

Evanthia (Evi) Tselika  Despo Pasia

The River Speaks: The Pedaios River in Space and Time

Open-Access Educational Programmes
for Formal and Non-Formal Education



ΧΑΡΟΚΟΠΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ
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Educational Book

The River Speaks: The Pedaios River in Space and Time

The open-access educational tools for formal and non-formal education are part of the research project “Economy, environment, and landscape in the Cypriot *longue durée*: a combined analysis using historical data and modern Geoinformatics applications”. The project was developed by the Department of Geography of Harokopio University and funded by the Sylvia Ioannou Charitable Foundation (2019-2023).

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The Research Project

The research project “Economy, environment, and landscape in the Cypriot *longue durée*: a combined analysis using historical data and modern Geoinformatics applications” was developed by the Department of Geography of Harokopio University, funded by the Sylvia Ioannou Charitable Foundation, and supervised by Christos Chalkias (Professor, Harokopio University) and Antonis Hadjikyriacou (Assistant Professor, Panteion University).

The project examines the relationship between the economy, the environment, and the landscape of Cyprus from the 16th to the 20th century through the analysis of two different types of sources: tax/land surveys and historical (old) maps. The surveys provide information on population, economic production, place names and land use. Cartographic representations provide valuable data on the environment, the rural and urban landscape, the hydrography, and the geography as documented at a particular moment in time. The research project was based on the following sources:

- the first Ottoman fiscal survey of the year 1572
- the 1832/33 Ottoman Property Survey of Cyprus
- the Kitchener map (1878-1883), which is the first modern and cartographically accurate representation of the island, along with the detailed plans for Nicosia and Limassol towns, as well as
- the British Agricultural Census of 1931

By combining the two types of sources using modern Geoinformatics methods, the project processes and analyses historical data to visualise the economy, environment, and landscape of Cyprus on the one hand, and on the other hand to follow their evolution over a period of about five centuries. All the research outcomes of the project can be accessed via this link: <https://ecoland.hua.gr/en/>

An equally important objective is to provide the public with free access to the outcomes, which may be achieved by disseminating them as extensively as possible beyond the research/university community. Two types of tools have been produced for this purpose:

a) Digital applications for smart mobile devices and a web application, that provide the opportunity for interactive use by the public: <https://ecoland.hua.gr/en/outcomes/mobile>



The mobile app “The River Speaks: Water, Land & People on the Pedaios River” is also closely tied to this educational book.

b) Educational books, containing educational activities which incorporate the aforementioned digital applications:

- *Flora Nostra: Using Art to Map the Flora Around Us*
- *The River Speaks: The Pedaios River in Space and Time*

Rationale and Objectives of the Educational Programmes

The proposed educational programmes are based on the idea that one of the ways educational practices become truly innovative is by linking them to original and pioneering research.

The programmes are aimed at children and young people in two age groups (10-14 and 15-20), with potential application in formal education (primary, secondary, and higher), as well as in non-formal education. The proposed methodology can be adapted to address other age groups, other regions, or non-formal education structures, such as summer schools, museums, and cultural organisation programmes.

The objectives of the educational programmes are:

- to link historical and geographical research with the visual arts
- to develop research skills in the visual arts
- to integrate new technologies in visual arts research and production
- to create new access points to the cultural history of Cyprus using experiential practices, technological and visual tools

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Introduction

Getting to Know the River

In 1576 the writer and cartographer Tommaso Porcacchi wrote that Cyprus has no rivers and that the streams we encounter are nothing but torrents. When there is heavy rainfall, the mountain hollows fill up with water, but since rainfall is not common on the island, the water flow from the springs is often reduced (Cobham 1908, p. 167). Many other writers and travellers from Western Europe, as well as officials of the Empires that ruled Cyprus, would repeat Porcacchi's observation. A similar observation was made by the military officer Ascanio Savorgnan in 1562, namely that there are no rivers in the city of Nicosia but only a torrent (Grivaud 2016, pp. 207 and 211).

Three centuries later, Captain Savile once again points out that the rivers of Cyprus are nothing but torrents flowing on rough and rocky beds, generally dry in the summers. None of the rivers are navigable. Following the winter and spring rains, the water rushes down the mountain slopes filling the riverbed and then overflows, turning the land around it into alluvial soil¹ (Savile 1878, p. 35).



Fig. 1. Pediaios River near the Tamassos Dam, 2019. © Evanthia (Evi) Tselika

1. Alluvial soil: soil formed by the gradual deposition of sediment by the waters of a river.

Major-General, explorer and naturalist Samuel Baker mentions that, when there is considerable rainfall in Cyprus, the Pedaios River swells often enough for foreigners to gain the false impression that it is a river of primary importance, as they see this swollen torrent rushing towards ancient Salamis across a valley several miles wide. “The fact is that no river exists in Cyprus: what should be rivers are mere channels, watercourses, brooks, torrents, or any of the multifarious names for stream-beds that may be discovered in an English dictionary” (Baker 1879, p. 348).

In this sense, the Pedaios –the longest river in Cyprus– is essentially a seasonal river along most of its course, except at higher elevations, where its flow can persist for longer periods. The Pedaios catchment basin is the only one which extends across both mountain ranges of the island, Troodos and Pentadaktylos, and is fed by their waters. Together with its twin, River Yialias, which also springs from Mount Kionia in the forest of Machairas, the Pedaios flows across the Mesaoria plain into the reservoir at Kouklia in Famagusta and empties into the sea of Klapsides, near the present-day city of Famagusta and the ancient city of Salamis. The total river catchment area covers 940 km², most of which is flat arable land (Neofytides 1995, p. 3).

Most rivers are formed by rain-fed streams, by groundwater, and by springs located in hollows such as gorges.

- A river is young at its headwaters, where the slopes are steep, the flow is fast and there are tributaries (Chapter 1).
- It begins to mature when the flow slows down, the valley widens, and its tributaries become lesser and lesser (Chapter 1).
- It matures when the flow becomes even slower, the valleys even wider and the landscape becomes more peaceful (Chapter 2).
- It ages when the valley becomes a plain (Chapter 3).

In the mountains of Machairas Forest, Kitchener documents on his map the names Trivilourio, Livadokhorton, Kaltsas Potamos, and Diplopotamos, which represent the streams that form the tributaries feeding Pedaios. The cartographer marks two tributaries, just below the Machairas Monastery (Ordinargos and Pedaios), which merge near the present-day Tamassos Dam, and continue their course (now as Pedaios River) south, towards Nicosia city and then east towards Famagusta. Its water flow is enriched from the other mountain range that peaks over Nicosia, Pentadaktylos, which boasts the renowned springs of Kefalovrysos in Kythrea. In the Mesaoria plain the river pools and thus fertilizes the land (the granary of the island) and proceeds to meet again its sibling river, Yialias. The Pedaios then flows into the sea in Klapsides (near the village of Engomi) and forms a wetland along its path, extending up to the city of Famagusta.

The Educational Book *The River Speaks: The Pedaios River in Space and Time*

This educational book is dedicated to the Pedaios River (also known as Pithkias or Kanlı Dere) and presents the geography and history of its waters.

The proposed educational tool takes the form of a geography textbook that examines the Pedaios River both geographically and historically, with references to visual art education. It explores the importance and history of the river's water management from the 16th to the 20th century, while also reflecting on our relationship with the natural environment, particularly in urban areas, and on the changes to the riverside environment of the Pedaios over time. This book was written using the following digital tools, which were created as part of the research project:

- the 2nd edition of the web application “The first triangulated survey of Cyprus by Kitchener (1878-1883)”, <https://kitchener.hua.gr/en>
- the web application “The 1832/33 Ottoman Property Survey of Cyprus”, <https://cyprus1833.hua.gr/en>



Fig. 2. Mosaic of the 15 sheets of the Cyprus map, according to the triangulated survey (1878-1883) by H. H. Kitchener, London 1885 (Sylvia Ioannou Charitable Foundation Collection, M.0254). Screenshot from the web application <https://kitchener.hua.gr/en> © Harokopio University and Sylvia Ioannou Charitable Foundation

Other significant resources included documents from the archive of the Water Development Department (Republic of Cyprus), historical texts and travellers' descriptions from the 16th century onwards, as well as writings by officials, scholars, and travellers during the period of British rule. Of particular importance are the accounts of military officer Samuel Baker and Albany Robert Savile, colonial administrator Claude Delaval Cobham, curator of antiquities George H. Everett Jeffery, and hydrologic engineer and director of the Water Development Department Colin Raeburn. However, prominent in this educational book is the work of Horatio Herbert Kitchener, field marshal and consul-general, who directed colonial campaigns. Kitchener drafted the first map resulting from a properly triangulated survey of Cyprus between 1878 and 1883, which was later published in 1885 in London.

