Nature's cosmopolis: villagers, engineers, and animals along Terkos Waterworks in late nineteenth-century Istanbul

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Chapter 7

NATURE'S 'COSMOPOLIS': VILLAGERS, ENGINEERS AND ANIMALS ALONG TERKOS WATERWORKS IN LATE NINETEENTH-CENTURY ISTANBUL

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This article is a study of the making of Pera district of Istanbul in the late nineteenth century. But its place of analysis is not the heart of this famous, 'cosmopolitan' urban setting, but rather one of the loci fundamental in its material construction. Through following the course of the waterworks between Terkos and Pera, I examine the environmental impact of Pera's making on Istanbul's wider geographies.

At the northern edge of the metropolitan region, adjacent to the Black Sea shoreline, Terkos shares its name with the biggest lake in the region. Lake Terkos is situated forty kilometres northwest of Istanbul city centre, and separated from the Black Sea by forty- to fifty-metre-high dunes.[1] Now officially called Durusu, literally meaning 'pure water', the lake is a lagoon of 31.7 square kilometres in size[2] and has a maximum depth of around eleven metres. Lake Terkos owes its existence to the tectonic movement of the Black Sea during the third geological age. It collects water from several rivers, mostly coming from the Istranca Mountains, but was historically fed by the salty waters of the Black Sea as well, thanks to a small strait between the lake and the sea. This strait was once named the 'false entrance' by British sailors who mistook it for the entrance of Bosporus and frequently led to shipwrecks in the nineteenth

1. Özgül 2011, pp. 46–7.
2. Ibid., p. 73.

century.[3] It is now virtually blocked due to siltation,[4] as well as conscious human interventions, which comprise part of the story told in this article.

Two Chimneys

The dunes that stretch westward from Terkos to Bosporus offer occasional sights of 'botanical magic' in the words of the botanist Andrew Byfield, with a wide variety of local flowers blooming in the spring.[5] A short journey from Istanbul proper to Terkos, which takes one through the middle of the Northern Forests, disrupts this magic. The variety of topography and nature is juxtaposed with, or rather ruptured by, the variety of very recent human intervention.[6] One is struck by the mass of concrete and steel imposed over the green spaces, as bridges and highways run over forests, new towns are built over pasture fields

3. Great Britain Hydrographic Department 1893, p. 175.

4. Biricik 2013, pp. 18–19.

5. Byfield 2016, p. 71.

6. In the last couple of years, Turkey's Justice and Development Party (*Adalet ve Kalkınma Partisi; AKP)* government has introduced several massive infrastructure projects that have rapidly altered Istanbul's northern periphery (For the infrastructural politics of AKP, see Erensü 2016. İnal mentions the increasing interest of environmental humanities scholars to these policies: see İnal 2018, p. 298.). Long discussed, extremely controversial and hastily constructed, the so-called 'Third Bridge' at the northern Bosporus was opened to the public in 2016, with relentless government propaganda. Further north a third airport, reportedly to be the biggest in Europe, is being constructed as well, with a massive highway that connects the airport to the city and rest of Thrace; and arguably most astonishing of all, a new strait between the Black Sea and Sea of Marmara is planned, amid harsh criticisms by activists and experts, pointing out that these 'mega projects' are in the middle of the city's largest forests, and are endangering the provision of water and clean air to over twenty million residents of metropolitan region, in addition to irreversibly damaging a vital habitat for animal and plant life (For the transformation of the northern regions of Istanbul and present-day water issues, see Gülersoy et al. 2014, Karacor and Korshid 2015, Altınkaya Genel 2016, van Leewuen and Sjerps 2016.).

   What these projects have done, at least for a large part of several generations of *Istanbulites* is not merely the destroying environmental heritage and a vital natural reserve. These projects, while no doubt severely harming the ecology of the metropolitan area of one of the world's largest cities, have put the city's surroundings into the mental map of the urban residents of Istanbul, albeit as zones of imminent danger, devastation and loss. The urban experience of *Istanbulites* was apparently never this much affected by what went on in the periphery, and by the transformation of the country. The northern periphery of the city, one might argue, has been recreated and remapped through its destruction, thanks to infrastructure.

in an apparent 'land rush',[7] and real estate agencies blossom alongside flowers, in the hopes of turning concrete and steel into profit.

There is a chimney in the middle of Terkos village: a short but thick construction, made of bricks, reminiscent of the factories of the late nineteenth century. For the historian of Pera, it is almost an exact replica of one of the silent but significant fragments of the built environment of Istanbul's 'cosmopolitan' district: the chimney of *Tünel*, the world's second oldest subway, the eccentric two-stop funicular that has been operating since 1875 between Galata and Pera.[8] Its lookalike in Terkos belongs to Istanbul's first modern waterworks, which began to operate nine years after the Tünel, with the explicit aim of bringing potable water first and foremost to Pera, to the residences of the district's wealthy members who could afford mains tap water in their new apartment buildings. Contrary to what has been suggested by the urban centre's violent expansion towards the northern rural regions in the last few years, the visual connection between two chimneys, one in Pera and the other one in Terkos, is indicative of the existence of older and arguably more integral links between the epitome of city's urbanity and this northern periphery.

This article introduces the question of environment to the debate on Pera's 'cosmopolitanism'. Istanbul's historical formation, from Byzantine times onward, has been dependent on infrastructural connections between centre and periphery, urban and rural, city and nature.[9] The second half of the nineteenth century marked an especially heightened period of infrastructural activity, the primary target of which was Pera, the 'European district' of the Ottoman capital, as construction of infrastructure was intensified, geographically expanded and materially diversified, while the invested capital and expertise became transnational. Yet the modern historiography has largely ignored these connections and the environmental and material making of Pera in favour of a straightforward narrative of the emergence of modern spaces and a cosmopolitan sociability in isolation.[10] My exploration of the Terkos geography is thus motivated by an

7. Lange et al. 2016, p. 5.

8. Engin 2000.

9. For an early exploration of these connections for the Byzantine period, see Mango et al. 1995. In the last couple of decades, environmental historians (Cronon 1991; Klingle 2007) have been joined by the followers of Actor Network Theory, arguing that separating social from material, human from nonhuman, living from nonliving, as well as urban and nature, city and country, obfuscates our understanding of the present and the past (Swyngedouw 2004; Latour 2005).

