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RESEARCH ARTICLE



Rivers between nature, infrastructure, and religion

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ABSTRACT

Focusing on the domestication and undomestication of nature around the River Vere in Tbilisi, Georgia, this article analyses how modernization projects seemingly overcoming nature simultaneously reinforced the complex entanglement between nature and infrastructure, the material and immaterial, the human and non-human. The article centres around a flooding event in 2015, shedding light on the entanglement of different approaches and temporalities. The river and its infrastructure are caught up with ideas, beliefs and materialities. The paper analyses how the crisis gave rise to questions about ‘morality’ of materiality, ‘proper’ and ‘improper’ handling of nature. Based on ethnography and archival work, it shows how the infrastructural developments conceived as projects of Soviet atheist modernity emerged as sites where nature, technologies and religion meet. Rather than looking at Soviet and post-Soviet as two different modernities, the article shows them as continuities.

KEYWORDS

River; infrastructure; Soviet; Tbilisi; urban anthropology; materiality

Introduction

Times of crisis reveal how infrastructural projects are entanglements (Hodder, 2012) where the human and non-human, nature and infrastructure, science and religion fuse. What flows in the pipes of former riverbeds are the river, the sewage, and the political history all at once (cf. Anand, 2018, p. 150). The article traces how the disaster around the River Vere in Tbilisi, Georgia, in 2015 revealed the complex entanglement of the human–non-human network, unsettled pasts, and revealed muted parts of the relevant materialities (Keane, 2005).

Tbilisi has multiple rivers, many of which are under the surface and partly or totally invisible.¹ The once important River Vere still exists, but is hard to find. The former riverbed is used for multiple functions, including Tbilisi Zoo, housing units and main roads.² As a river that has been entombed, it has mostly disappeared from perception, and its manifold functions and properties have been muted. Vere is mostly invisible, lurking somewhere until it explodes. Large floods were recorded on Vere on 13 June 1924, 10 May 1940, 4 July 1960 and 13 May 1980 (CENN, 2019, p. 14). The last and biggest disastrous flood happened on 13 June 2015. The tamed Vere came to the surface with a force that killed 23 people and more than 1000 people were affected; also approximately 300 animals in Tbilisi Zoo were killed.

When infrastructure replaces a river, at first glance a separation takes place. Nature is separated from infrastructure, the human is separated from the non-human and the scientific is separated from the non-scientific. My analysis takes an in-depth look at how the (Latourian) separation process turns into a process of translation: how the infrastructure adopts the features and functions of the river, and vice versa (Latour, 1993). In the process of Latourian delegation, we delegate not only a technical function to the infrastructure but also ethical qualities and morality (Cressman, 2009). The rivers too are not just nature. They, as bundles, are caught up with ideas, affects, temporalities.

Soviet modernity drew sharp separation lines: nature was separated from infrastructure, the rational from the irrational, and the scientific from the religious. But how much was separation a translation at the same time?

This article looks at the river as a palimpsest where different properties and temporalities come together. This study is an attempt of translation: combining things that seem divergent (cf. Callon, 1980, p. 211). It asks how infrastructural projects and the nature around them behave as parts of a network (thus being dependent) and as actants (meaning having certain agency), what the dynamics are when assigning blame or claiming pride, and how it changes. To analyse the river and the infrastructure as a hybrid assemblage, the article focuses on the history of the Vere River and the infrastructure around it from Soviet modernity to the present day. Specifically, it seeks to answer the questions: What functions and properties were delegated from the river to the infrastructure, and vice versa, from the infrastructure to the river? How and why are some temporalities and functions being actualized?

This article looks at the city of modernist projects as an assemblage (Storper & Scott, 2016). A city is multiplicity of objects where 'space, scale, and time are rather multiply enacted and assembled' (Fariás, 2012, p. 6; see also Akrich & Latour, 1992, pp. 259–264). With Hirsch and Stewart (2005, p. 270) and Knight and Stewart (2016, p. 5), I argue that different temporalities exist simultaneously. The crisis reveals the layers of time as 'it gathered together' (Knight & Stewart, 2016, p. 8).

Urban rivers and urban infrastructure

Urban rivers have recently become a subject of special interest. Particular attention is paid to the semiotics and history of urban rivers altered by infrastructure or covered with cement. Scholars are interested in river ownership, materiality and relational agency (Bakker, 2012; Cioc, 2002; Coates, 2013; Cusack, 2007; Linton & Budds, 2014; Orsi, 2004). This article joins discussions about the active role of non-human actants posed by relatively new studies in water anthropology (Ballester, 2019a, p. 410). These studies show, in the words of Ballester, how water is always more than itself; its force and material presence constantly frame people's efforts to address the fundamental question of 'what it means to live life collectively in a world that is always more than human' (p. 406).³ In line with scholars such as Gandy, this article tries to capture the interconnectedness of nature and infrastructure (Gandy, 2011; Ballester, 2019b). The anthropology of water is closely linked with the anthropology of infrastructure. The scholarship of urban spaces urges us to see more than the technological in infrastructure. Larkin (2008, 2013) argues that infrastructure has an aesthetic–semiotic form and content beyond technological–functional significance. Rivers and infrastructure are caught up with ideas,

beliefs and materialities (Clark, 2011; Larkin, 2013; Salmond, 2017). Infrastructure is interesting to explore not only for its technology but also for its ontology. Ingold (1997) explores technology emphasizing its social and cultural character.

