3], for example, takes into account the vast transformation of farmland and forest into enclosed plantations through slave labour, the »oleocene« stresses the overall importance of fossil fuels and the infrastructures of the oil drilling industry, and the »anthrobscene« points to the »obscene« economy of all the materials necessary to produce today's media world.[4] Nevertheless, there is basic agreement about the overall assumption underlying the anthropocene,

1 See Paul Crutzen: Geology of Mankind, in: Nature 415 (2002), p. 23; Will Steffen, Jacques Grinevald, Paul Crutzen and John McNeill: The Anthropocene: Conceptual and Historical Perspectives, in: Philosophical Transactions of the Royal Society 369 (2011), pp. 842–867.

2 See Jan Zalasiewicz, Colin N. Waters and Mark Williams: Human Bioturbation, and the Subterranean Landscape of the Anthropocene, in: Anthropocene 6 (2014), pp. 3–9, see pp. 4–5.

3 See Donna Haraway: Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin, in: Environmental Humanities, vol. 6, 2015, pp. 159–165, see note 5.

4 See Jussi Parikka: The Anthrobscene, University of Minnesota Press 2014; also Jussi Parikka: Deep Times and Media Mines: A Descent into Ecological Materiality of Technology, in: Erich Hörl with James Burton (ed.): General Ecology. A New Ecological Paradigm, London 2017, pp. 169–191.

namely that through the processes of industrialization from the beginning of the 19th century onward, man has changed his position from a mere »biological agent« in environmental history to a »geological force.«[5]

In such a perspective, infrastructures are assumed to have an enduring quality and they are discussed as stable socio-technical formations. This notion of infrastructural stability, however, can be debunked as a typically Western idea, as diverse processes and cultural techniques of maintaining, upholding, and repairing are needed to keep socio-technical networks running despite breakdowns and disturbances, or erosion and decay. With regard to the mediocene, introduced in the present volume as a complementary term to the notion of the Anthropocene in order to account for the predominant role of media in the shaping and conceiving of the planet, the notion of stability is of interest here, however, since it addresses the specific temporality of infrastructures. The question of temporality concerns not only the process of constant infrastructural upkeep just mentioned, but also the vast, ever growing field of abandoned infrastructures that—although no longer in use—are not demolished, because they are too monumental, or because it would be too expensive, or just because no one cares. Deprived of their function for society, these structures no longer belong to the realm of culture in the way they did before. But neither do they belong to the realm of nature in the way a plant, for example, does. Thus, they exist in a sort of hybrid, precarious state. In what follows, I will try to make sense of this specific state of abandoned infrastructure: Being both present and not quite there, these structures exhibit a sort of »zombie« status,[6] which can be productive for understanding the temporalities inherent to the notions of the anthropocene and the mediocene, respectively.

My argument unfolds in three steps. First, I give a few examples of what I understand by abandoned infrastructures and discuss this abandonment as a lack of care. In a second step, I take a closer look at recent discussions in Science and Technology Studies and Urban Studies concerning processes of decay and deterioration with regard to architecture and infrastructure. This means shifting the attention from notions of disturbance and disaster, as more or less discontinuous and abrupt events, towards a perspective that takes into account slower and often unnoticed temporal processes of change. The notions of ruin and ruination will be of particular interest here. In the last part of the paper, I focus on the relation

5 Dipesh Chakrabarty: The Climate of History: Four Theses, in: Critical Inquiry, vol. 35, no. 2, 2009, pp. 197–222, see p. 206. For further discussion of Chakrabartys theses, see Robert Emmett and Thomas Lekan: Whose Anthropocene? Revisiting Dipesh Chakrabarty's ›Four Theses‹, Rachel Carson Center Perspectives 2016/2.

6 With respect to media archeology, see the reflections on »zombie« or »dead« media by Garnet Hertz and Jussi Parikka: Zombie Media: Circuit Bending Media Archaeology into an Art Method, in: Leonardo, vol. 45.5 (2012), pp. 424–430.

of nature and culture as well as on the aspect of temporality, reframing the discussion of abandoned man-made structures on a more abstract level of the terms anthropocene and mediocene. I propose to understand the temporal regimes of decay and abandonment as processes of transformation that constantly rework the distinction of nature and culture, geology and archeology, life and death. In addition, I argue that—in contrast to the notion of the Anthropocene—the mediocene concept might be able to account for their complex networked and mediating character as well as their specific temporality.