10. Çelik 1986; Batur 1993; Akın 2011. The works of Eldem (2000), Baruh (2009) and Han (2016), while not necessarily highlighting the environmental connections, provide

uneasiness caused by this isolated treatment of Pera's urban life, as much as it is driven by the present day transformation of Istanbul's northern regions. This historical exercise, I hope, will also contribute to the critical study of the current ecological crisis of Istanbul engendered by massive infrastructure projects, showing that ecological questions involving nonhuman actors have marred the city's modernisation from the outset. From a larger perspective, I argue, the insights provided by environmental history and critical geography, attentive to the production of unequal geographies and nonhuman entanglements in the process of urbanisation, promise to create a rupture in the study of 'cosmopolitan' urbanism, especially in the turn-of-the-century Eastern Mediterranean. While cosmopolitanism has received critical treatment in the last decade, it persists as an influential framework in the study of late Ottoman port-cities.[11] This critical body of work, moreover, has mostly not benefited from an environmental and materialist analysis that would locate the environmental entanglements on which urban spaces and multitudes, framed as 'cosmopolitan', depended.[12]

Selecting water as a node that ties seemingly separate physical geographies and social worlds, as a path to introduce the question of environment into the heart of the urban, would be fruitful for different periods in history. But it is essential to note that nineteenth-century urbanisation all around the world required substantially higher amounts of water than previous periods, for individual and public consumption in response to developing needs for personal hygiene, public health and industrial manufacture. A growing literature on the history of water management documents the varied efforts of public officials, policy-makers, company representatives, and almost always engineers, to provide clean and/or potable water for urban residents and industries, not only in the industrialised West but also in other parts of the world.[13]

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critical analysis of the production of the spaces of Pera in the nineteenth century.

11. For the larger discussions of the loaded term, see Vertovec and Cohen 2003. For the Ottoman studies, Kolluoğlu and Toksöz propose to critically approach cosmopolitanism as a 'spatial phenomenon': see Kolluoğlu and Toksöz 2010, p. 8. The term is marked with colonial nostalgia and thus strongly criticised: see Hanley 2008; Halim 2013. Eldem (2013) offers a nuanced understanding of late Ottoman Istanbul's cosmopolitanism.

12. For an environmental history of the making of late Ottoman Izmir, see İnal 2018.

13. For a general survey, see Tvedt and Oestigaard 2014, pp. 357–686. Within the context of Ottoman historiography, water has been traditionally under-studied, but there is a growing interest, especially from environmental historians and historians of technology working mostly on the Arab provinces of the empire. See Çeçen 1984; idem 1999; Mikhail 2013; Barak 2013; Husain 2014; Low 2015.

In general, however, it is very rarely that the literature concentrating on late Ottoman Istanbul critically delves into the multifaceted relations between the city and the country, urban residents and villagers, modern technology and animals, humans and nonhumans in the stories it chooses to tell. State and/or company claims and policy justifications are usually taken at face value, and the discourse of modernisation is accepted rather uncritically.[14] But water actually has the potential to provide a critical lens to explore the ways in which modern urban spaces have been shaped with the interaction of a wide variety of human and nonhuman actors, located not only at the heart of urban centres but dispersed along a set of 'uneven geographies'.[15]

Water in Absentia

This larger claim, i.e. the centrality of water for an urban environmental history, should be especially germane to the study of Istanbul, for around the city water is everywhere. From the hills of Istranca to the Bosporus basin, the geomorphological history of the region we now call Istanbul and its environs has been defined with the transformative impact of water on the physical environment, with rivers, lakes, inlets and straits.

Water was everywhere, except that it was not – not in a readily available, easily accessible and safely potable manner. Soon after the Roman Emperor Constantine I (r. 306–337) moved the empire's capital to the Greek city of Byzantium and changed its name to Constantinople in 330 AD, it became obvious that, while the geography seemed to be blessed with water, it was actually so poorly provided with natural freshwater sources that the reign of his successor Constantius II (r. 337–340) was marked by citizens 'dying of thirst'.[16] Such was the observation of Doctor Pardo, the secretary-general of Société Impériale de Médecine de Constantinople, 1,500 years later, in an article that appeared

14. See Çeçen 1984, Oğuz 1998; Kazgan and Önal 1999. There are two monographs that deal particularly with Terkos waterworks, from which I have benefited extensively (Dinçkal 2004; Yurdakul 2010). Dinçkal's is an analytical account of water provision of Istanbul between the 1850s to the 1950s, and that is necessarily how it deals with Terkos. It is an institutional history, sensitive to water-usage practices and changing habits of Istanbul inhabitants. The latter is a firm-history of Compagnie des Eaux de Constantinople, which launched the Terkos water project and ran it for decades. While it is very rich in detail and archival material, it fails to problematise the urban and environmental issues that Terkos water aimed to resolve and/or triggered.

15. Harvey 1996; Smith 2008.

16. Mango 1995, p. 5.

in local francophone newspaper *La Turquie* on 7 March 1879. The article compared European cities with the Ottoman capital in terms of their access to water: 'Even in the other capitals which have the advantage of being placed in the vicinity of a river, such as Paris or Vienna, the issue of water is the subject of so much concern … on the part of governments; in Constantinople, where this advantage does not exist, the issue is vital'.[17]

Making water submissive to the needs and desires of the people who chose to reside in/rule over the easternmost corner of the Balkan Peninsula – to clean it, to channel it, to pass it, to surpass it – has constituted one of the most fundamental elements of the region's history over thousands of years.

Pierre de Tchihatcheff (Pyotr Chikhachyov) (1808–1890), one of the founding and most celebrated figures of geology in the nineteenth century had spent several years in Istanbul and in Anatolia and published a few works on the geology of the Ottoman heartlands and the capital. As he wrote in 1864: 'What has been lacking the most in the city of Constantinople since the earliest times was water, and that is the reason why this is the only place where so many monumental works have been built in order to fight the danger [of lack of water]'.[18] Tchihatcheff was right: as Byzantinist James Crow and his team of researchers have shown, the 'long-distance' Thracian water system was indeed the longest such system in the entire Roman-Byzantine geography, longer than the much-celebrated eleven aqueducts of Rome itself. It had its springs in the Istranca Mountains, included several different water sources such as Vize, Danamandıra and Pınarca, and carried water to Istanbul, passing along Terkos and Büyükçekmece lakes, which themselves are nurtured by the catchments of the Istranca water basin.[19]

When the Ottomans took over Constantinople in the second half of the fifteenth century, some of this water infrastructure was repaired, redeveloped and put to use as the city tried to recapture its imperial and urban identity. Their biggest investment, however, was into much closer sources located in and around the Belgrad Forest.[20] Overall, the northern hinterland of the city was essential