Recently, more and more is being written about both urban rivers and infrastructure (Dourish & Bell, 2007; Graham & Marvin, 2001; Salukvadze & Sichinava, 2019; Tuvikene, Sgibnev, & Neugebauer, 2019). An excellent study was published in recent years (which I did not know of at the time of writing this article) focusing on events around the zoo after the flood in Tbilisi. It analyses events with a special focus on qualities beyond the human to study biopolitics and post-Soviet governmentality (Swann-Quinn, 2019). My research goes in a different direction by adapting a synchronous and diachronous focus for analysing the complex and dynamic entanglements.

To analyse how different properties are actualized in rivers and infrastructures, a closer look at history and context helps (Humphrey, 2005; Larkin, 2013; Hetherington, 2018; Toso, Spooner-Lockyer, & Hetherington, 2020). Rivers and infrastructures can be studied to trace 'prior forms of life' (Khan, 2016, p. 181) or prior ideologies (Knoll, Lübken, & Schrott, 2016). Urban nature, and specifically its rivers, can be seen as a reservoir of 'histories, identities, and collective aspirations tightly bound up with claims to power, economic benefit, and moral grounding' (Rademacher, 2015, p. 141).⁴

The remainder of the article is structured as follows. It first outlines its methodology. The main part then focuses on the disaster of 2015 and the layers it brought to surface. The article analyses the functions the river had before its 'infrastructuralization'. Next, the article focuses on the attempts of taming nature: establishing the zoo and housing units in the riverbed. The article consequently analyses how the different functions were not totally engulfed by human projects but showed up in unexpected ways and in unlikely things (actants). The next section describes the attempts to reduce nature to infrastructure and the response of the river to these attempts. Finally, the article analyses the shifting perspectives on the morality of infrastructure and feralization of infrastructure in Tbilisi.

Methodological considerations

The research is based on participant observation and archival research in Tbilisi. The fieldwork included walking along the riverbed, finding places where the river was more visible, attending to short-term changes caused by weather conditions or long-term changes due to infrastructural developments. Archival research included studying city master plans, maps, construction projects of the zoo, analysis of newspapers and other media, studying diaries and visual material. The study of the flood in Tbilisi in 2015 relies on participant observation at the time of the crisis and its aftermath. It gives an insight into the undomesticated nature whose force is especially visible in times of crisis (Bubandt & Tsing, 2018, p. 5). The discourse on proper and improper attitudes towards nature is studied from online and print media. In an attempt at symmetrical anthropology, the article traces the complex entanglement of nature and infrastructure, where every part constitutes the network while at the same time maintaining its properties.

The Vere disaster and unsettling the past

In the early morning of 14 June 2015, I had to take the new road in the centre of Tbilisi while running of some errands. The police did not let me go through: 'There is no

road, don't you watch TV?' It had been raining very heavily that night. The streets were empty, too. I rerouted to the market. A guy at the butcher's stand looked at me and warned me to stay away from the wolves. *Nobody knows where they are*. Later, I had heard that the Vere took over Heroes' Square and flooded the zoo in its former riverbed.

The most vivid memory from this morning is a huge muddy behemoth looking into the shop window of a Swatch store in Heroes' Square.⁵ Residential homes and a significant part of the city's infrastructure (roads, bridges, tunnels, retaining walls and communication systems) were destroyed and damaged. The zoo in the former riverbed was completely flooded. The animals either died in the mud, drowned or were killed after the escape (see Swann-Quinn, 2019, for a detailed discussion of flood) (Figure 1).

Later, we heard the warning that lions, bears and wolves were hiding out in the streets of Tbilisi: the roaring river carried them into the city. Tigers were also lurking somewhere. Then, some days later, an injured tiger killed a man. It was hiding around a recreational area in the former riverbed. The area never became a riverbed again, but it is increasingly seen as a place of entanglement of the city's infrastructure, tamed nature and wild nature. That tiger holed up in the 'wild' recreational area sums up all the complex entanglements of the never existing nature–culture divide.

The crisis lets different emotions and temporalities come alive. After the disaster there was a feeling of guilt for the people who could not be rescued, for animals that had to be shot and for the river being forced into the pipe. There was the feeling of responsibility for not being able to protect the small patches of nature in the city and allowing the construction of a new road in the riverbed to go ahead. The environmental organizations blame the 'unadvised and unreasonable intensive development of the flood plains of the Vere River and low-lying riverside areas, which began in the thirties of the twentieth century and is still taking place' (CENN, 2019, p. 10). A heavy landslide in the mountains has been diagnosed as the primary cause of the flood linking climate change with the 'improper' infrastructure.