1. A Lack of Care

To give an impression of what I have in mind with infrastructural deterioration and the »zombie« status of abandoned man-made structures, I want to refer to some photographs. On the one hand, there are examples that evoke the past by showing formerly functioning structures. Considering the photographs of Thomas Jorion,[7] we encounter an artistic presentation of built structures that are all in a way reconquered by nature. The pictures display recent examples of abandonment as well as older relics, in industrial and rural regions, from Western and postcolonial contexts. Two pictures may serve as examples: a decaying Soviet military basketball court in Germany (Fig. 1, p. 130) and a 19th century slave prison in Guadeloupe (Fig. 2, p. 130). Although these relics stem from different times, geographical settings, and national contexts, the entanglement and overlapping of nature and culture that is shown in these pictures seems so similar, that it would be difficult to decide, without additional information, the time or region to which the relics belong. In addition to such »aesthetic« representations, there are also examples that seem to claim a documentary status (Fig. 3, p. 131). By implicitly evoking the contrast to what once has been, these pictures suggest a process of decline, as the photograph of the 2004 Athens Olympic village illustrates. However, abandonment happens not only to single buildings, but also to whole towns or areas, creating so-called ghost towns. They often emerge after the natural resources of the region have been depleted (gold, diamonds), after infrastructure projects have been completed (railroad), because of political reasons, or in the aftermath of a catastrophe. Examples are the Ukrainian town Pripyat next to Chernobyl, which had to be evacuated after the 1986 nuclear accident, or Plymouth on the island of Montserat where an entire region had to be abandoned after a series of local volcanic eruptions and pyroclastic flows. An emblematic case illustrating the fate of a formerly highly successful industrial region is Detroit with all its empty, dete-

7 http://www.thomasjorion.com/uk/index.php/ (18 January 2010)

Fig. 1: Basketball Hall of a Former Soviet Military Base, Germany, 2010

Fig. 2: Prison, Petit-Canal, Guadeloupe, 19th Century

Fig. 3: Training Pool, Olympic Village Athens, 2004

riorated industrial architecture left behind by the ongoing process of post-industrial, economic change.[8] Economic causes are also responsible for rural exodus, as in the case of the former fishing village Houtouwan (Fig. 4, p. 132) on the Chinese half island Shenghsan, East of Shanghai, where people have left their houses behind in the early 1990s due to better living conditions and transport routes on the mainland. The reason this village has not been completed abandoned— and the reason we know about it— is because the picturesque landscape has been subsequently reinvented as a regional tourist attraction. This renewed economic interest can be seen as an effect of the emergence of the type of photography shown above that indulges in the aesthetic quality of abandoned urban areas (such as Detroit). The discussion of this phenomenon is controversial, since some denounce the photographs as nostalgia and even »ruin porn«[9] on the one hand, while others

8 Detroit has been documented recently in several illustrated books, see Andrew Moore: Detroit Disassembled. Photography by Andrew Moore. Essay by Philip Levine, Bologna 2010; Dan Austin: Lost Detroit. Stories Behind the Motor City's Majestic Ruins. Photography by Sean Doerr, Charleston, SC 2010; Yves Marchand et al.: The Ruins of Detroit, Göttingen 2010. See also the work of Camilo José Vergara: New American Ghetto, New Brunswick, NJ 1995; Camilo José Vergara: American Ruins, New York 1999.

9 JoAnn Greco: The Psychology of Ruin Porn, in: CityLab (January 6, 2012), under: https://www.citylab.com/design/2012/01/psychology-ruin-porn/886/ (23 January 2018).

Fig. 4: The Abandoned Village of Houtouwan on Shengshan Island, China

interpret them, on the other hand, as an attempt to »reprogram« and revitalize these obsolete urban regions as places to be remembered.[10]

The abandoned infrastructures shown so far evoke a sort of pastness. However, they also are used in fictional, dystopian contexts, where they often depict a catastrophic future of mankind.[11] Architecture and infrastructures are here presented as ambivalent or hybrid zones between nature and culture. The TV-series The Walking Dead (USA, 2010-, Frank Darabont), for example, depicts survival after a zombie apocalypse within an environment furnished by abandoned infrastructures (highways, schools, hospitals, prisons etc.). All of these structures are shown in a state of decay. However, as part of the poor living conditions presented in the series, they also assume the status of quasi »natural resources«, which have to be found, searched through, exploited, and rearranged.

10 Robert M. Arens: Say Nice Things About Detroit: Private Visions and Public Debate, in: 85th ACSA Annual Meeting Proceedings, Architecture: Material and Imagined, ed. Lawrence W. Speck, 1997, pp. 634-638, see p. 636.

11 The scary, abandoned building or town is also a characteristic element of gothic, fantasy and horror fiction (i. e. in the *Weird Tales* of H.P. Lovecraft) to evoke a sense of fear and the uncanny.