17. Dr. Pardo, 'Renaissance de La Turquie Au Point de Vue de L'Hygiene', *La Turquie* **54** (7 Mar. 1879): 2 (All translations from French and Ottoman sources are mine). The same comparative line of argumentation was also evident in Gavand, 1869, p. 90.
18. Tchihatchef 2000, p. 20.
19. Crow et al. 2008, pp. 1–24.
20. Magdalino 2015, pp. 3–4.

for its growth and sustainability, but also for the symbolic and commercial power nested by the Ottoman elites into the daily lives of the inhabitants.[21]

Galata and Pera, the district at the other side of the Golden Horn, were even more deprived of local water sources. Before the Genoese semi-autonomous settlement was established in the thirteenth century, this part had a large public bathhouse and several cisterns. The first separate water system built for Galata and Pera, however, came in the 1730s when Sultan Mahmud I (r. 1730–1754) commissioned the construction of the Topuzlu Dam (*bend*) in the Belgrad Forest, whose water was distributed through a reservoir in Pera, giving the area its name: Taksim (partition, distribution).[22]

Benefiting from the resources provided by this new waterworks, Galata and Pera saw rapid growth and urbanisation from the late eighteenth century onwards. As Galata grew around its port and its emergent financial institutions, especially after the Anglo-Ottoman Trade Convention of 1838, Pera's development as a residential and commercial extension of Galata was fuelled by large European embassies, and a service sector catering to the needs and desires of a Western, and Westernised, clientele, with hotels, restaurants, cafés and culture and arts institutions for European genres.[23]

And even though the water of the Valide Dam, built in the late eighteenth century, again in the Belgrad Forest, was completely diverted to the district's use in 1838, this rapid urbanisation put a heavy strain on the city's existing infrastructure. From the late 1840s onwards, the district newspapers, published in almost all languages spoken in the Empire, but most importantly in French and English, featured continuous stories on the water problem in Pera. One of the first and daunting tasks of the 6th District Municipality (*Altıncı Daire-i Belediye*)[24] was to resolve the annual droughts experienced in Pera's hot and dry summers. Changing concerns for public hygiene, largely wooden architecture that was conducive to frequent fires and development of new private spaces in the rising apartment buildings, all necessitated a better access to water. Indeed, the Ottoman state archives abound with official documentation regarding the water problem. In 1845, during a drought that most severely affected Galata

21. Hamadeh 2008, pp. 76–109; Karakaş 2013.

22. Çeçen 1999, pp. 252–53.

23. For the overall development of the city in the nineteenth century, see Çelik 1986.

24. With the reform of urban governance in 1857, the Ottoman capital was divided into fourteen municipal districts. Galata and Pera were deemed as the '6th Municipal District', and the first modern municipality of the empire was founded there as a model organisation of local administration. See Neumann 2011.

and Pera, the state even requested 'suitable' individuals to go to Okmeydanı and Kağıthane, Pera's neighbouring regions with large open areas, in order to pray for rain.[25] Even the architectural evidence of northern Bosporus villages' concurrent growth, especially that of Tarabya with the summer residences of European embassies and summer locations of popular establishments of Pera, should be partially understood as a reflection of the physical necessity caused by Pera's hot and dry summers.[26]

Nevertheless, one should also treat this new interest in the newspapers concerning water or its lack as part of a larger phenomenon of writing, reading, documenting and discussing the urban matters. In the nineteenth century, a new discursive space slowly developed around newspapers, which conceptualised urban space and the life in the city as problems to be fixed through constant intervention by policymakers and expert treatments, in a time when practices and institutions of local municipal governance were slowly being established.[27] What is really striking about this discourse was the extent to which it was pursued by experts, writing long reports, historical and technical treatises often on the pages of regular dailies. These experts – mostly, but not exclusively, French engineers – published their takes on the question of water serially.[28] They offered their own reasons for the continuous water problem in the district, typically accompanied with a historical overview of how Byzantines, Genoese and the earlier Ottomans dealt with water shortages, and particular solutions to permanently fix it, trying to make a strong case for their own projects at the expense of others.[29] This expert knowledge, tied to the entrepreneurial and policymaking networks that shaped the urban fabric of nineteenth-century Pera,

25. Prime Ministry Ottoman Archives (*Başbakanlık Osmanlı Arşivleri*, *BOA*), İ.DH. 98/4917 (9 Safer 1261 [17 Feb. 1845]).

26. Girardelli 2014; Tchihatchef 2000, p. 172.

27. Duman 2000, p. 9; Groc and Çağlar 1985, pp. 203–10. For a similar, concurrent, development in Izmir, see Zandi-Sayek 2012, pp. 32–35.

28. For an overview of the reports of these experts, and the full report of Gavand himself, see Gavand 1869.

29. This publishing activity was so commonplace that one engineer who wrote a piece on the urban infrastructure problems in the Ottoman Empire felt the necessity to put a disclaimer that his article was not meant to make it easier for him to receive employment or concessions. See 'Les Travaux en Turquie et son avenir', *La Turquie* **37** (15–16 Feb. 1880): 1–2.

was disseminated through these periodicals, and found international audiences as well, through publications in foreign engineering journals.[30]

And within this discursive space, a string of obscure place names in the margins of the Ottoman capital's larger geography were made part of the urban imaginations of the local Pera community. The waters of Bahçeköy, Istranca, Boğazköy, Burgaz, Feriköy, Paşadere, Alibeyköy, Şeytandere, Maslak and Kurudere gained a place in readers' mental maps of larger nineteenth-century Istanbul, just as localities along the northern periphery of present-day Istanbul are being remapped in the minds of its current residents due to the massive projects that have been carried out in recent years.

It was with these series of treatments of the water question in official reports and in the periodicals that the name of Terkos was mapped in the discussions regarding Pera. After Lake Terkos was deemed a suitable alternative for clean water to allocate to Pera in the late 1860s,[31] an engineer, Ternau Bey, teaming up with an Ottoman bureaucrat, Kamil Bey, received the concessions for a waterworks project that aimed to bring water from Terkos to Pera in 1872.[32] The decision was not without controversy, since there were a lot of competing projects on the table, and many opponents of Terkos water had intervened to convince the policymakers and the public that the project was hygienically and financially flawed. In the end, however, rather than endless debates on water quality, it was the Russo-Ottoman War of 1877–78, which put additional financial strains on the already bankrupt treasury,[33] that made it impossible to run an infrastructure project so close to the military zone, as the Terkos–Çatalca axis had been conceived as the last defence line of the Ottoman capital, and the armistice terms allowed the Russian army to pass even beyond this line, approaching to the western fringes of Istanbul.[34]

After the war, water shortage continued to severely affect Pera, including the embassies and consulates populating the district. In some cases the members of foreign legations accused the palace and the rest of the Ottoman elites of exploiting the city's water sources for their own benefit.[35] After the delay caused by the war and financial problems, Ternau brought together an international

30. 'The Water Supply of Constantinople', *The Engineer* (26 Sept. 1873): 202–03; 'The Water Supply of Constantinople', *The Engineer* (7 Nov. 1873): 299.