This educational book is organised into three chapters, based on the geographical course of the river:

Chapter 1 focuses on the geographical region where the river's springs are located, on Mount Kionia, in the forest of Machaira, and on the fertile valleys created by its tributaries all the way to Deftera. This chapter focuses on the natural environment as that is shaped by the hydrological landscape, the geology of the soil and agricultural production.

Chapter 2 presents the newer part of the city of Nicosia; the one that the British expanded outside the Venetian walls, consolidating chiftliks and villages into an ever-expanding urban fabric. Here we examine British Nicosia in relation to the waters of Pediaios and focus on the importance of pumping water from the ground by using wells and water wheels; as well as transporting water using tunnels and aqueducts in order to supply the city with water. We draw our attention to the area of Strovolos as an example of a village that is now one of the largest urban districts of Nicosia city and a central route with access to the river.

Chapter 3 focuses on the springs, waters, and gardens of the medieval Chora, as much as on the waters within the Venetian walls -the urban fabric of the city; as the British encountered it in 1878, following 307 years of Ottoman rule. The last part of this chapter examines the eastern course of the river as it flows towards Famagusta Bay. Key stations in this chapter are Kythrea, as its waters feed Pediaios, and the Mesaoria plain, which is flooded because of the overflowing rivers. The first artificial lakes/dams/reservoirs on the island were constructed in the early 20th century in this specific region. The mouth of the river, where it spills into the sea near Salamis, the marshes and the stagnant waters of the surrounding region, lead us to the end of the course of Pediaios.

Combining Visual Arts with Environmental Education

Environmental art has been presented as a visual methodology since the 1960s and is a manifestation of the environmental movement. It focuses on environmental problems and is linked to Land Art, a movement in which artists work with nature as the primary material and accept that natural changes become an organic element of the work, since it is shaped by nature itself. Land Art is thus understood as a visual methodology that uses soil, plants, water, and light as materials, and in which the artists' actions take place in natural spaces, thereby rethinking the human-nature relationship (Kastner and Wallis 1998). Today, in the context of the broader ecological movement, environmental art is associated with the style and conceptual approach of Land Art, which actively aims to raise awareness of environmental issues, nature and ecological consciousness.

Artistic movements that preceded environmental art and have inspired it in various ways include landscape painting, landscape photography and botanical illustration (Buck and Rice).

Connecting Visual Arts with New Technologies

Digital imagery permeates almost every aspect of contemporary life through a plethora of devices found in our homes, in the streets, in places of entertainment and work, and, increasingly, in our pockets. In this new context of communication and aesthetics, the digital image has become an integral part of daily experience for most people. The sheer volume and unprecedented frequency of digital images make it necessary, perhaps more than ever, to understand the culture of the image itself and, more specifically, the digital image.

The audio, text, and image-processing options (static or animated) provided by computers, mobile phones, tablets, and other devices have embedded them in our everyday lives. The revolution that has taken place in the visual arts through photography and moving images is directly related to the uses of digital technologies and the complete redefinition of the understanding and use of the image in today's world. This redefinition is not static, but constantly evolving and acquiring new implications with the development of virtual reality. Consequently, questions concerning the use of technology today have become central points of reference for both the present and the future of the visual arts.

This educational book is intended for teachers involved in formal and non-formal education at all levels, as well as for readers interested in the history and geography of the Pedaios. It deliberately includes many excerpts so that teachers can use the material more easily. Each chapter is accompanied by recommended creative activities that support the development of an artist's book, while the chapters and worksheets can also be used independently as stand-alone exercises in history, geography and art classes for the purpose of teaching and learning research skills. Readers of the educational book can therefore use it in full or select individual chapters.

What we propose here is methodologically based on a methodological understanding of art called process-based art. It focuses on the process and the creative path that unfolds as a creative journey. At the heart of the proposal is an understanding of the history and geography of the Pedaios River, as well as the process of creating an artist book.

The book aims for participants to:

- apply the proposed creative process to formulate an artist book on the history and geography of the Pedaios River
- recognise that artistic creation, whether produced by professional artists or not, can be directly linked to history and geography and contribute to fostering broader ecological awareness
- explore issues relating to the environment of Cyprus, with an emphasis on water
- use the digital tools of the research project "Economy, environment, and landscape in the Cypriot *longue durée*": the Kitchener Map (2021) and the 1832/33 Ottoman Property Survey of Cyprus (2021)

The Making of an Artist's Book Through the Activities of the Educational Book ***The River Speaks: The Pedaios River in Space and Time***

The suggested activities at the end of each chapter can guide you, if you so choose, in creating an artist book, either handmade or digital. You too can shape your own story, through words and images, about the waters of Cyprus and their course through time.

What is an Artist's Book?

Artists' books are a visual medium of expression. They first appeared in the early 20th century and evolved into an original and distinctive means of presenting concepts and ideas. A wide range of creatives, such as artists and designers from the fields of art and design, as well as other creative areas, are involved in this type of publishing practices. Artists, illustrators, graphic designers, printers, bookbinders, writers, poets and many others work collectively

or individually to create this type of printed material. Artists' books are not mass-produced; they are designed and made in relatively limited copies. Artists have endless possibilities to experiment and create with this medium. Artistic printed material can result from the use of one or more techniques, such as photography, painting, printmaking, calligraphy, experimental typography, and the combination of the written word with sound and image. At present, the artist's book is being transformed by new technological applications and the widespread use of digital media. The final work may take the form of an artist's book, but it may also deviate from this format. For example, it could be a collection of photographs presented in a specially designed box, a digital output, a comic book, a video, a flip book, an animation inspired by the theme of the artist's book, and so on.²

Figure 3 shows a photographic installation by artist Lia Lapithi, about the Pediaios.³ The project, titled "82.5 km", consists of 33 photographs taken along the river. It forms part of the Cyprus State Collection of Contemporary Art. Lapithi's photographic installation is reminiscent of a wall-mounted book about the Pediaios, which will be the focus of the next three chapters.



Fig. 3. "82.5 km" (photographic installation comprising 33 photographs, 0,78 x 25 m), Lia Lapithi, 2006. Brussels, BOZAR. © Lia Lapithi

2. The information is taken from the Educational Programme for Artist Books of the Department of Design and Multimedia at the University of Nicosia (Nicosia: University of Nicosia), which was prepared in 2018 by Maria Stavride and Evanthia (Evi) Tselika.

3. Lia Lapithi is a Cypriot visual artist with a diverse body of work. Her works have been exhibited in many countries around the world and are held in state, museum, and private collections. More information about the project titled "82.5 km" can be found at: <https://www.lialapithi.com/album/2/info/1.html>

Chapter 1: The River's Springs – From Kionia to Deftera

1.1. Gushing Out of the Mountains

Rivers gush from the depths of the earth, where underground water reserves are created, and supply the surface with water. They carve borders and create riparian zones that have influenced the emergence of settlements and cities since prehistoric times. Rivers are our planet's arteries. They are formed over thousands of years; this also applies to the case of Pediaios.

Pediaios emerges on the earth's surface in the Machairas forest and on the peaks and gorges of Mount Kionia, located in the Troodos mountain range. It is subsequently enriched by the waters of the Pentadaktylos mountain range. The Troodos mountain range is an igneous rock massif, 30 km wide and 80 km long, with its highest peak being Mount Olympus (1,952 m). It was formed in the late Mesozoic era, during the Cretaceous period, in the course of the Alpine orogeny. The mountain range is largely composed of rocky terrain. Within the Troodos region (Kionia) the river flows daily for 6-7 months each year (Neofytides 1995, pp. 11-12).

The springs of the Pediaios River, as well as those of its twin Yialias (with which they meet again in the Mesaoria plain), are located at the peak of Mount Kionia, in the Machairas forest (fig. 4). Several river names can be observed in the area, such as Trivilourio, Livadokhorton, Kaltsas River and Diplopotamos. Springs shyly emerge on mountain tops and mountain ranges. They are often so slight that they are barely noticeable. They depend on the quantity of water and slope gradient on the one hand, and on precipitation volume on the other. Water furrows are one of the initial stages in the formation of a river. The water flows over the surface of the land with great momentum, eroding the soil and transporting landscape elements (soil, rocks, vegetation, etc.). In the Cypriot dialect, the water flows that feed a river are called *αρκάτζια* (arkatzia).⁴

4. The information comes from an interview (a discussion) of Evanthia (Evi) Tselika with Sofoulis Demetriou, on 11/10/2021. Demetriou, a technician of the Geological Survey Department of the Republic of Cyprus, worked for 40 years in deepwater drilling.