Despite warnings about the ecological threat and protests of urbanists objecting to another 'wild' infrastructural project cutting the city into two at the cost of recreation, the new Georgian state, striving for a rapid modernization of the city, went ahead with the construction of the road in 2011. After the flooding in 2015, in addition to environmental and urban arguments, a moral argument emerged.⁶ The environmentalist and the religious discourse perceived the covering of the river, construction of the road and replacement of nature with domesticated nature not only as an 'improper' handling of the environment but also as 'immoral'. There was the feeling of sin: it was 'improper' to try to tame nature without 'respecting its character'. 'I feel sorry for the people, but nature responds to those who have been disrespectful to it!' one would often hear. And more importantly, it was framed as 'un-Christian'. Right after the disaster, on 14 June 2015, the Patriarch of the powerful Georgian Orthodox Church, Ilia II, declared in a sermon that the zoo disaster was to be expected as the zoo itself had been built with the construction material of churches after the atheist regime of the early Communists demolished them in the 1920s and 1930s.⁷

To understand how the religious argument could be actualized, we have to look at different functions and symbolic meanings of the river and understand local power dynamics. The following should show, first, what different functions the Vere had then, how sacred functions of the river have been absorbed in infrastructure, and how the



Figure 1. Photo by Levan Kherkheulidze, Tbilisi, 15 June 2015.

Courtesy: Used with kind permission of the author.

materiality of infrastructure can afford being both: a source of pride and a source for blame depending on who is assigning meaning.

The domestication of nature

The Vere is a rather small river. It originates in the mountains of east Georgia. Its total length is 45 km, out of which approximately 12 km go through the city to join Tbilisi's

main river: the Mtkvari. The two rivers merge in the very centre of Tbilisi. Despite being relatively small, the Vere had three important functions before being covered up. First, it had been a place of untamed nature. Naturally grown Vere gardens were offering fruits and leisure space. Second, the river provided drinking water and was used functionally in everyday life (Chkhetia, 1940, p. 190). Third, the Vere, as many rivers do, had spiritual landmarks and a sacred function. The shores of the Vere had a distinct spiritual landmark as a place of a miracle – a monumental cross erected in 1846 commemorated the miraculous survival of the Russian Emperor Nikolai Pavlovich in 1837 when his carriage overturned (Begichev, 1913). Furthermore, the Vere had a significant religious function: it served as a symbolic ‘Jordan’ for epiphany and sanctification rituals (Talakvadze, 2013). The last ritual of epiphany was performed in 1923. The river served as a medium in purification, a widespread tradition in different religions.⁸

When a river is reduced to an infrastructural project, the manifold functions it fulfilled become incumbent just to surface in times of crisis. From different functions the river could afford, some are now actualized in collective memory.

Separation and translation

Conceived as a project of separation of nature and culture, the Soviet modernization project absorbed all the functions the Vere had. The project of Latourian separation became a project of Latourian translation. In the 1920s, the idea of the rapid industrialization of the country saw rivers in the urban space as an impediment or as ‘loose ends’ (Bubandt & Tsing, 2018, p. 1) because of the history of flooding and the volatility of the water network in Tbilisi. City development ‘master plans’, over a century, found a way to overcome the ambiguous urban nature. The discussions around the master plans in the 1930s reveal the ideology regarded nature as useless and lazy, which ‘makes humans lazy too’.⁹ The engineering plans channelled the waters into collectors, thus freeing the place for other developments.

After declaring war against ‘lazy’ and ‘negligent’ nature, the place around the Vere became the centre of Soviet projects (CENN, 2019, p. 25). The functional city of the 1920s had no place for the moody, capricious Vere (cf. Kaika, 2004). Next to infrastructural projects, such as roads and bridges, an attempt was made to replace undomesticated nature with domesticated nature. The first big constructions around the Vere aimed at taming the river and creating an acceptable domesticated nature. Symbolically, the former riverbed became the memory site of the taming: The Zoological Garden replaced the ‘inert’ natural Vere gardens in 1927. The zoo is a translation project, too. Mimicking the natural environment of the animals, the architects artificially created conditions as close as possible to the natural environment (rocks, waterfalls, pools). It was part of the attempt of ‘making nature not living with it’ (cf. Bubandt & Tsing, 2018, p. 4). The zoo, replacing wild nature, is an example of how a modernization project translates the wilderness into ‘tamelessness’ in urban space. The zoo is a meeting point of domesticated and undomesticated nature at the very centre of the city.¹⁰

The lion statues in front of the zoo marked the boundary between tamed nature, on one side, and the humans of the city, on the other side. They marked the entrance to the new centre. In 1930, a square in front of the zoo was constructed (Gventsadze, 2013, p. 20). This square had been the place for the first elite Soviet housing in Tbilisi:

the tallest building at that time (called the 11-story Building) was built as an achievement and was conceived exclusively for the Soviet intelligentsia and party elite (Gventsadze, 2013, p. 20). The housing had been presented as ‘a gift of party and government’ (Vardosanidze, 2009, p. 190). As the ‘infrastructuralization’ of nature had a heroic aura in the Soviet Union, it is not surprising that the square, as a Soviet product, was named after the first heroes of the Soviet Union (1934). The heroic overpowering of the Vere River continued throughout the 20th and 21st centuries. In the late 1950s, the confluence of the riverbed had been completely covered and the Vere ended up in a tunnel/pipe beneath Heroes’ Square. In 2009–10, a highway layout further covered the remaining parts of the river in the pipes. Furthermore, the riverbed has been greatly narrowed. Despite the warnings of environmentalists and notwithstanding the experience of major floods in the 20th century, the infrastructural projects continued to neglect the power of this river.