31. Gavand 1869, p. 23.

32. Pech 1911, pp. 203–06.

33. Yurdakul 2010, p. 27.

34. Baker Pacha 1879, p. 322; Erickson 2003, p. 122.

35. The National Archives of the United Kingdom (TNA), FO 78/3345/103 (4 Jan. 1881).

consortium of investors, including local bankers and real-estate developers, this time under a new company called Compagnie des Eaux de Constantinople or Dersaadet Su Şirketi (Water Company of Istanbul), which was granted a new concession in 1882, for a period of forty years (later extended to 75).[36] A network of local and European elites was now established with the aim of installing a material network of water and steel between Terkos and Pera, gathered for a project that promised lower costs and bigger profits.[37] Even though the medical community was still not satisfied,[38] it was the well-established and connected network backing the project that ended up closing the debate, and laying the foundations of the waterworks that would continue to provide water for the ever-growing Istanbul for another century to come.[39]

'L'élément essentiel à toute vie': Providing Water for 'Cosmopolitan' Gardens

On 2 January 1885, at Jardin des Petits-Champs in Tepebaşı, a high-ranking ceremony celebrated the opening of a water fountain, also marking the arrival of water from Lake Terkos to Pera. Paul Boutan, the chief engineer of the Compagnie des Eaux de Constantinople, finished his speech with the following remark: 'We can easily predict that public support for our work will continue, as we are providing them the essential element to all life!' *(l'élément essentiel à toute vie)*.[40] The invitations were sent to a limited number of people, in order 'for the newly arranged garden not to be spoiled'.[41] This was not extraordinary for the garden, for, although soon after it was opened it became one of the

36. Pech 1911, pp. 203–06.

37. The project was financed by the company, which secured the sole rights of using the water sources of Lake Terkos and its vicinities. In 1891, it made a net profit of 334,904 francs, which was almost doubled in less than twenty years. See Ibid., p. 205.

38. Pechedimaldji 1881.

39. As an interim solution, a pump station was established to bring the waters of Kağıthane Creek to Pera in 1882, but the amount of water was not seen as sufficient to meet the needs of the district, and several people were accused of stealing from the water conduits. See Çeçen 1984, p. 147; Compagnie des Eaux de Constantinople 1889, pp. 6–7; 'La Disette d'eau', *La Turquie* **232** (27 Oct. 1882): 1; 'Disette d'eau', *La Turquie* **235** (31 Oct. 1882): 1. Another private company, Compagnie des eaux de Scutari et Kadi-Keui, began its operations in 1893 in the Asian side, and similar companies were granted concessions across the empire, including in Beirut, Salonika and Izmir, between the 1870s and 1890s. Dinçkal 2015, pp. 214–15.

40. BOA, Y.MTV. 17/2 (6 Rebiülahir 1302 [25 Jan. 1885]).

41. BOA, İ.DH. 938/74292 (6 Rebiülevvel 1302 [24 Dec. 1884]).

most important venues for social life in Pera, this life already belonged to a limited coterie. The Jardin, with its entrance fee, theatre hall and expensive dinners in the open air, hosted pashas, beys, the diplomatic corps residing in the city, employees of foreign companies operating in the empire, artists and rich tourists who usually stayed at the hotels surrounding the garden. Thus, the nature of the social circle that participated in the opening event was probably not so different from any other night at the garden. It would not be wrong to assert that this limited elite milieu that consumed the Jardin was a microcosm of the cosmopolitan sociability that was continuously referred to in the history-writing of Pera.

Indeed, this class of people was the project's first and foremost targets. Frederic Briffault, one of the engineers of the project, had elucidated this rather bluntly in a paper he had given at the annual meeting of the Civil Engineers Institute in England:

> Too much reliance must not be placed upon the whole of the native population, amongst a large portion of which great poverty prevails, taking the Water. The Author believes that the Company will have far greater sales of Water in the European than in the native quarter of the Town.[42]

This newly installed infrastructure, then, was underlining and reproducing the already existing inequalities between different parts of the Ottoman capital. Moreover this disparity between different parts was not limited to the two sides of the Golden Horn. Inequalities present within and around the boundaries of the 6th District were represented and reinforced in the operation of Terkos waterworks. A water network plan prepared by the company (Figure 1) provides us with an inside look into the first phase of the project, aimed to distribute water to the northern side of the Golden Horn, and it is a striking representation of how this modern waterscape of the district was planned and distributed.[43]

The Terkos water first reached to the Feriköy Reservoir, and was then channelled, on the one hand to Galata and Pera, and on the other, through an additional reservoir in Şişli, to settlements along the Bosporus. The outer extensions of the network reached to other newly emerging elite neighbourhoods, such as Nişantaşı. Two main conduits merged as they entered to Pera, embodied in a 'monumental fountain' at Taksim. Here was also located the fire brigade of the district. Embassies and consulates were connected to the

42. Qtd in Dinçkal 2008, p. 686.

43. Atatürk Library (*Atatürk Kitaplığı, AK*) Hrt. 5783.

Figure 1. Compagnie des Eaux de Constantinople. Plan de la Canalisation générale de la rive Européenne du Bosphore *[General pipeline plan of the European side of the Bosporus]. Date Unknown. Source: AK, Hrt_5783.*

system, so were schools, hospitals and barracks, which were to be provided with water for free.[44]

From Taksim down to Galata, the water network was much denser, as the point here was not only to make water available in the main arteries and public fountains and buildings, but also to provide apartment buildings with private subscriptions. The upper parts of Grand Rue de Pèra were especially well covered, corresponding to the location of the residences of many wealthy members of the Pera community. In a drastic contrast, the Kasımpaşa region was almost completely deprived of Terkos water. While the contract between Compagnie des Eaux de Constantinople and the Ottoman state necessitated the company to build public fountains, these, at least in this initial phase, were very scattered and in no way sufficient for the densely populated working class neighbourhood of Kasımpaşa. A similar thing could be said for the Tophane area, another adjacent neighbourhood that was within the boundaries of the 6th District. This plan was thus not only a simple outline of the infrastructure