Now, what do all these examples tell us about the temporality of abandoned infrastructure? For a long time, infrastructure research has been informed by the idea of stability. In his canonical work on electricity infrastructure in the United States and Europe, Thomas Hughes, for example, is interested primarily in the processes of consolidation of invented socio-technical systems, including factors such as »momentum«, which he analyzes as a tendency towards the stabilization of existing structures.[12] From this point of view, infrastructure systems are permanent, stable technologies or even—in the case of architecture—timeless buildings, based on standards, path dependence, and being embedded in pre-existing networks. Recent approaches in the fields of Science and Technology Studies and Urban Studies, however, have criticized this understanding for not taking into account the interconnectedness of infrastructures as well as processes that destabilize socio-technical systems.[13] Consequently, they have developed a more process-focused approach to infrastructure and architecture. Pursuing a kind of unblackboxing, these approaches consider not only the heterogeneous actors that a certain infrastructure assembles, but also their strong tendency to drift apart. Following Steven J. Jackson's suggestion to invest in sort of a »broken world thinking«[14], this means to reverse the perspective and to take »erosion, breakdown, and decay, rather than novelty, growth, and progress, as our starting points in thinking through the nature, use, and effects« of technology.[15] To acknowledge the fact that »the world is always breaking« consequently leads to attesting to infrastructures ephemeral qualities.[16] As Stephen Graham and Nigel Thrift have convincingly argued, we have to be careful not to follow what they call »the myth of order.«[17] With this notion, they refer to an understanding of infrastructure that derives from a preoccupation with catastrophic failures and disasters as extraordi-

12 See Thomas P. Hughes: The Evolution of Large Technological Systems, in: Wiebe E. Bijker, Thomas P. Hughes and Trevor Pinch (ed.): The Social Construction of Technological Systems, Cambridge, MA 1989, pp. 51–82, see p. 76ff.

13 Paul N. Edwards et al.: Understanding Infrastructures: Dynamics, Tensions, Designs. Report of a Workshop on ›History & Theory of Infrastructure: Lessons for New Scientific Cyberinfrastructures‹ January 2007, under: https://deepblue.lib.umich.edu/bitstream/handle/2027.42/49353/UnderstandingInfrastructure2007.pdf?sequence=3&isAllowed=y (23 January 2018); Geoffrey Bowker et al.: Toward Information Infrastructure Studies: Ways of Knowing in a Networked Environment, in: Jeremy Hunsinger et al. (eds.): International Handbook of Internet Research, Dordrecht/London 2010, pp. 97–117.

14 Steven J. Jackson: Rethinking Repair, in: Tarleton Gillespie, Pablo Boczkowski and Kirsten Foot (eds.): Media Technologies: Essays on Communication, Materiality and Society, Cambridge, MA 2014, pp. 221–240, see p. 221.

15 Ibid.

16 Ibid., p. 223.

17 Stephen Graham and Nigel Thrift: Out of Order: Understanding Repair and Maintenance, in: Theory, Culture and Society 24/3 (2007), pp. 1–25, see p. 8.

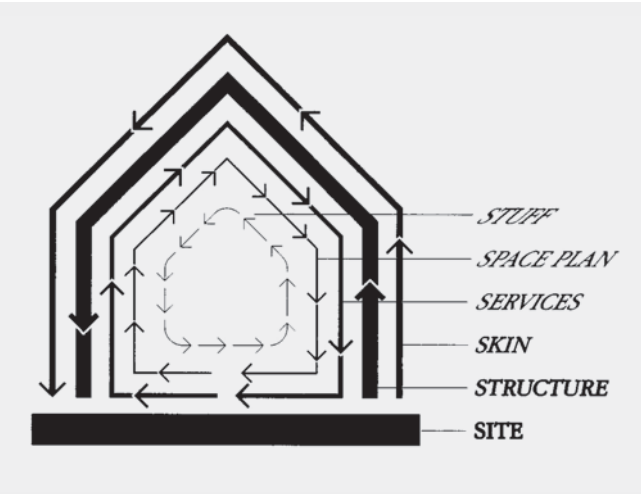

Fig. 5: Layers of Change in a Building

nary states of infrastructural disorder and disturbance, which all too easily leads one to believe that life beyond such situations is neatly ordered. In fact, the contrary is true.[18] There is a huge amount of ongoing—usually invisible—mundane care and repair invested in maintaining the status quo. According to Graham and Thrift, one reason why we so readily believe in the myth of order stems from ignoring the experiences of the Global South where the »broken« status of technical systems represents a ubiquitous experience in everyday life.[19]

In the same way, the example of a single building can teach us a lot about change, if we are ready to see it. As Stewart Brand shows in his famous study *How Buildings Learn*, buildings not only change over time, but they do so with respect to the several layers of built components that differ in their longevity (Fig. 5). Whereas the »site«, according to Brand is quite eternal, exterior surfaces have to be renewed every twenty years, and on the level of »stuff« (including kitchen, appliance), things »twitch«, as Brand says, monthly, weekly, and daily.[20] These different temporalities within the »same« building are responsible for the fact that a building actually never stays the same over time. A building, as Albena Yaneva and Bruno Latour suggest in very much the same line of thought, is a »flow of

18 The research on accidents shows that routinized modes of work are in fact unordered, insofar they include accidents as well as measures to prevent accidents as normal procedure, see Jörg Potthast: Papier, Bleistift & Bildschirm. Die Bodenhaftung der Flugsicherung, in: Christian Kassung (Hg.): Die Unordnung der Dinge. Eine Wissens- und Mediengeschichte des Unfalls, Bielefeld 2009, pp. 303–327, see p. 307. However, as social scientist Brian Wynne argues, »because it is seen this way only around accidents, the belief is consolidated that *normally* practices are more orderly.« (Brian Wynne: Unruly Technology: Practical rules, impractical discourses and public understanding. In: Social Studies of Science 18 (1988), pp. 147–167, see p. 150).