As rivers flow downstream from higher to lower altitudes, tributaries join them to form complex hydrological systems, with thousands of streams contributing to the main river flow, where the largest volumes of water are concentrated.



Fig. 6. Pediaios near the Machairas Monastery, 2019.
© Evanthia (Evi) Tselika

George H. Everett Jeffery, curator of the Department of Antiquities of Cyprus from 1903 to 1935, writes in his book about the ancient monuments of the island:

As one approaches the eastern ridge of the Troödos hills dominated by the central peak of Kionia (4,675 ft.) the scenery becomes gloriously wooded. Within these narrow valleys the planes and walnuts, and the stately *Pinus halepensis* grow to a great size and form shady glades covering the winding mule paths and the occasional perennial streams. The last tributaries of the Pediaës Potamos rise at the base of the Kionia massif.

Makhœras Monastery. [The Convent of the Sword].—From a commanding position at the head of a lovely wooded valley, and on one of the highest available slopes of Mount Kionia, this most characteristic of Orthodox monasteries looks towards the northern hills of the island. Its exposed position to the wintry wind, which in Cyprus is often very cold, has been suggested as an explanation of its curious name. The monastery stands at an altitude of about 750 metres above sea level, and the approach to it from the direction of Kappedhes is consequently somewhat steep and fatiguing, but in summer time the weary pilgrim is protected from the sun's rays by wide overarching forest trees, and refreshed by the rarest of sights in Cyprus: a perennial brook which flows from beneath the monastery itself (Jeffery 1918, p. 214).

The archaeologist Ludwig Ross wrote in 1845 that, in the mountains where the monastery of Panagia Machairas is located, there are also the springs of all the prominent rivers of the island: the river of Morphou, flowing north-west into the Bay of Soleas, the two branches of the Pedaios, which fertilise Mesaoria and together flow eastward into the sea near Salamis [here he probably means the River Yialias], and on the southern side the smaller rivers which irrigate parts of the coastal regions between Kitio and Limassol. As Ross supposes, ancient Mount Aoon would have been found at this location, meaning “the hill of the east” for the ancients, since it is said that the rivers Pedaios and Satrachis [Serrachis] rose in Aoon, and Pedaios retains its name to this day without any particular changes (Ross and Cobham 1910, p. 71).

In these wet gullies, hydrophilic plant communities include species such as the plane tree (*Platanus orientalis*), oriental alder (σκλέδρος, *Alnus orientalis*), laurel (*Laurus nobilis*), maple (*Acer obtusifolius*), myrtle (*Myrtus communis*), oleander (*Nerium oleander*), brier (*Rubus sanctus*) and mint (*Mentha longifolia* ssp. *cyprica*), amongst others, which dominate the vegetation.⁵ The plant species found in the forest are estimated to number over 600, of which 27 are indigenous. In the upper river basin, from the headwaters to the village of Kambia, where the altitude is higher, there are deep rivers and streams. The landscape here is rocky, with scrub vegetation and pine trees. Lower down closer to Kambia we observe bushy vegetation, such as golden oak trees (λατζιές, *Quercus alnifolia*), turpentine or terebinth trees (τριμυδιές, *Pistacia atlantica*, *Pistacia terebinthus*), lentisks (σχοίνους, *Pistacia lentiscus*), spiny brooms (σπαλαθκιές, *Calicotome villosa*), rock rose (ξυσταρκές, *Cistus incanus*), as well as thyme, olive trees, carob trees and almond trees (Neofytides 1995, pp. 19-20).



Fig. 7. Riverside lands in the Machairas forest, 2018. © Evanthia (Evi) Tselika

5. Pattichis, G. and Tsouderos, X. (2001). *Το Δάσος Μαχαιρά* [The Machairas Forest] (brochure). Ministry of Agriculture, Natural Resources and Environment - Department of Forests. Nicosia: Press and Information Office.

1.2. Hydrology and Geology as the River Flows Downstream

In the mountains of Pediaios, we can observe volcanic rocks and mainly limestone formations. A distinctive feature is the texture of the rocks, with their peculiar soft shine, which is why they are classified as ophiolitic rocks. The lustre and texture are due to the presence of small amounts of copper. Copper, a semi-precious metal, favours the development and growth of beautiful pine forests, which it nourishes. Copper mining in antiquity demonstrates the mineral wealth of the area.

The ancient kingdom of Tamassos is found at a lower altitude along the main course of the river. In this geographical area and along the riverbanks lies the ancient copper mine of Tamassos, which contributed to the prosperity of the region from the 7th century BC onwards. Today, four villages occupy what comprised the ancient kingdom: Pera Orinis, Episkopeio (early Christian diocese), Politiko (the main part of the ancient kingdom) and Ergates.



Fig. 8. The tributaries of the Pediaios River in the regions of Politiko, Episkopeio and Pera, where the names of (Ancient) Tamassos and the Monastery of St. Irakleidios are included. The location is near the present-day Tamassos Dam. Kitchener Map (2021): Hydrographic Network (1st and 2nd class). © Harokopio University and Sylvia Ioannou Charitable Foundation

Jeffery writes that when you visit the village of Pera, you will notice the remains of the prehistoric settlement of Tamassos, which was once a central city or even the capital of the island. Crossing the dry riverbed, the road leads up a hill surrounded by the Pediaios, and in some places you can see the foundations of houses (Jeffery 1918, pp. 209-210).

Ross walks along the river and reaches Politiko, which is built on the ruins of Tamassos, famous for its copper. The village is surrounded by hills with the same yellowish-red colouring as in Katydata [near the Skouriotissa mine]. Ross writes that the main stream of the Pediaios emerges from a gorge near the south-eastern part of Tamassos. On its right bank, ten minutes away, is the village of Pera, and a quarter of a mile further, the village of Episkopeio. These villages look old and may have been established when Tamassos was still a city as well as a diocesan see. In 1836 villagers digging for water in the dry riverbed between the two villages found a life-size bronze statue in excellent condition (Ross and Cobham 1910, pp. 72-73).



Figs 9a and 9b. The region surrounding the Tamassos Dam, 2015. © Evanthia (Evi) Tselika

The soil in these areas is particularly fertile, resulting in thriving agricultural and animal husbandry production. The watershed between the villages of Kampia and Lakatamia offers the greatest advantages, as it is a lowland basin with fertile alluvial soils. There are both surface and underground river waters, and extensive cultivation of vegetables, citrus fruits, olives, fruit trees and plants that are favourable for livestock farming. Fed by numerous streams and tributaries, the river flows northward across the island during the winter and spring months, replenishing its groundwater reserves (Neofytides 1995, p. 4).



Fig. 10. Composite image of the Tamassos Dam region, showing Pediaios River and its tributaries. Kitchener Map (2021): historic basemap overlaid with a modern basemap (ESRI World Imagery).
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Fig. 11. Tamassos Reservoir and Dam, 2001, Water Development Department Archives. © Water Development Department

Samuel Baker writes that the mountains of Cyprus, are admirably situated, with a watershed upon all sides, thus offering the greatest facilities for reservoirs and pipes that would radiate in every direction (Baker 1879, p. 350). Indeed, the first artificial lakes and subsequent reservoirs were built in Cyprus during the British administration. In chapter three, we will examine two cases, Kouklia and Agios Loukas, along the Pedaios where it intersects with the Yialias River.

After the establishment of the Republic of Cyprus in 1960, many dams were constructed to harness river flow and groundwater in riverside regions. The Tamassos Dam shown in figure 11 was built by the Water Development Department and completed in 2002. It is located in a rich tributary zone of the Pedaios River, at a site where Kitchener's map depicts two merging tributaries (fig. 10). This earthen/stone dam has a lake surface area of 305,000 m² and a catchment area of 45.00 km² (Christofides, Kyrou, Pisti *et al.* 2009, p. 100).