44. BOA, İ.DH. 847/68050 (29 Rebiülahir 1299 [20 Mar. 1882]).

work. It was more importantly a representation of the socio-economic fabric and boundaries of Pera, its inherent inequalities, and how these inequalities were underlined by politics and a physical network of infrastructure that followed the elite networks of the district, rather than aiming to reach a larger public provision. More elites, in turn, followed the waterworks and other municipal services, as noted by Noyan Dinçkal, making centralised water supply a tool for 'social segregation'.[45]

The Terkos water being equally distributed or not, with ninety-kilometre-long subterranean pipes made of steel and cement, with steam-powered pumps fuelled by coal brought from Zonguldak, with monumental fountains at the Tünel Square and in the gardens of Petits-Champs and Taxim, and the company office located at no. 392 of Grand Rue de Pèra – at the cul-de-sac that is still called the Terkos Çıkmazı – the environment of Terkos and the assemblage of Terkos waterworks were finally carved into the material fabric of Pera, following two decades of public controversies and private negotiations, and a construction period of three years.

My intention in the rest of this article is to explore what else was carried between Terkos and Pera along the links established thanks to waterworks. What else did the springs across Thrace that fed Lake Terkos unleash? How did the waterworks transform its environs and the relations of places and things? If cosmopolitan Pera was dependent on the water of Terkos, which it obviously was, what else did this dependency produce? If Terkos gave its water to Pera, what did Pera give back? With these questions in mind, I will now concentrate on how the relations between various humans and animals, as well as various humans and water sources, were reconfigured with the installation of the waterworks.

Old and New Actors in Terkos Fauna

In October 1893, the Ministry of Police (*Zabtiye*) received a request from the Ministry of Foreign Affairs (*Hariciye*) to grant permission for Dr. Franz Steindachner (1834–1919), the famous Austrian zoologist and the director of the zoological collections of the Museum of Natural History of Vienna (*Naturhistorisches Museum*),[46] to visit Lake Terkos, in order to observe its native

45. Dinçkal 2015, p. 218.

46. One of the few documents found in the Ottoman state archives concerning this visit prematurely identifies Steindachner ('Doktor Mösyö Firenc Estayn Dahter') as the director of the museum, of which he became the interim director in 1896, and was appointed full director in 1898, a post he held until his death in 1919. See BOA, DH.MKT. 131/11 (1 Rebiülevvel 1311 [12 Sept. 1893]) and BOA, BEO. 280/20955

fish. The Ministry of Police unwillingly accepted the request, but assigned a soldier to escort Steindachner in his observations around the lake, and specifically ordered that this foreign visitor should not be allowed to fish, and rather should be handed samples that were already caught. Even though there is no further account of the type of fish collected by Steindachner from the region of Terkos, we know that this internationally acclaimed expert in ichthyology returned home from his expedition around Istanbul with 68 specimens from forty species. While certainly not constituting a major event in the region's natural or social history, Steindachner's visit marks a period that witnessed the flourishing of new forms of interest in the region's fauna, and hints at the introduction of new actors into the existing relations of humans and animals, partially triggered by the Terkos waterworks.

Situated on a lake basin with several rivers and being close to the Black Sea, the villagers in Terkos were actively engaged in fishing for a long time. Evliya Çelebi (1611–1682), the famous seventeenth-century Ottoman traveller, noted the fishing weirs (*dalyan*) installed in the lake.[47] In the nineteenth century, some of this fishing was done under the auspices of *Bezm-i Alem Valide Sultan Vakfı* (a pious foundation), which owned several land plots around the lake.[48] And perhaps also underlined by Steindachner's visit, the lake was quite rich in fish varieties.[49] Even in the 1940s, reports stated that the lake was home to a panoply of fresh-water fish.[50] The waterworks, however, threw age-old fishing activity in the lake into a controversy. For in 1887, the Ministry of Waqfs accused Compagnie des Eaux of harming the profits the *Bezm-i Alem Vakfı* had made from fishing. The ministry argued that the company's closing of the lake's outlet to the Black Sea in order to increase its water capacity had reduced the amount of fish available to catch.

Indeed, the company's contract with the Ottoman state granted the right to change the course of several rivers, and the topography of the Terkos

(1 Rebiülevvel 1311 [24 Sept. 1893]). For Steindachner's biography and bibliography, see Kähsbauer 1959.

47. Evliya Çelebi 2006, p. 285.

48. Yurdakul 2010, p. 56.

49. The British Museum inventories feature a couple of fish varieties collected from Lake Terkos as well, sold to the Museum by Alexander van Millingen, professor at Robert College in Istanbul, famous for his works on the historical topography of the city. See Günther 1864, p. 429.

50. Nirven 1946, p. 196.

lake basin – a right the company used extensively.[51] As part of its topographical transformation, the company hastily completed the millennia-old job of the water flowing from the Balkan Mountains: blocking the narrow strait between Lake Terkos and the Black Sea. The work of the water was of course slow and unintentional; it was a result of materials being carried along and piling up at the edge of the lake. The company's move, on the other hand, was sudden and intended to turn the natural lake into a fresh water reservoir, reducing its saltiness and limiting the loss of water to the tides between the lake and the sea.

The conflict was eventually resolved by an agreement signed between the ministry and the company, as the latter was granted the exclusive rights and concessions to fish in the lake, in return for an annual fee of 200 *kuruş* to be paid to the ministry.[52] This settlement did not satisfy many of the villagers, however, as their individual activities in the lake were restricted by this agreement. Indeed, the archives contain many complaints from the villagers who had previously worked with the pious foundation, which entailed fishing in the lake and then paying taxes, a practice now subjected to restraints and, according to the villagers, excessive fees by the company.[53]

Thus fishing in Terkos became increasingly dependent on the decisions of an international company whose headquarters was situated in Pera, and whose activities were determined by various other concerns than those of the local villagers. Compagnie des Eaux, which invested into the environment of Terkos in order to profit from its inanimate natural resources now expanded its domains into the world of the living, integrating the variety of fish found in the lake into its assemblage of concrete, steel and water.