19 See Graham/Thrift: Out of Order (as note 17), p. 11. See also Brian Larkin: Zersetzte Bilder, verzerrte Klänge. Video in Nigeria und die Infrastruktur der Raubkopie, in: Zeitschrift für Medienwissenschaft 6 (2012), pp. 49–65.

20 Stewart Brand: How Buildings Learn. What Happens After They're Built, London 1994, p. 13.

transformations«[21], not a »static object but a moving project«.[22] Furthermore, according to Brand, the temporalities of the different building layers cause interferences: »Because of the different rates of change of its components, a building is always tearing itself apart.«[23] The costs going along with these diverse temporalities of a building, that is to say, the costs of materials and labour which have to be invested in restoring, renovating, and refurnishing it, are usually overlooked, while they considerably exceed the original investment costs: »Over fifty years, the changes within a building cost three times more [at least in 1994, G.S.] than the original building.«[24]

These types of costs also pose significant problems on the national level, as the example of the USA shows. Every four years, the American Society of Civil Engineers (ASCE) publishes *The Infrastructure Report Card*, a report which grades the current state of national infrastructure according to categories on a scale of A through F. Since 1998, America's infrastructure has earned persistent D averages. The 2017 Infrastructure Report Card reveals that, although there is some progress being made (the cumulative grade is again D+), the failure to close the investment gap for needed maintenance and improvements continues. A look at the ASCE infographics shows that there is only one B for rail, a few Cs for bridges, ports and solid waste, but Ds for hazardous waste, drinking water, schools, transit, etc.[25] There are 15.498 dams that are considered to have high-risk potential. Repairing the entire infrastructure would cost up to two trillion American dollars. Deferring repair, however, leads not only to huge losses in the national economy, but also to increasing costs for future repair; the estimated funding gap will more than quadruple to $10.3 trillion by 2040.[26]

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21 Bruno Latour and Albena Yaneva: »Give me a gun and I will make all buildings move«: An ANT's View of Architecture, in: Reto Geiser (ed.): Explorations in Architecture: Teaching, Design, Research, Basel 2008, pp. 80–89, see p. 85.

22 Ibid., p. 80.

23 Brand: How Buildings Learn (as note 20), p. 13.

24 See ibid. Brand refers to architect and architectural theorist Frank Duffy, who states that »the unit for analysis for us isn't the building, it's the use of the building. Time is the essence of the real design problem.« (Frank Duffy cited after Brand, ibid.) And even ruins need maintenance (see David Edgerton: The Shock of the Old. Technology and Global History since 1900, London 2006, p. 78).

25 https://www.infrastructurereportcard.org/the-impact/explore-infographics/americas-infrastructure-grade/ (18.01.2018).

26 Failure to Act report: Closing the Infrastructure Investment Gap for America's Economic Future, American Society of Civil Engineers 2016, under: https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/ASCE-Failure-to-Act-2016-FINAL.pdf (18.01.2018), p. 11.

Taken together, the stability of socio-technical structures has to be understood as the result of ongoing practices of caring in the widest sense, and of maintenance activities in the more particular sense of standardized and industrial procedures.[27] In what follows, I want to take a closer look at what happens when maintenance and caring activities are lacking, that is, when infrastructures are left to themselves. This means to shift the focus to processes of decay and deterioration as well as to material forms such as rubble and debris.

2. Decay and Ruins

In their study *Buildings must die*, architect and urbanist Stephen Cairns and human geographer Jane M. Jacobs elaborate a »complex view of architecture's ›life‹ and ›death‹«,[28] which includes what they call the »flip side« or »shadow story«[29] of architecture's (accepted) defining attributes. Thus, they do not take as their starting point architecture's »material durability, its creative genesis, its productive utility, its aesthetic value«,[30] but focus on architecture's relation to »decay, deterioration, and destruction«.[31] Referring to Michael Thompson's *Rubbish Theory* and his analysis of the complex processes of transfer between the categories of the transient and the durable as well as their respective de/valuation, they highlight Thompson's argument »that one man's rubbish can be another man's desirable object.«[32] Cairns and Jacobs, too, stress the importance of both aspects, of »matter« and »mattering«,[33] that is to say, of the dimension of materiality on the one hand and of the processes of valuation on the other. Only these two aspects together are able to explain the »relative durability«[34] of built structures and their specific temporality: »Architecture's relative durability does not exempt it from the principle

27 See also Gabriele Schabacher: Im Zwischenraum der Lösungen. Reparaturarbeit und Workarounds, in: Holger Brohm, Sebastian Gießmann, Gabriele Schabacher und Sandra Schramke (eds.): Workarounds. Praktiken des Umwegs, Berlin 2017, pp. XIII-XXVIII; Stefan Krebs, Gabriele Schabacher and Heike Weber (ed.): Kulturen des Reparierens. Dinge – Wissen – Praktiken, Bielefeld 2018.