The Vere as the entanglement of nature and infrastructure

The taming of the river led to an entanglement of nature with infrastructure. In the process of delegation, humans delegated the technical functions to nature. As a result of large-scale engineering activities, the Vere has increasingly become part of the infrastructure. The silk factory functioning in the riverbed used the Vere as a sewage system. According to data from 1978, 800 m³ of different dyes were pumped into the river from the silk processing plant alone. In 2010, more than 120 places had sewage collectors in this river. The river actively served as waste disposal (Gventsadze, 2013). From the Soviet utilitarian view, the rivers were there for ventilation, for being suitable for recreation. There is a clear continuation in attitudes. The Soviet and the neoliberal approaches to nature both see the rivers as part of the infrastructure, as evidenced in the legal language surrounding the waterscape. The utilitarian view of nature pervades the expert language of urbanists. Georgian urbanists still call the rivers ‘water objects’ (Gventsadze, 2013). Rivers are part of the scaffolding *karkasi*, part of the infrastructure. It is also very much reminiscent of a neoliberal approach where nature is increasingly referred to as a service (for an overview, see Bakker, 2010). In this entanglement, nature is an instrument, but at the same time it is an actant. The rivers often take functions not ascribed to them initially: as part of the infrastructure, they act as a sewage system and as waste disposal – *nagavsakreli*. Rivers formerly serving religious purification rituals also did and do their job of ‘purification’ as sewage collectors. Their infrastructural function makes them dirty and unsuitable for religious rituals inside the city, forcing believers to look for creative solutions.

Engineers as new saints

The modernization project enforced another line of separation: scientific knowledge had to win over religious beliefs. But when we look closely, we can discover that a translation happened here, too. The infrastructure became an object for awe, a new miracle. In Soviet modernity, the infrastructure enacted ideology (Humphrey, 2005). As a bundle, it became an index for rationality. Since 1921, Soviet propaganda had been actively engaged in promoting rationality and ridiculing religion. The infrastructure itself has been elevated to magical status. Roads could save people. The very people who saw the infrastructure

as a rational human achievement and success over the non-human, assumed more-than-human functions in infrastructure.¹¹ The spiritual landmark of the Vere has been literally absorbed by the infrastructure (the base of the cross is still visible as a part of the electric generator in the former silk factory building). The flow of the new road absorbed the flow of the river.

The Soviet industrialization project, strongly delimiting the rational from the non-rational, scientific from miraculous, simultaneously delegated more to infrastructural projects than just technological features, and to the engineers more than just a technological function. The engineers became new saints. Ceremonies of them being blessed as heroes of socialist labour reminiscent of religious blessing rituals were held. They were pictured as larger-than-life beings conquering nature and religion. With progress being a new faith, engineers became ersatz high priests and, sometimes, ersatz martyrs.

In a publication from Soviet times, a famous Georgian engineer Niko Kvezereli-Kopadze, who constructed some of the bridges and was the author of many books about bridge construction in Georgia, writes about constructors of bridges as sacred workers and about construction as a 'divine work' (Kvezereli-Kopadze, 1972, pp. 183, 185). In Soviet modernity infrastructure becomes the new sacred. Those who care for the body of the infrastructure are not just engineers: since they care for something animated with a body and soul, and for something that connects different worlds, they are spiritual practitioners: a *khurot-khutsi* (pp. 188–189) where *khutsi* is generally a *priest* but also means in the composite *head of stoneworkers*. Kvezereli-Kopadze then goes on to describe how priests and constructors usually come from the same family lineage (pp. 183, 189). In the same book, the famed engineer explicates the wonders ascribed to bridges and the rituals connected with their construction. The description of the rituals and the definition of the construction as something sacred is very reminiscent of the contemporary anthropological writings describing techno-animism. For post-Latourian scholars, it seems quite natural to pay attention to the entanglement of nature and infrastructure, of religion and science, of materiality and spirituality. It is more striking to find the same attitude towards construction, the same understanding of symmetry coming from a Soviet modernist engineer in an officially atheist Soviet Georgia in the 1960s. But it is understandable if we see the idea of technical progress as the new Holy Scripture. Engineers in that model are the new high priests of human rationality. They are venerated. If they make mistakes, they are the first to be punished. The first Stalinist trials publicly broadcast in the 1930s signalling the start of Stalinist repressions were the trials of engineers.¹² The 1920s and 1930s in Georgia are a good example of the mindset of separation in the Latourian sense: technical progress had to replace old ways and old beliefs. The engineers had to defeat nature and they had to defeat religion. It is also a great example of entanglement: neither rationality nor atheism prevails. Instead, an in-betweenness, a kind of third space emerges where the technological is the new sacred.