> After breakfast we shouldered our guns and sallied forth. The weather was still very cold, with a strong, bitter north wind, blowing in from the Black Sea. We walked along the north shore of the lake for about two miles, and then came up to a large patch of open water, and this was literally swarming with wildfowl. There must have been millions of them.[54]

Obstructions put against individual fishing activity by the hands of the company look much more interesting when seen in the light of another concurrent phenomenon concerning the Terkos fauna: the development of leisure hunting. Again from Evliya Çelebi, we know that Terkos was an occasional hunting

51. BOA, İ.DH. 847/68050 (29 Rebiülahir 1299 [20 Mar. 1882]).

52. Yurdakul 2010, p. 117.

53. BOA, DH.MKT. 1764/128 (11 Safer 1308 [26 Sept. 1890]); BOA, BEO 346/25932 (13 Recep 1311 [20 Jan. 1894]).

54. Fitzgerald 1916, p. 65.

ground (*sayd-gah*), especially for various types of ducks, geese and swans; attracting even the attention of Sultan Mehmet II (r. 1444–1446, 1451–1481), who had hunted in the area before the conquest of Constantinople.[55] But despite such precedence, Terkos had never become one of the most popular hunting destinations of the Ottoman elites residing in Istanbul before the late nineteenth century. Even though hunting expeditions into the outskirts of the city were commonplace, small groves (*koru*) used as hunting grounds with specifically built mansions in the much closer vicinity of the city, where the imperial household had the exclusive right to hunt, were the predominant hunting geographies of the Ottoman capital.[56]

However, towards the end of the nineteenth century, I argue, the increasing integration of Terkos into the urban imaginations of the elites, thanks to plans to install waterworks around the region, triggered a new interest in this region as a favourite place for leisure hunting. Terkos, and especially Karaburun, were particularly fruitful grounds for the passage of quail, which had never been a popular game bird for the Ottomans because it was considered too small to hunt, but now attracted new interest as European hunting fashions began to take a root in Istanbul, especially among the elites resident in Pera and Kadıköy.[57] Gradual deforestation due to urbanisation, combined with excessive hunting, resulted in a decrease of the number of local game birds towards the turn of the century, and drew the attention of hunters and enthusiasts to the northern shores of the city, which were the passage grounds of migrant species.[58] With engineers, chemists, physicians and company officials who were in close contact with the foreign legations flowing to Terkos from the 1870s onwards, the region was gradually put on the hunting and leisure map of Istanbul's environs.

In the words of Charles Cooper Penrose Fitzgerald (1841–1921), a British naval officer stationed in Istanbul in 1879–1880, Terkos provided the perfect environment for hunting especially in the harsh winter conditions, when '[each] succeeding shot put up some more birds, and they all [escaped to the Black Sea]; but when they got [there], they apparently found it was too rough for them, for they all came back again … Truly they were between the devil and the deep sea.'[59] While it was the British Consul who recommended him Terkos for hunting escapades, the region was not yet well-known to the resident

55. Evliya Çelebi 2006, pp. 220, 236, 316.
56. Artan 2011, p. 95; Yarcı 2009, p. 125; Somçağ 1994, p. 427.
57. Somçağ 1994, pp. 426–29; Tchihatchef 2000, pp. 95–96.
58. Somçağ 1994, p. 427.
59. Fitzgerald 1916, p. 66.

European community of the city, manifested in the troublesome journey of Fitzgerald's party who spent three days covering thirty miles, frequently getting lost on the way. Increased interest in the region due to the activities around Terkos water gradually made it a more familiar destination for visitors looking for recreation; and, once construction began, picnickers thronged the area with the aim of revelling in the spectacles provided not only by nature but by the construction itself, as a manifestation of the wonders of modern technology.[60]

Indeed, after the opening of the waterworks, Ottoman officials began to receive an increasing number of requests from foreign subjects for permission to hunt around Terkos, probably inspired by the accounts of fellow members of their social circles who were commissioned in the region in order to work for the project. The group of people that frequented Terkos, mostly with the intention to hunt, were members of the foreign diplomatic legations resident in Pera. The archives show that German, Swedish and Italian ambassadors, British military attaché, and their entourages, visited, hunted and fished in and around Terkos.[61] Leisure hunting in Terkos became such a feature of the period's elite culture that caricatures in the satirical press ridiculed it.[62]

Another *beastly* link formed between Terkos and Pera was the increasing popularity of live quails, caught in large numbers around Terkos and Karaburun with the help of hunting nets, and sent to Pera's famous Fish Market to be sold in the charcuteries that catered for Pera's 'cosmopolitan' community.[63] And one of the biggest retail stores of the city, Baker Department Store (*ticarethanesi*), located in Galata and selling expensive guns, outfits, gear and accessories imported from various European countries, catered for hunting enthusiasts.[64] Hunting trips to the region were made easier for a larger community of enthusiasts as the Rumeli Railways was launched in 1871, which not only gradually connected the empire to European capitals, but also the Ottoman capital city to its suburbs; and the station of Çatalca, opened in 1872, provided a relatively easy access to Terkos.[65]

60. Kazgan and Önal 1999, p. 37.

61. BOA, Y.PRK.ASK. 186/74 (8 Şaban 1320 [10 Nov. 1902]); BOA, Y.PRK.ASK. 222/27 (21 Recep 1322 [1 Oct. 1904]).

62. Reproduced in Kazgan and Önal 1999, p. 94.

63. Somçağ 1994, p. 427.

64. Maison Baker 1908.

65. Engin 1993, p. 108. It was also very common for the (temporary) residents of the European legations and other elites in Tarabya to ride to Terkos through the Belgrad Forest. See, for example, Morgenthau 2004, p. 370.

The congregation of engineers in the region, and the interest of foreigners in Terkos as a leisure space also created a security concern on the part of the Ottoman state about potential imposters who 'pretended to be engineers'. The company engineers were asked to carry with them at all times licenses (*tezkire*), proving that they were in fact engineers commissioned by the company. The same document that ordered the engineers to carry these licenses with them also stated that foreigners who wished to hunt in these environs should get permits from the foreign ministry first.[66] The fact that this same document brought together two seemingly different issues would also suggest that in the minds of the Ottoman authorities, too, the newly gained popularity of hunting was tied to the construction of the waterworks.

The waterworks, in the end, left its mark on the various forms of interconnections among humans and animals as a new form of dependence was created between the city and its north-western periphery. Animals that were part of a relatively local economy mostly geared towards subsistence were made part of a regional, and even an international, economy of large-scale profit and leisure. While the local villagers' autonomous access to their natural environments was put under increasing control and limitations, Pera's 'cosmopolitan' community became more and more present in the area's food chain, as their interest and contact with the birds, boars and fish of Terkos expanded. The impact of the Terkos waterworks turned out to be crucial for the remaking of the human and animal relations in the region.