28 Stephen Cairns and Jane M. Jacobs: Buildings Must Die. A Perverse View of Architecture, Cambridge, MA/London 2014, p. 2.

29 Ibid., p. 1.

30 Ibid.

31 Ibid., p. 2.

32 Michael Thompson: Rubbish Theory: The Creation and Destruction of Value, Oxford 1977, p. 96. For their discussion of Thompson's approach see Cairns and Jacobs: Buildings Must Die (as note 28), p. 57.

33 See ibid., p. 49.

34 Ibid., p. 58.

of mutable value, but it does ensure that architecture generally ›circulates‹—via processes of reinvestment, restoration, and revaluation—more slowly through its ebb and flow. As a consequence, buildings are regularly out of time—unused, unloved, unappreciated, devalued—but still very much in place.«[35]

This specific spatio-temporal obduracy of built structures seems interesting with regard to the logic of abandonment. As Cairns and Jacobs argue, we deal with an »[o]bduracy-in-obsolescence«[36], insofar as »[a]n obsolete building is in place but out of time.«[37] This status results from the fact that it is simply impossible to remove particular structures from sight: »Unlike other waste objects, which can be managed or rendered invisible by being pushed into a garbage bin, stored in the attic, compacted in a landfill, or biodegraded, buildings often, resolutely and publicly, stay in view and in place regardless of their economic and public evaluations.«[38]

The architecture of bunkers that Paul Virilio analyzes provides a very impressive example of this type of obduracy. Many of the buildings along the »Atlantic Wall«—a massive infrastructure consisting of over 8.000 coastal bunkers reaching from Norway to the Bay of Biscay that was constructed by Organization Todt from 1942 to 1944 as a defense against an anticipated Allied invasion—are still in place, although they have been relatively unnoticed since the war. In an autobiographical memory, Virilio states that the misuse of these bunkers as cabanas represented the starting point of his inquiry into »bunker archeology«:

»I was leaning against a solid mass of concrete, […]; all the usual seaside games had become a total bore; […]. So I turned around for an instant to look at what my field of vision onto the sea had not offered up […] and decided to have a look around this fortification […].

I was most impressed by a feeling, internal and external, of being immediately crushed. The battered walls sunk into the ground gave this small block-house a solid base; a dune had invaded the interior space, and the thick layer of sand over the wooden floor made the place ever narrower. Some clothes and bicycles had been hidden here; the object no longer made the same sense, though there was still protection here.«[39]

35 Ibid.

36 Ibid., p. 111.

37 Ibid., p. 103.

38 Ibid., p. 58. For the problem of obduracy see also Anique Hommels: Unbuilding Cities. Obduracy in Urban Sociotechnical Change, Cambridge/MA/London 2008. In analyzing three cases of urban obduracy, Hommels not only refers to the material side of obduracy, but proposes heuristically three conceptual models for explaining the phenomenon: the constraining role of »dominant frames«, the entanglement of structures as result of their »embeddedness«, and persistent traditions caused by path dependencies (ibid., pp. 21-39).

39 Paul Virilio: Bunker Archeology (1975), New York 1994, p. 10f.

Fig. 6: Command Post in the Bay of Biscay

One example of Virilio's bunker research, taken from a section of pictures under the heading »War Landscape«, shows a command post at the Bay of Biscay that is sunk into the beach (Fig. 6). For Virilio, it is especially the monolithic character of these structures that prevents them from being removed: »While most buildings are embanked in the terrain by their foundations, the casemate is devoid of any, aside from its center of gravity, which explains its possibility of limited movement when the surrounding ground undergoes the impact of projectiles. This is the reason for our frequent discovery of certain upturned or tilted works, without serious damage.«[40] They are »still very much in place«, as Cairns and Jacobs put it.[41]

In order to understand this type of obduracy, it might be useful to turn to the concept of »ruin«. Cairns and Jacobs consider the notion of ruin (in addition to »decay«, »obsolescence«, »disaster« and »demolition«) one of the five key concepts for their empirical analysis of the overlapping processes of »building deaths«.