1.3. The Fertile Valleys of the River

Count Gabriele Capodilista from Padua visited Cyprus in 1458. Upon returning to Italy, Paolo Boncambio, a friend of Capodilista, compiled the book *Itinerario della Terra Santa nel 1458* from the latter's notes. He writes that they stayed for a while in the village of Episkopeio and saw beautiful gardens with orange, lemon, carob and other trees called banana trees. As he notes, these trees produce fruit that looks very much like small cucumbers which, when ripe, are yellow, very sweet and delicious. They also observed many fields of sugar cane and that the gardens and fields are watered by brooks with abundant bulbs and onions (Cobham 1908, p. 35).

In the 1832/33 Ottoman Property Survey of Cyprus (2021) the following trees are mentioned: mulberry trees, many types of olive trees, fig trees, almond trees, walnut trees, hazelnut trees, carob trees, lemon trees, orange trees, apple trees, pear trees and quince trees.

The fertility of the riverside soil in the region around the villages of Pera (Orini), Episkopeio, Politiko and Ergates is evident from the data taken from the 1832/33 Ottoman Property Survey of Cyprus (Table 1). If we attempt a comparison with villages in Mesaoria (e.g. Kontea), we find that there are no trees there at all that fall within the economic/productive context of the survey, and therefore we understand the role of water in the fertility of the area under consideration.

Table 1: Information on the villages of Pera (Orini), Episkopeio, Politiko and Ergates, in the 1832/33 Ottoman Property Survey of Cyprus (2021). The property values are in *kuruş* and the area in *dönüm*.⁶

	Pera Nahiye of Orini	Episkopeio Nahiye of Orini	Politiko Nahiye of Kythrea	Ergates Nahiye of Orini
Persons (number of records)	77	14	17	40
Number of households	46	11	15	26
Total property value in <i>kuruş</i>	17,044.50	12,577.50	8,395.50	10,574.00
Land value in <i>kuruş</i>	8,154.50	6,247.50	4,127.50	5,565.00
Land area in <i>dönüm</i>	354.50	287.75	421.75	472
Value of buildings	4,170.00	2,040.00	2,170.00	2,625.00
Total buildings	7	8	5	6
Value of trees in <i>kuruş</i>	4,670.00	12,220.00	674.00	2,180.00
Exact number of trees	296	101	34	109
Value of animals in <i>kuruş</i>	1,800.00	2,750.00	1,874.00	1,304.00
Exact number of animals	176	11	130	116

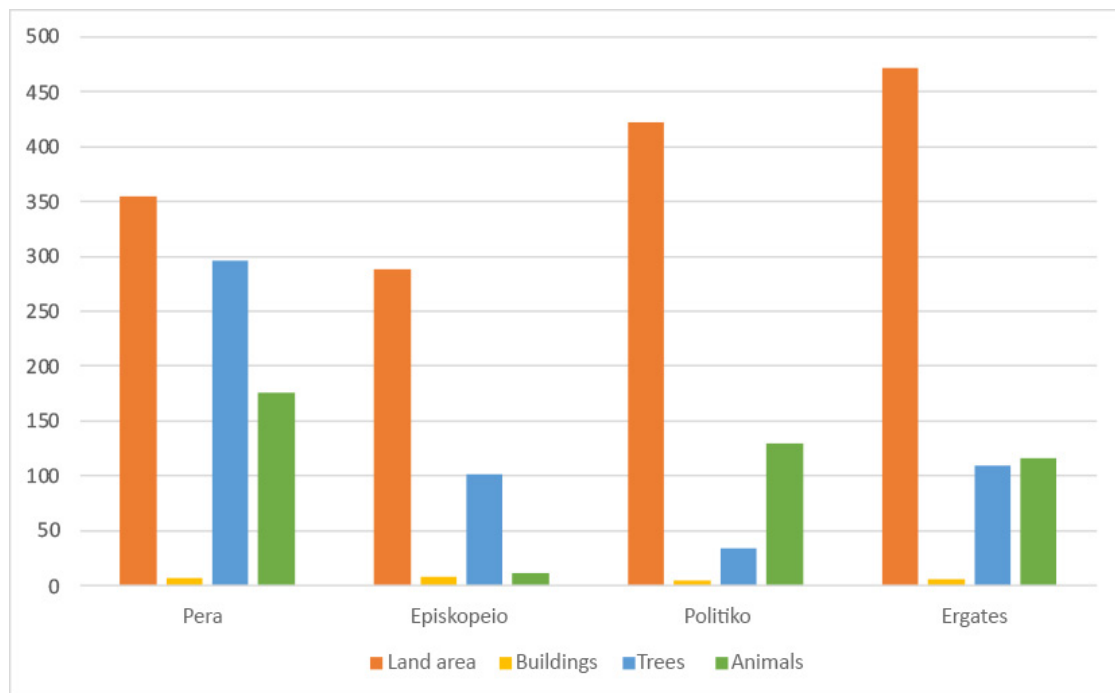


Fig. 12. Graph for land area, buildings, trees, and animals in the villages of Pera, Episkopeio, Politiko and Ergates (1832/33 Ottoman Property Survey of Cyprus, 2021).

6. The *dönüm*, like most Ottoman measurement methods, was not standardised until the second half of the 19th century. There were some variations depending on the period and region of the empire, even within the same provinces. In Cyprus, there were various measurements of the *dönüm*. In the middle of the 19th century, the *dönüm* was estimated at 919.3 m², which was roughly equivalent to one [Greek] *stremma* (Hadjikyriacou, Papadias, Vradis and Chalkias 2021, p. 8).



Fig. 13. Eucalyptus trees in the riverside zone of Tamassos Dam, 2017. © Evanthia (Evi) Tselika

In Cyprus, eucalyptus trees can be found in many places, and it is widely known that wherever they grow, there is water. To address the problem of stagnant water in Cyprus, the British colonial authorities brought eucalyptus trees to the island. As Captain Savile observes, the tendency of the streams to overflow their banks at certain seasons has an evil effect causing the production of large marshes, which breed miasma and cause fevers; to drain these marshes and bank up the channels of the rivers, are, perhaps, amongst the engineering works most urgently needed in Cyprus. The variable condition of the water in the rivers at different times of the year is probably the reason why no fish are to be found in them (Savile 1878, p. 35).

During the winter of 1878 the forest ranger of the Indian Forest Service, A. Wild, arrived in Cyprus. In his 1879 report he proposed planting eucalyptus trees for the reforestation of Cyprus as well as for fuel supply (Thirgood 1987, p. 94). This was also suggested by Paul-Gabriel Madon, the forest ranger of the French Water and Forestry Service. Between 1880 and 1882, during Madon's service in Cyprus, eucalyptus nurseries were established. Later the trees were planted near settlements (villages and cities) to provide fuel wood, and in swamps to dry them out in order to combat malaria, stench, poor air quality, fevers and so on (Thirgood 1987, pp. 44, 94, 101). Between 1878 and 1934 over 70 eucalyptus species were tested in Cyprus (Thirgood 1987, p. 345), and they can now be found particularly along the riverbed. Figure 13 shows eucalyptus trees on one of the tributaries of the Pedaios River flowing into the Tamassos Dam.

The first chapter concludes with the geographical region of Deftera, now merged with Lakatamia and the city of Nicosia. The 1832/33 Ottoman Property Survey of Cyprus records that in Pano Deftera a chiftlik was registered in the name of Hüseyin Ağa's Muslim wife. She owned a 25 *dönüm* grain field, a 1.5 *dönüm* private running water fountain, a 20 *dönüm* medium value cotton field, a 20 *dönüm* barren field, 170 olive trees, one two-storey house with four rooms and one entrance, and two pairs of oxen (1832/33 Ottoman Property Survey of Cyprus, 2021).

1.4. Worksheet for Chapter 1

1. Through various activities, we start our process of creating an artist's book. This initial phase could take the form of a workbook and research notebook, and a journal of text and visuals in physical or digital form (Word, PowerPoint, video format, etc.). We consider how we would like to document our own story about the waters of Cyprus in relation to the Pedaios River, and what our team needs. If we decide that we would like our artist's book to have a physical form, we could use a notebook, a handmade book or a folder to keep the material we create. To create the artist's book, we can even use a cardboard box or display the material in a specially crafted box.

2. We create a new digital file in Word or PowerPoint format to collect information and images, and a folder on our computer to store images and files.

3. We use Kitchener's map web application (<https://kitchener.hua.gr/en>) and focus on the geographic region introduced in Chapter 1. We locate the springs of the Pedaios River and list the names of its tributaries and villages depicted on the map.