Flood as a revolt

The attempts at taming nature imply an agency in nature. Even in a very functionalist view of nature, it has never been reduced to an object. In the soviet press it has human-like qualities: it is *proud, lazy, a freeloader and sponger* (before being tamed). Only the taming makes the river proper, meaning obedient and productive. Newspapers in the

1920s and 1930s reporting on irrigation projects talk about rivers via metaphors ascribed to humans: *the lazy, idle tides*. The *proud* river has been *rehoused* in *Kolkhoz* pipes and made *obedient*: it must serve the needs of peasant workers.¹³ Every attempt to tame nature has been accompanied by a response from the Vere. Under the headline ‘The Raging Vere River’, environmentalists spoke about the floods as a sign of revolt. Nature is ‘revolting’ against improper infrastructural projects. The agency of nature comes to the surface in times of crisis.

In the people’s eyes, rivers act when they cause damage. The Vere reacts to attempts at ‘taming’ it. Discussions after the flood tragedy in Tbilisi in 2015 focus on the river as part of the cosmology (of the local understanding of how the world is created) and is imbued with a divine, cosmic power. In this powerful image, the river, hidden from view by the modernization projects, ‘returns to the earth for vengeance’, as one would hear in conversations. In the writings right after the disaster, the immorality of the moderns is contrasted with the ‘ancient times’ when the river had its proper veneration and was dealt with respect. ‘The river is tremulous and cannot be domesticated,’ remarks an author in an online contribution (Dolidze, 2015). The impossibility to domesticate rivers pervades discussions in the aftermath of the flood. It is in strict contrast to the modernist view of the nature–culture divide. In an archival footage from 1958 the conquering of the Vere was proudly announced as a triumph over nature.

Although each flood killed people, destroyed infrastructure and housing, this triumphal tone never changed. The flood of 2015 was perhaps the most dangerous. It was also the first to give a start to discussions about the moral dimensions of the proper handling of nature and proper infrastructure. Next to the strong environmental argument, there is also a religious argument. Rivers in Georgia are part of the religious network, and are thus entangled in a complex web. With Latour (1991), we can also say that rivers at the same time are animated actants. When practices of proper care and respect are violated, catastrophes happen. Infrastructure and nature both need effluent treatments. More than that, the infrastructure also needs proper materiality.

‘Improper’ infrastructure

The road in the riverbed of the Vere is now the road and the river. Infrastructure, constructed to overcome nature, takes on the qualities of nature: rivers flow, roads should allow flow as well. There is more entanglement than acknowledged previously. For a proper flow, both need proper handling. In his article, Ishii shows (2017, p. 697) that, ‘Neither process is automatic. In both cases, to operate as proper channels, people must continuously care for them.’ But what happens when one’s flow is absorbed by the human-made flow? There are ‘proper’ entanglements of nature and infrastructure and ‘improper’ entanglements.

In some discussions about the 2015 Zoo Flood and the road on the river, developments around Vere are characterized as ‘improper’ infrastructure. The infrastructure that has been built in the name of rationality and modernization now takes the blame for being immoral and improper. Materiality of infrastructure is a bundle where different properties can be muted or actualized (Keane, 2005).

To the outrage of environmentalists, one could read in newspapers how some groups ascribed the guilt for the disaster to ‘improper materiality’. According to this view, Tbilisi

Zoo, the square and the road in the riverbed of the Vere, besides being a violation of nature, were entangled with blasphemy against the Christian view.

Historians working closely with the patriarchate and on the history of atheism in Georgia published archival sources backing the claim.¹⁴ They invoked the history of atheism and linked it with the disaster via materiality used in the construction of infrastructure. It is true that the Soviet modernization project drew a sharp separation line between science and religion. Militant atheism entered Georgia in the early years after the Bolshevik annexation in 1921. The first years of communist Georgia were marked by brutal attacks against church buildings, the clergy and customs associated with everyday religiosity (Reddaway, 1975). The reign of human rationality against nature and religion pervades the industrialization and urbanization projects of the 1920s and 1930s. State atheism was also strongly linked to infrastructural projects. Infrastructure became an actant under which the gods, small and ridiculous, are crashed (Figure 2).

The debates after the flooding implied the immorality of the infrastructures in the Vere riverbed from the 1920s. The zoo and the road emerged in the discourse in the aftermath of the flood as an assemblage of different temporalities, moralities and materialities. Newspapers reported that the animal cages were supposedly built after the melting down church bells. While any trace of this is impossible to find (if it ever has been really used), it was enough to ignite the debates. Some could locate cemetery stones on the building of the elite communist housing in Heroes Square. Others found gravestones plastered on the road. This use of second-hand church and cemetery materials for all infrastructural projects at that time is confirmed by documents and is not unique to Tbilisi: examples abound from all over the former Soviet Union. In the archive one can find complaints from builders not getting enough construction material from demolished churches. Archival footage shows how one of the main churches in Tbilisi was dismembered stone by stone and the building materials were carried away for new infrastructural projects. Another newspaper proudly announced that 107 church bells weighing 12,162 kg had been removed and melted down to produce construction tools. It even became part of atheist propaganda (Figures 3 and 4).