Questions regarding the specific beauty and temporality of the ruin have been widely discussed. They have been addressed, for example, in terms of aesthetic

40 Ibid., p. 37.

41 For further discussion see Gabriele Schabacher: Regime der Geschwindigkeit. Paul Virilios Verkehrstheorie, in: Friedrich Balke and Maria Muhle (eds.): Räume und Medien des Regierens, München 2016, pp. 140–167; Claus Pias: Bunker schreiben. Paul Virilios Architexturen, 2001, under: https://www.uni-due.de/~bj0063/texte/virilio_neu.pdf (23.01.2018).

figurations,[42] which historically led to a specific engagement with and idealization of ruins in 19th century Romanticism.[43] Rose Macaulay analyzes the »pleasure of ruins« experienced by the spectator as a motive that has driven travelers to them throughout the ages.[44] The infamous Nazi architect Albert Speer even developed a »theory of ruin value« according to which a collapsed building can leave behind valuable ruins that do not require any maintenance.[45]

For the present purpose, however, I would like to focus on the specific and paradoxical temporality of ruins that has been observed by Georg Simmel. In an article from 1911 entitled »The Ruin«, he states that the nostalgia associated with ruins and the fascination they attract stem from the fact that »the natural forces begin to become master over the work of man«[46], thus making the work of man appear »entirely as a product of nature«.[47] Nature, as Simmel argues, »has transformed the work of art into material of her own expression, as she had previously served as material for art.«[48] In reference to the cyclic nature of human existence as expressed in the Bible (»for dust you are and to dust you shall return«) and the antagonistic potentialities of »the striving upward and the sinking downward«[49], the tragic element of the ruin, according to Simmel, lies in the fact that »destruction here is not something senselessly coming from the outside but rather the realization of a tendency inherent in the deepest layer of existence of the destroyed.«[50] The specific temporality of the ruin between »the not-yet and the no-longer«[51] stresses »the character of the ruin as *past*.« [52] However, although life has departed from it, the fact that it was once there constitutes a specific type of perceivable presence: »The ruin creates the present form of a past life, not according to the contents or remnants of that life, but according to its past as such.«[53]

42 For a history of the aesthetics of ruins see: Hartmut Böhme: Die Ästhetik der Ruinen, in: Dietmar Kamper, Christoph Wulf (Hg.): Der Schein des Schönen; Göttingen 1989, pp. 287–304.

43 It is especially their character as fragment which leads to a high appreciation of ruins as sublime figurations, even to constructions of artificial ruins in garden architecture. See Andrea Siegmund: Die romantische Ruine im Landschaftsgarten. Ein Beitrag zum Verhältnis der Romantik zu Barock und Klassik, Würzburg 2002.

44 See Rose Macaulay: The Pleasure of Ruins, New York 1953.

45 See Albert Speer: Inside the Third Reich, New York/Toronto 1970.

46 Georg Simmel: The Ruin (1911), in: The Hudson Review 11.3 (1958), pp. 379–385, see p. 379.

47 Ibid., p. 381.

48 Ibid.

49 Ibid., p. 383.

50 Ibid., p. 382

51 Ibid.

52 Ibid., p. 384.

53 Ibid., p. 385.

Returning to the notions of matter and mattering stressed in the work of Thompson as well as Cairns and Jacobs, I now want to discuss two studies that account for both aspects— the specific material form of ruins and their valuation— in notably postcolonial contexts: Gastón R. Gordillo's study *Rubble. The Afterlife of Destruction* and the volume edited by Ann Laura Stoler, *Imperial Debris*.[54] Gordillo's ethnographic study explores the complex entanglement of relics in the Gran Chaco in northern Argentina between the Spanish Empire and subsequently the Argentinian State on the one hand and the indigenous population on the other. Gordillo emphasizes his astonishment at the beginning of his research when he is confronted with a multiplicity of traces in this region and the different timescapes that made it »not possible to separate older ruins from new ones.«[55] Furthermore, he underlines the experience that, for the local population, the ruins he was interested in—for example, a former Jesuit mission—were just old walls (Gordillo's guide even breaks some material out of the stucco frame over a door to demonstrate its aged status).[56] The ruin concept did not mean anything to the locals; in their perspective, it was only »a homogenizing abstraction that does not resonate with the sensuous texture of actual places and objects.«[57] Acknowledging this, Gordillo argues against a »hierarchy of debris«[58] that downgrades rubble as something shapeless and worthless, suggesting instead that rubble should be explored »as textured, affectively charged matter that is intrinsic to all living places.«[59] With regard to ruins, this means seeing them as rubble in the first place, thus exposing the esteeming of something as a ruin as in fact an act of fetishization: »The best-kept secret of the heritage industry is that its ruins are rubble that has been fetishized.«[60] In her analysis of postcolonial contexts, Ann Laura Stoler takes the difference between »ruin« (the monument) and »ruination« (the process) as a starting point. She approaches the problem from a slightly different angle by asking »how […] imperial formations persist in their material debris.«[61] For Stoler this means analyzing the »imperial tangibilities« of the long-lasting, but underestimated effects of colonial debris »that saturate the subsoils of people's lives.«[62] The word »ruin« designates not only the state of a thing, but also the process affecting