Then, using the online web application for the 1832/33 Ottoman Property Survey of Cyprus (<https://cyprus1833.hua.gr/en/householdpersons/>), we explore the individual persons located in the villages in this region and retrieve data on the inhabitants.

4. Ideas for an artist's book, notebook and research collection archive:

A) Write a fictional story about some of the people who lived in any of the villages in the region during the 19th century. The story can be inspired by one of the topics discussed in Chapter 1, for example, the geology or agricultural crops in that region.

B) The team can work together to create a story about one of the tributaries that comprise a river's hydrological system.

5. Experiment with the thematic layers of the Kitchener Map (2021) web application (<https://kitchener.hua.gr/en>)

We can create different versions of the map for the region we are focusing on by activating layers from existing categories (Toponyms and Placenames, Settlements, Points of Interest, Road Network, Hydrographic Network, Telegraph Network, Administrative Division and Land Cover).

To capture images from the map, ensure that your monitor's screen resolution is set to its maximum. Then, after selecting the categories you are interested in, take a screenshot using a programme such as Microsoft Picture Manager.

We can enhance the image by editing it in applications such as Adobe Photoshop (when available) or GIMP (an open-source image editing tool: <https://www.gimp.org/downloads/>). Many of the examples given in this educational book have been created in this way.

We may recall a place in the region mentioned in this chapter that we have visited, and experiment with the map and its layers using the different categories mentioned above.

6. How does water come into our house? What are the water sources inside and outside our house?

Using a smartphone or camera, take a series of pictures showing both running and standing water: water running from a tap or garden hose, rainwater falling, water in a glass, or water in the house tank. Choose some of the pictures and print them out or add them to your digital documents.

At this point it is important to mention ethical ways of taking photos:

- No individuals should be included in our photos unless we have their written permission.
- If we go to a place to take a photo, we do so respectfully and discreetly.
- If the owners are present, we explain the purpose of our photoshoot and ask for their permission.
- If we use images from a book, website, etc., we should always mention their source.

7. Which of the plants mentioned in Chapter 1 do we observe in our surroundings? We can try to sketch some of them (e.g. a whole tree) or create a botanical illustration.

Botanical illustration or botanical painting is the art of representing the form, colour, and details of plants. Like cartography, it combines scientific knowledge with artistic creation. On the one hand, botanical illustration must be scientifically accurate and therefore collaboration between illustrators and botanists is often necessary. On the other hand, plant illustrations have a purely visual function, either when combined with descriptions or when presented as works of art in museums or art centres (Buck and Rice).

8. We look through old photo albums at home or at school, with the aim of discovering photographs depicting springs, rivers, fountains, aqueducts, dams and, in general, anything related to water and its management. We can take inspiration from a photo album for visual forms and photocopy the photos we choose to create a handmade collage. Figure 14 shows a photograph from a photo album kept in the archives of the Water Development Department, depicting an illegal dam on the Pedaios River near Pano Deftera.

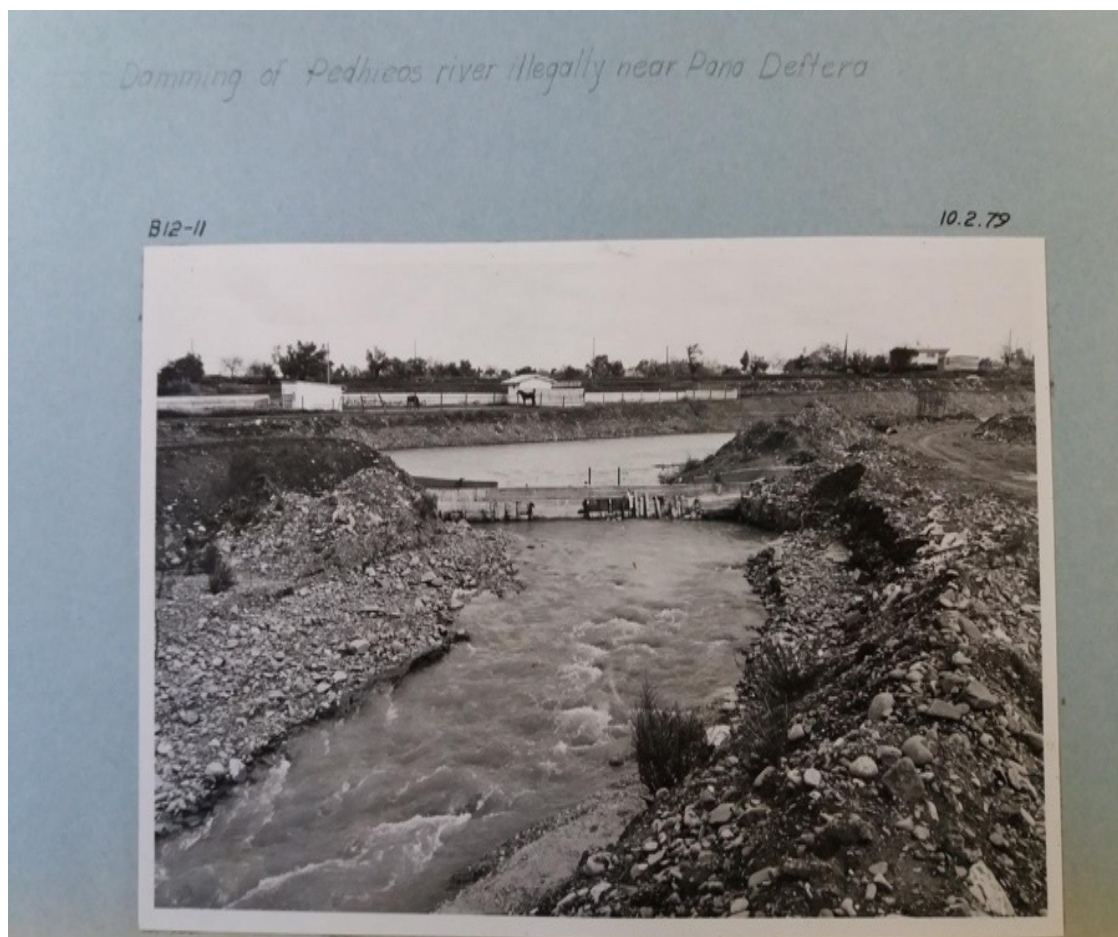


Fig. 14. Photograph from an album belonging to the Water Development Department. An illegal dam on Pedaios near Pano Deftera is pictured in the photo, 1979. © Water Development Department

Chapter 2: Chiftliks and Villages That Grew into Cities – From Lakatamia to Chora (Nicosia)

2.1. The Springs of Chora

Steffano Lusignano, in his work *Chorograffia* (1573), mentions that in Nicosia the air is excellent, the water delicate, the spot pleasantly full of gardens and fruits. Immediately outside the city there are two springs, one called Piadina and the other Aqua Dolce. The latter passes through the city, and supplies several fountains in the palaces, the court, the square and other places (Cobham 1908, p. 119; the names from the Italian original are retained here).

What seems to have made a particular impression on travellers and officials of the empires who visited Cyprus during the 16th century was, on the one hand, the lack of rivers and, on the other, the presence of wells. Ascanio Savorgnan, in his study on the fortification of cities in 1562, writes that there are springs and wells with excellent water quality (Grivaud 2016, p. 211). Tommaso Porcacchi, in 1576, points out that the island has no rivers, and that such streams as exist are mere torrents. In a few places they have channels or chains of wells, or they dig pits and draw up the water by means of wheels (Cobham 1908, p. 167).

The geographical region on which we focus in this chapter is crossed by the Pedaios River. Presumably, this is the area from which water would have been transported to supply the walled city of Nicosia between the 16th and 20th centuries. During this period the riverbed, as well as the alluvial soils from Deftera to Lakatamia and Nicosia deposited by the river, have shifted. The groundwater here creates many springs and wells, something also evident on Kitchener's map.

The Piadina and Aqua Dolce springs mentioned by Lusignano, if they ever existed as natural springs, are believed to have been located in the Lakatamia-Deftera regions and between Strovolos and Makedonitissa, in the riverside lands of the Pedaios. In 1978, Keshishian wrote that there are two springs south of Nicosia: one is called "Nero tis Mavrovrisis" and is located in the valley of the Pedaios near Pano Deftera, 13.6 km from the city, and yields 125,000 gallons per day (Keshishian 1989, p. 269).