What is now seen as blasphemy was a cause for celebration in the late 1920s and early 1930s especially. A picture in an atheist satirical newspaper shows a worker bringing the church bells to a construction site. An unhappy God, the Father and Christ try to catch their bells from the clouds. Christ in the caricature is visibly upset, the worker – visibly happy (Figure 2).

The view that the material used for the infrastructure of the roads and the zoo were ‘improper’ implies that materiality is caught up with affects and ideas as well. The construction materials are not only reducible to their material parts. When talking about the matter as a bundle, Keane remarks: ‘qualities *bundled* together in any object will shift in their relative salience, value, utility, and relevance across contexts’ (Keane, 2005, p. 188, emphasis added). Infrastructure can also have morality according to this view. The secondary use of the construction materials had in the 1920s and the 1930s a practical and symbolic reason of course. Nearly a century later, the bundling in materiality comes to the front stage again: it is not just stone or not just melted iron, it is at once sacred stone, at once sacred iron.



Figure 2. Christus: 'What is happening? Under this weight, I cannot resurrect!'; from *Crocodile Magazine* (1931), N-11.

Hijacking the discourse about the causes of flood seems to be a strategic move of the Georgian Orthodox Church. As the Orthodox Church of Georgia claims the bulk of its finances from the state as retribution for militant atheism, one could easily see why the Church keeps the memory of atheism alive. It is not the only intervention of the Church in environmental issues in Georgia.

The Church claims a symbiosis with nature: nature senses the Church, more than that: nature is also Christian, and it is Georgian (having an ethnic connotation). When claiming



Figure 3. A worker posing within an upturned bell, Tbilisi, 1930.

common spaces in Tbilisi or opposing large-scale dam constructions in Georgia, people often use the symbolic power of the Church to claim the space.

This discourse personifies the river. As if the Vere were a person who can remember, can take revenge, who has religiosity: the personified river in the discourse of religious actors is an Orthodox Christian and has a nationality, the river is Georgian.¹⁵

Infrastructure as second nature

Infrastructure is never exclusively technological. We have seen how nature becomes infrastructure. In turn, infrastructure also becomes second nature. Tamed nature stands in opposition to the wilderness of unplanned development in the public discourse. The wilderness encompasses both: the unregulated development projects coming from the big capital which enter official registers of the city, and informal settlements in the riverbed.



Figure 4. ‘Lamenting Christ.’ Christ: ‘They even removed church bells and want to turn them into tractors’; from the Satirical atheist newspaper *Tartarozhi* (1930), No. 2.

This wilderness becomes legible on the map.¹⁶ But the riverbed has not been solely confined to official developments. Since the 1970s, riverbed borders and adjoining floodplains were intensively used mainly for the construction of dwellings. It was an arbitrary and informal appropriation during Soviet times. Informal settlements stand in opposition to the highways, the square and the zoo, which were formally constructed according to the city plan. The small-scale wilderness is increasingly replaced by the large-scale wilderness of newly built elite housings in the post-Soviet times. In fall of 2021, some construction workers building a high-rise building in Tbilisi were caught on camera sacrificing a ram which was slaughtered in the foundation of a residential complex then under construction.¹⁷ It happened in the flood plains of the Mtkvari (or Kura), the main river in Tbilisi. The territory, like the riverbed of the Vere, once demarcated as a flooding zone, is increasingly used for construction. Construction works are seen as wild not only because they spread like weed uncontrollably, but also because of working conditions

they offer to construction workers. One has to invoke all good spirits, reach to magic and religion to survive frequent accidents on construction sites.¹⁸ While many were outraged seeing the animal sacrifice, some commented on the video that perhaps this ram is the only hope these workers have to survive construction work with deficient safety protocols usually being employed. 'Maybe it will also save this housing from Mtkvari,' added another, remarking that this construction should never have happened on the flood plains.

Investors and developers are trying to make the infrastructure proper by inviting the Orthodox Christian priests and blessing the projects. Increasingly, one can observe icon shrines at every construction site and often a large cross properly marking the site. Many infrastructural projects in Georgia are carried out against scientific advice, thus causing concern for environmentalists, and the magic of religion remains the only resource they can rely on.