54 Gastón R. Gordillo: Rubble. The Afterlife of Destruction, Durham/London 2014; Ann Laura Stoler (ed.): Imperial Debris: On Ruins and Ruination, Durham/London 2013.
55 Gordillo: Rubble (as note 54), p. 1.
56 Ibid., p. 4.
57 Ibid., p. 7.
58 Ibid., p. 10.
59 Ibid., p. 5.
60 Ibid., p. 9.
61 Stoler: Imperial Debris (as note 54), p. 10.
62 Ibid., p. 5.

it, thus making »ruination« an ambiguous term by definition, since it involves »an act of ruining, a condition of being ruined, and a cause of it.«[63] According to Stoler, to call something a ruin, is not a fetishization (as maintained by Gordillo), but a political act: »ruins are made.«[64] Imperial ruins in particular are not necessarily to be considered as monuments, but as ecologies of remains,[65] with which people constantly interact when they »live *with* and *in* ruins.«[66]

Looking at the description of what Gordillo and Stoler call ruins, the question arises as to how we can understand the specific temporality that accompanies them. On the one hand, there are processes of decay and deterioration, on the other hand, one can observe an obduracy, a sort of resistance of these man-made structures. This resistance, however, might now itself be interpreted as resulting from a specific fetishization, monumentalization, or ruination of living conditions, which permanently re-inscribe ruins into cultural processes. If ruins »create pastness«, as Simmel puts it, they also create the present.

3. Temporalities in the Anthropocene/Mediocene

In his article *Infrastructure and Modernity: Force, Time, and Social Organization in the History of Sociotechnical Systems*, Paul N. Edwards rethinks the historiography of modern infrastructures with respect to the question of scale. He starts from the premise that »mature technological systems—cars, roads, municipal water supplies, sewers, telephones, railroads, weather forecasting, buildings, even computers in the majority of their uses—reside in a naturalized background, as ordinary and unremarkable to us as trees, daylight, and dirt.«[67] In order to analyze these systems, Edwards suggests a »multiscalar approach« which examines infrastructures on macro-, meso- and micro-levels with respect to the three dimensions of force, time, and social organization.[68]

63 Ibid., p. 11.
64 Ibid., p. 21.
65 Ibid., p. 22
66 Ibid., p. 12f.
67 Paul N. Edwards: Infrastructure and Modernity, in: Thomas J. Misa, Philip Brey and Andrew Feenberg (eds.): Modernity and Technology, Cambridge, MA 2003, pp. 185-225, see p. 185.
68 Ibid., p. 186. Such a distinction of levels can lead, however, to ›metrological‹ problems, as Latour has shown with reference to the laboratory and its transforming power between ›micro‹ and ›macro‹, suggesting that laboratories represent a field from where the whole of society can be reworked (see Bruno Latour: Give me a laboratory and I will raise the world, in: K. D. Knorr-Cetina and M.J. Mulkay (eds.): Science Observed, Beverley Hills:

Regarding the dimension of force, Edwards suggests distinguishing the human body from geophysical forces and to understand infrastructure on a meso scale, as a mediating in-between structure. With respect to the dimension of social organization, he identifies the micro-level with the brief temporal relations of individuals, the meso-level with longer-lasting (decades) institutional formations, and the macro-level with large systems (namely, infrastructures) that last for several decades or even centuries. Finally, there is the multiscalar dimension of time, and Edwards discusses »scales ranging from the *human* (hours, days, years) through the *historical* (decades, centuries) to the *geophysical* (millennia and beyond).«[69] According to Edwards, infrastructures change too slowly for most of us to notice on a human time scale. Infrastructures, therefore, exist »chiefly in historical time«,[70] which is why they have the power to shape and affect human time. On the geophysical level, however, »or even long-term historical, time scales, infrastructures are fragile, ephemeral things.«[71] Here, it is time itself that shapes infrastructures, rather than the other way round. These temporal regimes also fundamentally affect the way the relationship of nature and infrastructure is construed:

»[T]he irregularity with which ›natural disasters‹ occur can be seen (on human force and time scales) as one vehicle for constructing properties of a modernist ›nature‹ (as dangerous, unpredictable, and/or inconvenient), thereby separating nature from infrastructure and framing technology as control. Yet in geophysical time, this same irregularity becomes a fundamental, predictable property of nature, deconstructing the separation between them by illustrating the permanent imbrication of infrastructure in nature.«[72]

For Edwards, this means that »on long historical and geophysical time scales, breakdown is a natural property of infrastructures, or instead is a property of nature *as* infrastructure«.[73] And with reference to global warming he underlines the »permanent imbrication of industrial infrastructures within the planetary carbon metabolism«, making »the fossil-fuel economy […] a part of this larger process«,[74] which renders—and this interpretational shift is significant—»[n]ature […] in some sense the ultimate infrastructure.«[75]

Sage 1983, pp. 141-170). Nevertheless, Edwards' reflections can be usefully applied to the problem of abandoned infrastructures and the temporalities going along with them.