Two rows of continuous arrays of wells on Kitchener's map (fig. 15) are shown to begin at these locations. They reach "Anemomilos" (where the Bridge House apartment building on Lord Vyronos Street is located) and the Old Nicosia Hospital. The Old Hospital was located across the street from the present House of Representatives and the Municipal Garden, which was built on land considered to be part of a tributary of the Pedaios (fig. 16). The land was

purchased by the local authorities established by the British in 1902, intended to be used as a park dedicated to the memory of Queen Victoria, who died in 1901 (Michaelides 1977, p. 104). It was from these two points (the “Anemomilos” [windmill] and the Old Hospital) that water was distributed to the city through a regional system of ditches, managed by *Evkaf*.⁷ This system supplied water at specific times of day to public fountains and to houses that had privately owned bobbins (μασούρια) or packing needles (σακκοράφια) [for details, see Chapter 3] (Hadjithomas 2013, pp. 52-53).

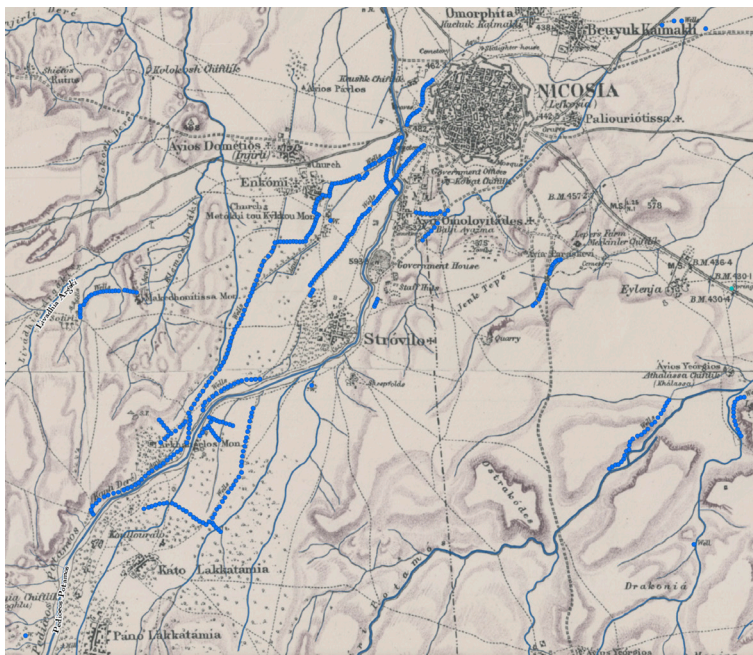


Fig. 15. The wells from Pano and Kato Lakatamia to Chora. Kitchener Map (2021): Points of Interest (Wells, Springs) and Hydrographic Network (1st, 2nd, 3rd class and Aqueduct). © Harokopio University and Sylvia Ioannou Charitable Foundation



Fig. 16. The Nicosia Municipal Garden located in the wider river bank area of the Pedaios, 2016. © Evanthia (Evi) Tselika

7. *Evkaf* is a Muslim charitable foundation that manages properties dedicated/donated by believers to Allah. It is the plural of the word *vakf* (*vakfs*, which were created in Cyprus when the island was transferred from Venetian to Ottoman rule).

2.2. Drawing Water From the Ground: Wells, Water Wheels and Burrows



Fig. 17. Women drawing water from a well. Photograph by John Thomson, 1878.
© Sylvia Ioannou Charitable Foundation, B.0354

The photographer John Thomson wrote that the wells in Cyprus are very deep and that all of them, even at the end of the dry season, are filled with plenty of water. He was impressed by how skilfully the children drew water from the wells, although it is the women who are considered the most skilled at drawing water from wells among Cypriot villagers (Thomson 1978, number 33).

During the period of Frankish and Venetian domination (1192-1489 A.D. and 1489-1571 A.D. respectively) the towns of Cyprus were surrounded by walls and well fortified. The conquerors of the island solved the problem of lack of potable water supplies with a systematic channelling and underground storage of rainwater. In order to eliminate loss of water during the delivery, earthen conveyors and masonry underground channels were used. Moreover, for water supply purposes, but mainly for irrigation, they exploited, modified and increased the systems of chain of wells, the so-called “Laoumia”. When water did not reach the surface they used the “alakati”, a turning wheel, which was turned around by an animal. This way, they were drawing water to the surface and irrigated their private farms, the “Timaria”. (Kampanellas, Omorfos, Ioannou and Fraghkescou 2003, p. 7).

William Bevan, the director of the Department of Agriculture in Cyprus in 1919, writes that the most common method of raising water is by means of primitive water-wheels or “alakatia” [Cypriot Greek: *μαγγανοπήγαδα*], often described as “Persian wheels” and resembling the “sakia” of Egypt. By these the water is carried in earthenware cups attached to the rim of a large vertical wooden wheel fixed in the mouth of a well and made to revolve by a mule or donkey. There is abundant evidence in the remains of old disused Venetian wells and cisterns that in pre-Turkish times, when the country was far more densely populated than at present, a larger quantity of underground water was utilised than now (Bevan 1919, pp. 8-9).



Fig. 18. *Alakati*. Photographer and date unknown.
© Bank of Cyprus Cultural Foundation



Fig. 19. Water tunnel in the Linear Park, Strovolos, 2020. © Evanthia (Evi) Tselika

A chain of wells or *lagoumia/laoumia* [Cypriot Greek: *λαγούμια/λαούμια*, Turkish: *lagim*] is a horizontal underground tunnel of wells, i.e. a connected row of shafts, that help transport water. It was a particularly important technique, developed in various locations, for the transport of water. The continuous tunnel can extend for tens of thousands of kilometres and is essentially an artificial stream, an underground aqueduct. At regular intervals, the underground tunnel is interrupted by long vertical shafts that extend from the surface of the earth and serve both as outlets for excavated soil and as access points to the interior of the tunnel, which, once constructed, requires constant maintenance and ventilation (Alfa 2016, p. 4).

At the beginning of the 1st millennium BC, Persians began to build subterranean tunnels (*qanats*) to draw underground water from the mountains of present-day Iran. These tunnels were horizontal, manually excavated, and large enough to accommodate the person digging them. Extending for several kilometres, the main horizontal tunnel of the *qanat* sloped slightly downward through the alluvial soils and ended at a water outlet situated close to a populated area (village). From that point, water was distributed by channels for field irrigation. The expansion of Islam also led to the spread of this technology during the first Arab invasions (6th and 7th centuries AD) to areas such as Cyprus, North Africa, Spain, and the Canary Islands (English 1998, p. 190).

Due to the Arab invasions a systematic use of wells and underground aqueducts spread in Cyprus, and this is how the cities were supplied with water. Jeffery notes that, in the 15th century, an important aqueduct transferred water from the region of Agia Paraskevi (now very close to the Nicosia Technical School) to the royal dyeing facilities. The spring is often referred to as “ductilia” or “Douzil” (Jeffery 1918, p. 201). The use of burrows and aqueducts continued and expanded further during the Ottoman period. Their use also continued during the British period with the introduction of technological innovations in pumping, as well as in the transport and conservation of water, such as deep boreholes, pipelines, reservoirs and artificial lakes.

Bevan writes that neglected Venetian wells and reservoirs can be observed, which allows us to assume that larger quantities of groundwater were tapped. He points out that there is abundant groundwater in the mountain ranges, which is brought to the surface for agricultural purposes through underground pipelines or by using wells (Bevan 1919, p. 9). Water management, and thus the utilisation of river water, had been a priority for the British government since the late 19th century. In 1896, the Department of Water Development was set up as a branch of the Department of Public Works to deal with irrigation and drinking water. In 1939 it became a separate government department and, since then, it has been under the Ministry of Agriculture, Rural Development and Environment of the Republic of Cyprus.

During the colonial period, imperial engineers and geologists carried out official research studies on springs, water pumping needs and irrigation procedures, as they had prior expertise in these matters. These experts came to Cyprus from other parts of the empire, such as engineer R. Russell, irrigation engineer J. H. Medicott, who came from India, Colonel Elis and geologist Clement Reid. However, although studies were carried out, they were rarely implemented. Raeburn points out that Cyprus is not a new colony where water is free, without pre-existing rights:

It was not a new colony where water is free and without pre-existing rights but a country inhabited from remote times where there are rights, *ab antiquo*, over almost all the surface water worth having and where much of the sub-surface water at reasonable depths is already developed by wells (Raeburn 1945, p. 4).