This is a reminder that the celebrated diversity and the formation of elite urbanities in the *fin-de-siècle* Pera were not restricted to the *jardins*, but moved between places, and affected larger geographies than the district boundaries. Just as the water of Terkos was a vital resource upon which Pera's elite spaces depended, the rural areas of Terkos provided leisure spaces and animals for newly emerging tastes and hobbies of those elites, as physical and – it must be said – *deadly* manifestations of elite 'cosmopolitanism'. These hunting parties constituted another channel of interdependence between 'cosmopolitan' Pera and 'peripheral, rural, natural' Terkos, challenging the dichotomous positioning of those geographic and cultural entities, and leaving footprints on the environment. The limited sociability of the *jardins*, in a sense, was exported to

66. BOA, Y.A.HUS. 284/67 (10 Cemazeyilevvel 1311 [19 Nov. 1893]) the authorities always tried to control and monitor hunting activity, and carrying licenses for hunting activities was not confined to foreigners. However, in their case, they had to obtain permissions from the Foreign Ministry, and there was a specific sensitivity towards their activities around military zones. See Yarcı 2009, p. 127.

rural Terkos, in exchange for the water that would flow from the taps of private bathrooms, and for birds to be sold in the markets of Pera.

Changing the Flow

With the increasing presence of Pera in Terkos through the material and spatial reconfiguration caused by the waterworks, the villagers living around the lake not only witnessed their access to the animal world being restricted, but their ability to use their domestic water sources, as well as to protect their immediate surroundings from the harmful impacts of water, also diminished. The villagers of Celep and Pınarhisarı (Hisarbeyli), two neighbouring villages close to the southern shores of the Lake Terkos, more directly and acutely felt the severe impact of the newly installed waterworks. A memo sent to the Ministry of Interior Affairs (*Dahiliye Nezareti*) in 1887, only two years after the water of the lake began to be pumped to Pera, informed the bureaucrats of the Ottoman capital that many fields, including farms and meadows of these two villages, were flooded, causing huge material loss. The memo went on to quote the harmed villagers blaming the water company for the floods.[67]

As we have seen, the waterworks had blocked the natural passage between the lake and the Black Sea to make the former a 'natural' reservoir. However, soon after the waterworks began to operate, with heavy rainfalls and melting of the snow in the Balkan Mountains in spring, the excess water flowing into the lake could not find an output, and flooded the nearby villages of Celep and Pınarhisarı. As Stéphane Castonguay notes, in various geographies of the world, villagers in riparian settlements tend to develop mechanisms to cope with recurring floods as 'structural elements of the landscape'. But in many cases, extreme events are 'constructed' through mediation by external forces that alter the landscape, and thus increase the vulnerability of the local human and nonhuman populations.[68] A series of documents in the Ottoman state archives bear witness to the years-long struggle of the villagers, especially of Celep, trying to draw the attention to their newly constructed vulnerability, and to be compensated for the material loss they had to endure because of the company's operations.[69] The Ministry of Interior Affairs and Istanbul Prefecture (*Şehremaneti*) seemed sympathetic to the claims of the villagers; yet the company insisted that it could not be accused of wrongdoing since the

67. BOA, DH.MKT. 1448/55 (1 Muharrem 1305 [19 Sept. 1887]).

68. Castonguay 2007, pp. 820–44.

69. BOA, DH.MKT. 1512/56 (4 Şevval 1305 [14 June 1888]).

Figure 2. Çatalca Paftası [Çatalca Plate]. Date Unknown. Source: AK, Hrt_943.

right to change the topography of the lake was given to it by the concession contract of 1882.[70] In 1889, the municipality sent its chief engineer Monsieur Leclerq to the region to craft a report about the situation. His report found the claimants right and suggested that the company should compensate for the damages of the villagers.[71] In the meantime, new petitions kept coming regarding the periodical floods.[72] The archives lose track of the petitioners by 1890, probably suggesting that the company finally sought to compensate the damages caused by the waterworks. However this did not mean its harmful impact on the lake's environs ended; on the contrary, as reports from as late as 1912 and 1913 suggest, yearly floods continued to ruin the surrounding fields, which were turned into swamps when the water fell back in summer, and polluted the lake by bringing waste from the land.[73]

The villagers and their habitat became part of this convoluted story of infrastructural and environmental connections in other ways, too. One such issue was the limitation of their access to several of their traditional water sources, i.e. the local, small torrents that fed Lake Terkos, which were now to be collected by the company in order to reach to the necessary levels of water distribution for the city. In 1888, the inhabitants of Karaca, Ormanlı, Pınarhisarı, Belgrad and Çiftlikköy villages wrote a joint petition to the Ottoman authorities, stating that if the company was to use the entire water of Kuşkaya, a local water source used by these villagers, nine water mills located in the villages would become obsolete, their corn fields and orchards would dry, and their animals would die of thirst.[74] A similar complaint was made by the villagers of Terkos in order to protect their right to use of Karamandere, one of the biggest rivers in the region, which provided for their 'necessities of life' (*havayic-i zaruriye*). Once again, the villagers were told that the concessions agreement had given the company the right to collect the water of these local sources when deemed necessary. Luckily, actual operations on the river were yet to begin, and the company was responsible to provide the necessary reserves for the needs of these villagers.[75]

Whereas the villagers eventually failed to alter the course of the waterworks, they proved themselves to be a force that needed to be dealt with by the state and company authorities. And by their constant petitioning for compensation

70. Yurdakul 2010, p. 44.
71. BOA, DH.MKT. 1603/74 (9 Recep 1306 [11 Mar. 1889]).
72. BOA, DH.MKT. 1612/45 (1 Şaban 1306 [2 Apr. 1889]).
73. Yurdakul 2010, pp. 44–5.
74. Ibid., p. 67.
75. BOA, DH.MKT. 1690/24 (24 Cemaziyelevvel 1307 [16 Jan. 1890]).

for their material loss and access to nearby water sources, they became a much more central part of the company's economic projections and concerns than the poor populations of Pera and its surrounding areas, who, as we have seen, were to a large part completely ignored by the water network installed by the company. Nevertheless, the altered land and waterscapes of Terkos, which limited the villagers' access to their immediate surroundings and curbed their part in the formation of new material assemblages, eventually forced many inhabitants to seek opportunities elsewhere. As Nazım Nirven noted in 1946, the population of the villages around Terkos dropped in the decades after the waterworks began to operate.[76]