The infrastructure defines the landscape in post-Soviet Tbilisi.¹⁹ In the Soviet city, the infrastructure was highly visible as a marker of a functional city. The post-Soviet development took this tendency to its extreme. The infrastructure takes the greenness from the plains, from the riverbed and replaces it: housing, constructed in riverbeds, often ironically have something green in their names (green-, eco-, hill-, forest-). In recent years Tbilisi has seen a 'wild' and uncontrolled construction boom at the expense of green spaces: fewer and fewer trees are visible. The infrastructure defines the view: pipes for both gas and water run openly and above ground through the streets. Squirrels jump on the power cables. The infrastructure has become second nature. Among unplanned and wildly built houses lollipop-shaped trees stand out with their artificiality. There is a continuation from the Soviet into the post-Soviet; over the years, there has been an alteration of taming nature or creating a second nature with recreational functions leading to further entombment of the Vere. The river always responded, but the attempts at overpowering it continued. In response to the last flood, the addition of a highly artificial leisure park opened its gates while the construction of the high-rise apartment buildings continues in the riverbed.

Conclusions

When studying cities of modernization projects, sharp separation lines are drawn: nature–infrastructure, rational–irrational, religious–scientific, functional–sacred. This assumption often shapes our understanding of the relationship between nature and infrastructure and its many representations in a city. Instead of looking at separation, this article analyses the history of a river as a history of translation. It sheds some light on our understanding of cities as assemblages with different entangled layers. It is an attempt to show the complex interrelation between human and non-human as the core of the environment (Wagner, 1981). Industrialization hugely affected the rivers of the Tbilisi. Many rivers disappeared underneath buildings, squares, parks and roads. They became part of the infrastructure. Soviet modernism seemingly created strong lines of separation between nature and culture, between science and religion, at the same time, blurred the lines in the work of translation. What was perceived as a separate unit turns out to be a hybrid: assemblage or bundle of materiality, ideas, affects that can be actualized in a given time. This article looked at different layers

of domestication and undomestication of nature, at infrastructure as a product of modernity, and as an animated actant showing how the seemingly rational project becomes imbued with magical qualities. The functional city ostensibly made nature part of the infrastructure. Still, the sacred function of the river saw a continuation in the role of engineers and in the animated omnipotence of infrastructure in Soviet times.

Nature and infrastructure are usually contained as entities. When a crisis happens, these connections resurface. The crisis helps to see the connections between muted divergent parts. When the Vere flooded in 2015, some people saw this as the river's response to improperly handling nature and the sacred. The taming of rivers pervaded discussions about infrastructural projects as an ecological and moral problem. In this discourse, ideally, the relations between humans and non-humans should be entangled in harmonious ways. If this were not the case, the infrastructure, as well as nature, are a threat. Rivers flow, roads should allow flow as well. For proper flow, both need proper handling. But what happens when one's flow is absorbed by the human-made flow? There are 'proper' entanglements of nature and infrastructure and 'improper' entanglements. The flooding of the Vere has been seen as a response to improperly handling nature (the environmental argument) as a result of the decay of infrastructure (the technological argument) and as a response to improperly handling the sacred (the religious argument). To define how 'proper' or 'improper' the infrastructure is, different layers of the past are activated. In Georgia, the contemporary religious discourse around the crisis is defined solely by the Christian Orthodox Church muting other religious and mythological layers.

The history of the Vere also shows the simultaneity of ecological and infrastructural disruptions. Projects around it are seen as an entanglement on so many different levels. Buildings, bridges, roads and dams have an animated dimension. They stand there as infrastructural projects, as human achievements, but also as containers of improper handlings, of human sufferings and as witnesses of violations against religion. They index both simultaneously: allowing the smooth flow as a road, they also become channels of suffering and threat for others.

Modernity projects regard nature as infrastructure, but nature has never been reducible only to its functionality. It remains an actant even in a very functionalist view of the city. Sometimes the entanglement goes so far that the boundaries between infrastructure and nature are not clear anymore. Being built as something modern, infrastructure has never been just infrastructure. It has as much nature in it, as it has spirits, morality, but it also has technology, rationality and humanity.

Notes

1. For a map of the ghost rivers, see CENN (2019, map 1).
2. During my fieldwork, I encountered how the entanglement of the river with infrastructure caused confusion. When after a traditional house blessing ritual a friend of mine embarked on a mission to find a river near her house to perform the elaborate ritual in full, she was perplexed. There was the Vere, she could hear the murmur, but it came from a collector under the ground. Was it more a river or was it more sewage? It was very hard to say.
3. As the focus of the study is to show the complex entanglements of infrastructure and nature, of the scientific and religious, it adopts an actor-network theory-informed view with a

sensibility towards the role of non-human actants and associations between things that create the social (Fariás, 2012; Law, 1992).