This is evident in the extensive references to water use found in the land-use categories of the 1832/33 Ottoman Property Survey of Cyprus.⁸

Two chains of wells are marked on Kitchener's map. The first runs parallel to the Pediaios, starting in the area of Lakatamia Chiftlik (Kuroghlu) and the Monastery of Archangelos, skirting Engomi (through the lands of Kykkos Monastery) and ending beyond Pafos Gate at the Zehra-Rokka bastion. The second begins at Eleonon Street, close to the site of the Kykkos B' school, and continues to the location of the Arab Ahmet Aqueduct at the time, channelling water into the city within the Venetian walls.

8. *Vakf* (pious endowment) with running water; private spring with running water; *vakf* spring with running water; spring with running water dedicated to the holy cities; small spring with running water; old spring; small and old spring; spring with running water; spring with running water and a reservoir; another spring with running water; independent spring with running water; enclosed parcel with an *alakati* (chain-pump well); old *alakati* (chain-pump well) with running water; water share; water wheel for running water; running water; plot with running water; garden with a water wheel; barren garden with a well; courtyard with an *alakati* (chain-pump well); field with an *alakati* (chain-pump well); private parcel with an *alakati* (chain-pump well); garden irrigated in winter with a reservoir; private field with abundant water; parcel with an *alakati* (chain-pump well); garden parcel with a well; garden with a well; parcel for a garden with running water; cultivable garden with an *alakati* (chain-pump well); cultivable garden with a reservoir; etc. (1832/33 Ottoman Property Survey of Cyprus, 2021)

2.3. The Aqueducts

An aqueduct is an artificial channel for transporting water to settlements where no nearby springs can be found. During the periods of Frankish and Ottoman rule, as well as during British colonial times, water was transported via aqueducts from springs to supply residential areas (Bağışkan 2009, p. 546). In 1945 Raeburn reports that during the Ottoman period, improvements were made to the management and distribution of water by constructing and maintaining aqueducts and other water transportation systems. The aqueducts of Arab Ahmet and Silahtar were built by, and named after, the two Pashas who financed them, and they supplied Nicosia with water up to 1935. The Arab Ahmet series of shafts ran from south to west, parallel to Pediaios, and was approximately 2.5 miles (4.02 km) long. Silahtar, which is no longer in use, extended parallel to Arab Ahmet for about 1 mile (1.6 km). Due to a severe drought around 1920, and in order to boost the water supply, two pumps were installed near the outlet of the Arab Ahmet Aqueduct (Raeburn 1945, p. 37).

On Kitchener's map, the aqueduct shown very close to Archangelos Monastery (figs 20a and 20b) leads to a chain of wells that supplied water to the walled city and to Silahtar, which in turn supplied the then urban area with water. In the 1832/33 Ottoman Property Survey of Cyprus, Archangelos Monastery is recorded as owning extensive properties with a total value of 13,260 *kuruş* (1832/33 Ottoman Property Survey of Cyprus, 2021).



Fig. 20a. The area of the Archangelos Monastery, where the aqueduct is visible. Kitchener Map (2021): Hydrographic Network (Aqueduct). © Harokopio University and Sylvia Ioannou Charitable Foundation

Fig. 20b. Archangelos Aqueduct today, near the bed of Pediaios River. © Evanthia (Evi) Tselika

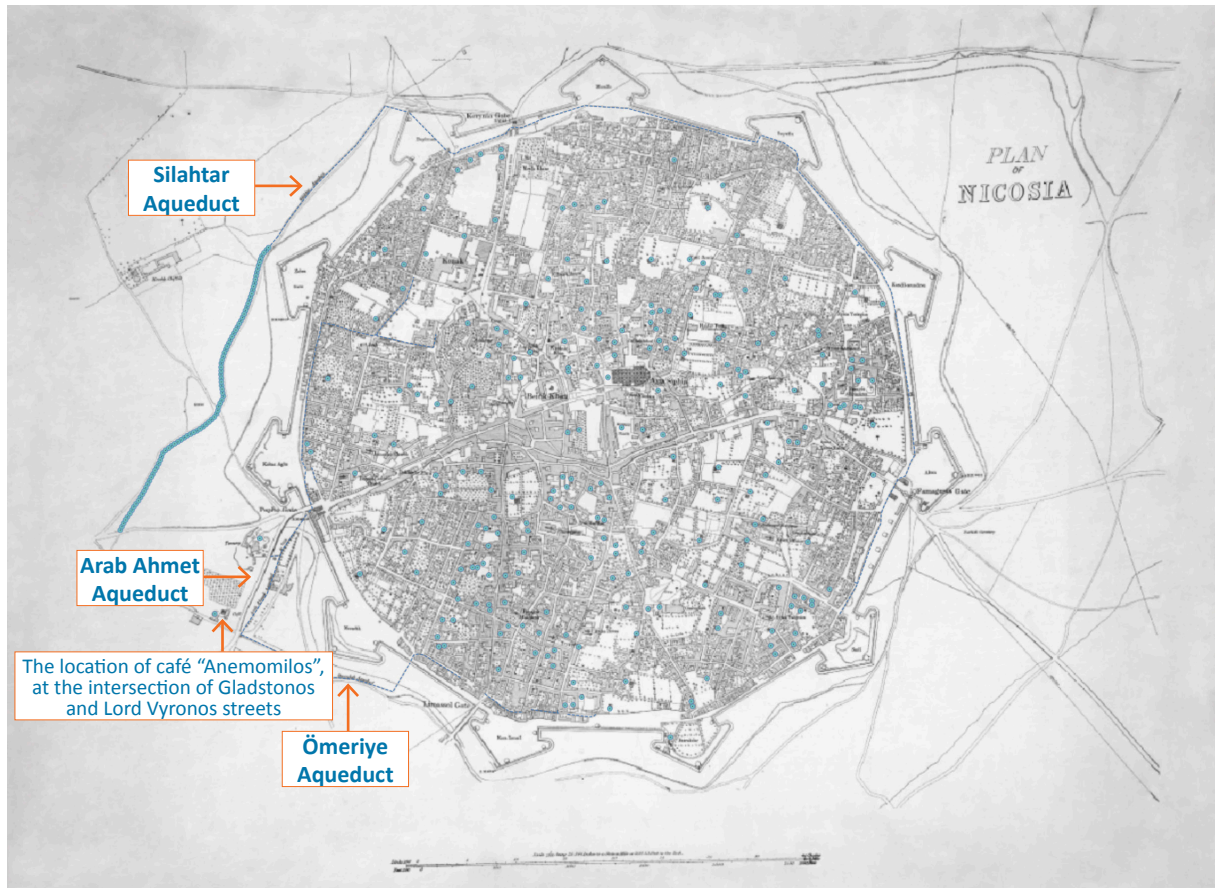


Fig. 21. Kitchener Map (2021): Detailed plan of Nicosia with a selection of thematic layers (Well, Aqueduct).
© Harokopio University and Sylvia Ioannou Charitable Foundation

The governor-Beylerbey Arab Ahmet Paşa financed the aqueduct named after him to supply Nicosia with water in the late 16th century (fig. 21). The spring that fed what Kitchener notes as the Arab Ahmet and Omerie (*sic*: Ömeriye) aqueducts are located four kilometres south of Nicosia and about one kilometre south-west of Strovolos. According to a study carried out during the British colonial period, the hydrological system of Arab Ahmet, which included aqueducts, was based on a chain of 248 wells, 64 of which belonged to the glebe of the Hagia Sophia mosque. The water reached the city through a chain of wells [Cypriot Greek: *λαγούμια*]. At the place where “Anemomilos” [windmill] was located, we can see two branches forming. One branch of the hydraulic system is identified as the Arab Ahmet Aqueduct and it used to come into the city from the Tripoli bastion near Paphos Gate (fig. 21) (Bağışkan 2009, pp. 546-547). The other branch is identified as the Ömeriye Aqueduct that encircled the Venetian walls taking a direction to the east and entering the city somewhere between Paphos and Limassol Gates (fig. 21).