69 Edwards: Infrastructure and Modernity (as note 67), p. 194.

70 Ibid.

71 Ibid., p. 195.

72 Ibid.

73 Ibid., p. 196.

74 Ibid.

75 Ibid.

As one can see, Edwards' multiscalar approach refers to the different temporalities of history and geology. Infrastructures exhibit stability and durability only on the level of human and historical times; on geological or »long historical« scales, however, infrastructures and nature present themselves as gradually less distinguishable from each other, up to the point of their identification where »nature« is (the ultimate) »infrastructure«. Nevertheless, Edwards' view on infrastructure's fragile, ephemeral qualities is informed by an understanding of technical malfunctioning (he uses the concepts of »irregularity«, »breakdown«, etc.). One reason for this could be that he is less interested in processes of decay and deterioration or material relics and ruins, which are already beyond a logic of function and purpose. We have seen that entities (such as bunkers), though, can be subject to archeological activities and time scales.

The different time horizons of geology, archeology, and history, however, are not only important for an understanding of the relation of infrastructure and modernity. They are also highly relevant for the historiography of media and, therefore, for concept of the mediocene.

In media theory, it is Harold Adams Innis in particular who raises the question of media history as an effect of geological formations. From his dissertation on the Canadian Pacific Railroad in the 1920s onwards, the trained economic historian Innis considers geological formations as equally important as human built structures for the political and cultural development of a nation: »The spread of civilization was dependent on the geographic characteristics of the area and on the character and institutions of the people involved. The rapidity and direction of the growth of civilization were largely dominated by the physical characteristics, the geological formations, the climate, the topographical features, and the consequent flora and fauna which these conditions produced.«[76] Against this background, Innis studies the histories of different staple trades: »Canada emerged as a political entity with boundaries largely determined by the fur trade. These boundaries included a vast north temperate land area extending from the Atlantic to the Pacific and dominated by the Canadian Shield. The present Dominion emerged not in spite of geography but because of it.«[77]

With »Canadian Shield«, Innis refers to the geological core of the North American continent that forms five huge drainage basins, and therefore a system of waterways (and routes of transport) that allows for different transportation directions and regional economies. Together with the role Innis attributes to animals

76 See Harold Adams Innis: A History of the Canadian Pacific Railway (1923). Reprint with a foreword by Peter George. Toronto/Newton Abbot 1971, p. 1.

77 Harold Adams Innis: The Fur Trade in Canada. An Introduction to Canadian Economic History (1930). Rev. Ed. Toronto 1956, p. 393.

(such as the beaver for the fur trade), vessels (for example, the canoe), and the indigenous population, he develops an understanding of media history, which is not only rooted in natural history, but *is* natural history. Interestingly, Innis points to the fact that the Canadian Shield represents a Precambrian formation, thus referring to the most ancient period in earth's history, preceding even the emergence of life.[78]

Turning to the notion of the mediocene, what kind of history is implied by this concept? And what can we deduce from the remarks on abandoned infrastructures with respect to this question? Without doubt, infrastructures are a part of the human footprint; they sustainably shape the relation of man and environment. As part of material history, they can be traced back further than recorded histories based on techniques of writing. They belong to what is called the deep history of mankind.[79] Their durability, however, is a relative one, since the complex networks of heterogeneous components they consist of (humans, non-humans, living and non-living entities, codes, prescripts, etc.) are always on the edge of falling apart. On the other hand, as we have seen, it is not so easy to get rid of something. Abandoned infrastructures also tend to stay, they resist being gotten rid of. Thus, as Simmel says, apart from its content, the ruin »creates the present form of a past life«. Accordingly, in their resistance, their obduracy, abandoned infrastructures permanently re-articulate distinctions of past and present. And through this complex temporality, abandoned infrastructures at the same time question additional fundamental distinctions such as those between nature and culture, life and death, humans and non-humans.

The concept of the mediocene can be understood as an account of precisely these processes of transformation, translation, mediation, and hybridization and of the effects they generate. Understood in this way, the idea of a mediocene might substantially enrich the concept of the Anthropocene with its programmatic bias towards human agency.

78 For further discussion of Innis' media theory, see Gabriele Schabacher: Traffic as ›Dirt Experience‹. Harold Innis' Tracing of Media, in: Marion Näser-Lather and Christoph Neubert (eds.): Traffic. Media as Infrastructures and Cultural Practices, Leiden/Boston 2015, pp. 50–72.

79 See Daniel Lord Smail: On Deep History and the Brain. Berkeley/London 2008; James C. Scott: Against the Grain: A Deep History of the Earliest States, New Haven/London 2017.

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Fig. 4: The Abandoned Village of Houtouwan on Shengshan Island, China © Visual China Group/ Getty Images.

Fig. 5: Stewart Brand: How Buildings Learn. What Happens After They're Built, London: Penguin 1994, p. 13.

Fig. 6: Paul Virilio: Bunker Archeology (1975), New York: Princeton Architectural Press 1994, p. 87.