Conclusion: Nature's 'Cosmopolis'

Many engineers, integral members of Pera's 'cosmopolitan' community, commissioned to work on various projects in the Ottoman capital in the second half of the nineteenth century, were also asked to prepare reports and craft concrete proposals in order to provide better water supplies for Pera – as the Ottomans loved to 'recycle' the experts they had a temporary hold on. While they offered different solutions and uttered alternative sources, all of them, in their unique ways, offered to connect the peripheral environment to Pera in a better, more efficient and extensive way. During the long years of discussions regarding the water problem of the district, the expert knowledge and material investment put into the making of Pera's urban space attempted to break through its limits. Finally, with the start of the construction of the Terkos waterworks the material relations, expert knowledge, will to modernisation and ideology of progress, which were shaping Pera's urban space, poured into the rural periphery, devouring their 'spatial barriers',[77] following the route opened by the construction of the railways. But this search for a more efficient and integral connection to the periphery resulted in a set of messy and unequal relations between the various human and nonhuman actors involved, from Terkos to Pera.

Not only did the power generated by water meet the basic requirements of the residents of firstly Pera, and then the rest of Istanbul, in unequal ways. What it further generated was connections between urban and rural that contributed to the formation of an elite class, which not only depended on Terkos water as a life necessity, but flourished on its material networks and used it to

76. Nirven 1946, p. 194.

77. Harvey 1996, p. 412.

increase its claim on land, either as part of the 'city' or 'nature', whether through work or through leisure.

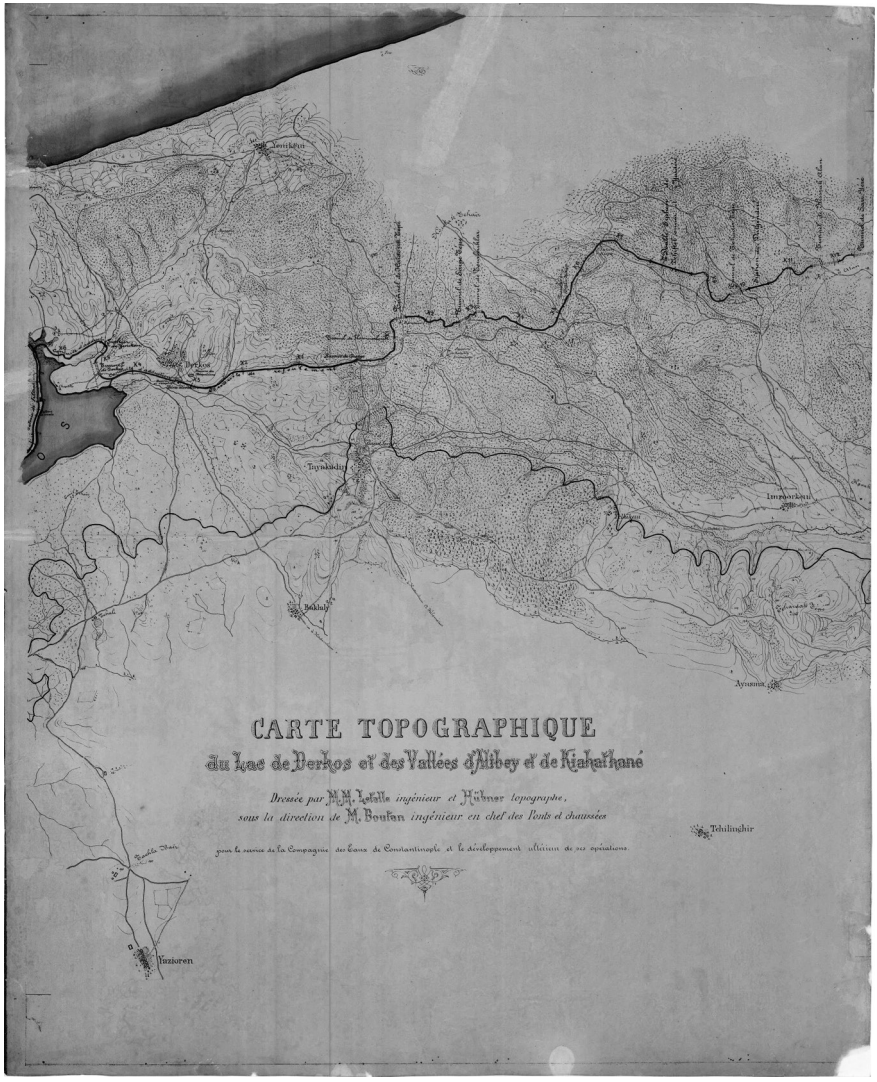

Figure 3. Lefalle, Hübner, Boutan. Carte topographique du Lac de derkos et des Vallées d'Alibey et de Kiahathané *[An excerpt from the Topographic Map of Lake Terkos and the Valleys of Alibey and Kağıthane]. Date unknown. Source: AK, Hrt_Gec_1875/6/7/8.*

Pera historiography, in line with writing on other 'cosmopolitan' urbanities, has been marred by an over-reliance of the sources that exclusively dealt with the urban centre, and an over-attention to the architectural façade of the district. Studying the sources produced outside Pera, with an attentive eye to the peripheral arrangements, situates the district within a wider network of humans and nonhumans. It helps us to appreciate the fact that the fabric of modern, 'cosmopolitan' Pera was woven through the water of Terkos, mud of the riparian villages, fish of the lake and game stock of the surrounding lands, and invites us to explore other forms of diversities that the limited frame of cosmopolitanism not only excludes, but also actively obscures.

It is also crucial, following William Cronon and Timothy Mitchell,[78] to keep in mind that Terkos as a space of 'nature', categorically different from the rest of the region, did not exist before its 'discovery' as a space of vital natural resources, biological diversity and a wondrous terrain for hunting and leisurely promenade. Pera, too, depended upon this world of Terkos, as they co-constituted each other as seemingly distinct entities, even though they were actually part of a larger assemblage of environment, infrastructure and technology. The history of Pera is about any and all actors along this assemblage; it is about the people of Terkos village who struggled for their 'necessities of life', as much as about the attendants of the ceremony at Jardin des Petits-Champs, who celebrated the provision of their district with 'the essential element to all life' – one man's *havayic-i zaruriye* is another man's *l'élément essential*.

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78. Cronon 1991, pp. 7–8; Mitchell 2002, p. 35.

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