4. The article continues and adds to the research conducted on modernization projects in the Soviet Union, and particularly in Georgia. Important studies have been written to uncover the ideologies of mastering nature (Jones, 2014; Suny, 1989) with less emphasis on the entanglement (Weiner, 2014). The writings of historians usually pay even less attention to the non-human as a possible actant. Most of recent research on urban space has been focused on the macro-level: the ideology behind the form of the city, the power relationships shaping the geography of the city (Van Assche & Salukvadze, 2013). Different aspects of Tbilisi have been the focus of research for historians and anthropologists. Urban historians placed the entanglement in the past (Anchabadze, Volkova, & Arutiunov, 1990; Chkhetia, 1940; Gersamia, 1984) in line with ideological expectations. This article stands more in line with the works capturing different layers of the city, such as Manning (2009, 2019) for Tbilisi, or Zeisler-Vralsted (2014) on the Volga and Mississippi. The present article adds to the research on human–non-human entanglement as an ongoing process, not reducible to ideologies. The experience of Soviet and post-Soviet Georgia can be fruitful to reconsider the one-dimensional view of the Soviet modernization project and of Soviet atheism. The ethnographies of infrastructure could enable us to also better understand local reactions to climate change.
5. Beso Gulashvili's pictures for Reuters went around world; see <https://www.reuters.com/news/picture/zoo-animals-on-the-loose-idINRTX1GK3I/>.
6. With climate change, studies on floods increasingly look at how the narratives of 'mastering nature, leaving no loose ends' (Bubandt & Tsing 2018, p. 1) changed into the sense of humility and capitulation (Koslov, 2016).
7. His words were widely published and discussed; see <http://iverioni.com.ge/qarthuli/siakhletha-arqivi/sazogadoeba/page/29/>.
8. Rivers have also been used to purify (bless) work tools, as the construction work has been regarded as a sacred endeavour (Koshoridze, 2015, pp. 54–55). The idea of the purity of materials involved in construction revived after the disaster in 2015, as alluded in the speech of the Patriarch.
9. Satirical master plans were pictured in *Literaturuli Gazeti* (1934), N23.
10. This way the unmapped territories became part of the city. Usually, the old cartographers would mark uncharted territories with the inscription, *Hic sunt Leones* (or *hic sunt Dracones*) – encompassing the fascination and fear of the wild and unknown. At the entrance to the zoo, some impressive statues of naturalistic lions were erected after taming the Vere River.
11. The literature on the entanglement between infrastructure and religion has lately become interested in the new animism debates. The rise of the debates is indebted to the writings of Descola (1996) and De Castro (1998), who offer a way to categorize human and non-human in locally sensitive ontologies. Jensen and Blok (2013) efficiently use theoretical discussions to engage in studying the complex relations between Shinto, nationalism, nature and politics (Jensen & Blok, 2013). Current anthropological debates often focus on infrastructure and its animism (Rest & Rippa, 2019). They particularly specify the concept of techno-animism (pp. 88–89).
12. Cf. the documentary based on archival footage by Sergey Loznitsa, *The Trial*, 2018.
13. *Drosha* (1930), No. 5.
14. Rector of St. Andrew University of the Patriarchate in Tbilisi, Sergo Vardosanidze said in an interview with the newspaper *Resonance* with the headline, 'What buildings are built with the property confiscated from the church in Tbilisi / Sergo Vardosanidze': 'Now what I tell you may lead to a mixed reaction.' Other media sources have widely published archival material supporting this claim; see the news post of 25 July 2015 at <https://old.newposts.ge/?newsid=79529-%E1%83%94%E1%83%99%E1%83%9A%E1%83%94%E1%83%A1%E1%83%98%E1%83%90,%20%E1%83%96%E1%83%90%E1%83%A0%E1%83%94%E1%83%91%E1%83%98,%20%E1%83%93%E1%83%9D%E1%83%99%E1%83%A3%E1%83%9B%E1%83%94%E1%83%9C%E1%83%A2%E1%83%98/>.

15. The Georgian grassroots movements opposing the larger infrastructural projects also often subscribe to this view. One can often see protests of big environmental projects with ethnic and religious undertones. In times of crisis, the Georgian Orthodox Church, playing the role of guardian of the national identity, sees nature as its instrument for revenge.
16. In recent years another wilderness emerged: that of the abandoned factories and recreational sites. Many buildings of the old silk factory and the largest swimming pool have been left for nature to reclaim. When the zoo animals escaped, they found shelter in the wilderness of the former swimming pool. In 2015 it felt like the stone statues at the entrance of the zoo, marking the boundary between humans and tamed nature, became alive and stepped down from their bases. I will explore this wilderness in a different paper.
17. See <https://netgazeti.ge/news/577858/>. Ritual sacrifice is not uncommon in lived religion in Georgia, but mostly at certain celebrations and very rarely in urban settings. Rituals of blessing before construction are reminiscent of what Ishii describes as 'to smooth the flow and navigation of natural as well as spiritual forces' (Ishii, 2017, p. 704).
18. For a discussion and statistics, see <https://socialjustice.org.ge/ka/products/ras-vitkhovt-rodesats-vsaubrobt-shromis-usaftrkhoebaze/>.
19. The infrastructure becomes an actant. This infrastructure, a product of an ideology, stands there as a 'disturbance in a causal milieu, the material entity which motivates interferences, responses, or interpretations' (Humphrey, 2005, p. 43; also cf. Harvey & Knox, 2012, p. 524). The perception of modernization projects as new saviours is to the same extent characteristic for the modern Georgian state as it was during the Bolshevik industrialization projects. Often the opposition between nature and infrastructure is perceived as a struggle where evil nature should be tamed.

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