Fig. 22. Church (red triangle), chapels (magenta triangle) and a chain of wells (λαγούμια, as blue dots). Kitchener Map (2021) with selected Points of Interest. © Harokopio University and Sylvia Ioannou Charitable Foundation

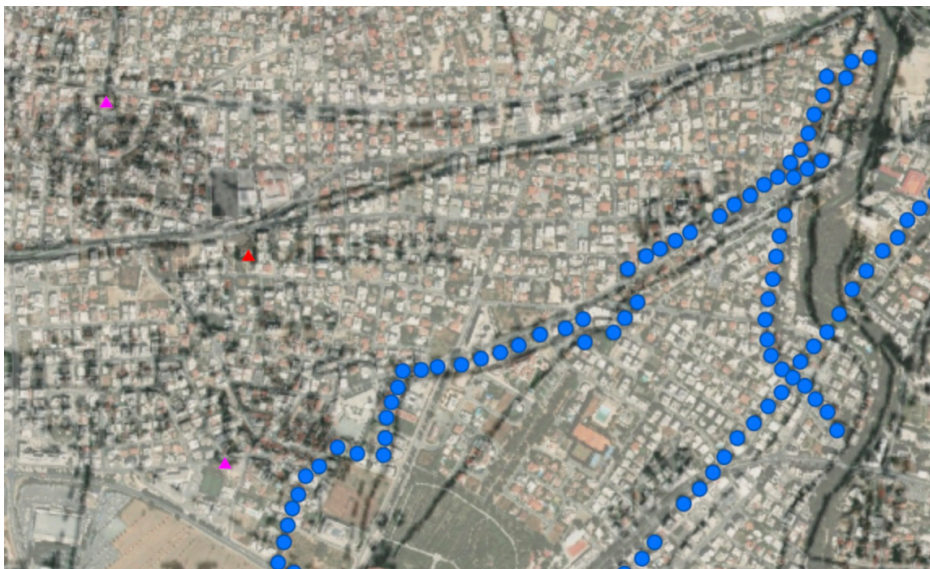


Fig. 23. Composite illustration of the region depicted in figure 22. Kitchener Map (2021): historic basemap (with selected Points of Interest) overlaid on a modern basemap (ESRI World Imagery). © Harokopio University and Sylvia Ioannou Charitable Foundation

Figures 22 and 23 present an example using the Cyprus map web application. In figure 22 Kitchener's map of Cyprus is activated and in figure 23 it is overlaid on a modern basemap (ESRI World Imagery). If we compare the two images, we can notice that Gladstonos Street was the place through which the old Arab Ahmet Aqueduct went through and alongside it we can spot a continuous chain of wells (λαγούμια).

At the location where a spring, a well and a café are depicted on the map, we can surmise that this was the site of the Chrysafini water spring. This spring was next to both the café and the windmill after which the area was named (figs 24, 25, 27).



Fig. 24. “Anemomilos” [windmill], the famous café next to Chrysafini spring. Photo by Haigaz Mangoian,⁹ postcard with publication number 432775, 1930. © Stavros G. Lazarides Collection



Fig. 25. The well-known Chrysafini spring in Nicosia. The base of the windmill can be seen in the middle of the picture, while on either side wagons loaded with water cruses [Cypriot Greek: *κούτζες*] for sale in Nicosia can be distinguished. Unknown photographer, postcard with no publication number, 1920-1925 (Lazarides 1987). © Stavros G. Lazarides Collection

9. Armenian photographer of Nicosia (1907-1970), born in Adana, Turkey. His family settled in Cyprus in 1909 (Lazarides 1987).

Ludwig Salvator, the Archduke of Austria, writes in his book *Levkosia Die Hauptstadt von Cypern*, published in 1873:

On October 26, 1859, Levkosia also suffered from an inundation of the Pidias, a small river which enters the town under the gate of Paphos, and flows out through the gate of Famagosta. Since that time the gate of Paphos is closed at high water. This rivulet usually is half dry, and more like a brook than a river. Besides this stream the town is provided with fresh water by means of two aqueducts, one of which called Arabahmet Su, reaches Levkosia by the gate of Paphos, and gives the best water; the other [Silahtar] follows the boundaries of the city as far as the gate of Cerinja, past the gate of Famagosta, both distributing their water to all parts of the town (Salvator 1983, p. 11).

He continues:

Near the Gate of Paphos, as has been mentioned before, the two aqueducts of Arabahmet Su enter the town. In front of the gate is the timber market, and a little farther Tahahane, shaded by old olive and other trees, where clay jugs are principally made (Salvator 1983, p. 16).

The Arab Ahmet Aqueduct can be seen in figure 26. In Figure 27 we can see a water vendor from the Chrysafini spring in Nicosia (next to “Anemomilos”) that would have been supplied by water from this particular aqueduct.



Fig. 26. Arab Ahmet Aqueduct.
Photograph by Vahan Avedissian,
unknown date (Lazarides 2005).
© Stavros G. Lazarides Collection



Fig. 27. Water vendor at the Chrysafini
spring in Nicosia, late 1940s - early
1950s. Photograph by the photographer
H. H. Pantelidis from Nicosia, postcard
without a publication number
(Lazarides 1987). © Stavros G. Lazarides
Collection

2.4. The British Expansion of Nicosia Following the Ottoman Occupation

A particularly interesting case to focus on is that of the chiftliks, which were of great importance in the context of the Ottoman social and economic system. A great deal of information on this case study is available on the web application “The 1832/33 Ottoman Property Survey of Cyprus” (<https://cyprus1833.hua.gr/en/>). The chiftlik system, considered an evolution of the timar system [private farms] and rooted in feudalism, was formulated in the 16th century and lasted until the dissolution of the Ottoman Empire at the beginning of the 20th century.¹⁰ A chiftlik is a large agricultural area, or even an entire village, owned by a landlord, in which sharecroppers [Cypriot Greek: *κολίγοι*] worked.¹¹ In regions where chiftliks appear on Kitchener’s map (<https://kitchener.hua.gr/en>) we can also see rivers, wells, reservoirs and tunnels for water transport. Several chains of wells were created in the timars that later transitioned into chiftliks.

A *tsiflikas* [Cypriot Greek: *τσιφλικάς*] was the owner of an agricultural district during the Ottoman period, a landowner who held the right of ownership and management of the land (Kampanellas, Omorfos, Ioannou and Fraghkescou 2003). In this chapter, the area surrounding the River Pedaios is examined, with the term “riverside lands of Pedaios” including all the municipalities that today comprise the urban area of the city of Nicosia. Within this urban area, several chiftliks are identified using Kitchener’s map, such as:

- the Lakkatamia chiftlik of Kuroghlu
- the Kobat chiftlik, where the English School is located
- the Kolokosh chiftlik, located in present-day Makedonitissa / Agios Dometios
- the Meskinler chiftlik, near Agia Paraskevi, next to which there is a marker indicating the Leprosy Farm, in where is today Lycabettus
- the Athalassa chiftlik

Although the lands belonging to the Kykkos Monastery operated in a similar manner, they were not considered a chiftlik but farmland belonging to a religious organisation.

The gradual decline of the Ottoman agrarian economic system after its peak around 1500 gave rise to new forms of trade and land ownership. From the 16th to the 18th century, landowners in the distant provinces of the empire gained enough power to defy the Porte (the empire’s central government in Constantinople). Legal reforms concerning large-scale landownership can also be traced in the taxation records found in the web application “The 1832/33 Ottoman Property Survey of Cyprus”, where the reorganisation carried out during the period of Ottoman rule in Cyprus can be observed. In Europe, the Industrial Revolution shaped modernity, which in turn also formed the idea of the nation that was embraced by landowners, the higher classes who looked to the West (Lampe and Jackson 1982).

10. Land in the Ottoman period was classified as public land (*miri*), consecrated land (*vakf*), fully owned land (*mulk*), communal land (*metruke*), and desert land (*mevat*). “All public lands normally included all lands of the empire, fields, pastures, forests, which according to the Holy Law (*Seriat*) belonged to the representative of God on earth, the Sultan.” (Michael 2005, p. 29)

11. Name of serf in the Middle Ages.

As far as Cyprus is concerned, although modernity is generally considered to begin with the acquisition of the island by the British Empire in 1878, historical evidence suggests that its origins can be traced back to the late 18th and early 19th centuries. The two images below show the early 20th-century Pediaios in the new British Nicosia, outside the Venetian walls.



Fig. 28. View of the Pediaios outside the walls of Nicosia's old city. Photograph by Haigaz Mangoian, postcard without publication number, 1930 (Lazarides 1987). © Stavros G. Lazarides Collection



Fig. 29. View of the Pediaios outside the walls of Nicosia's old city. Photograph by Vahan and Aradashes Avedissian, unknown date. © Bank of Cyprus Cultural Foundation

The Pediaios was a key factor in the expansion of the British colonial administration beyond the old city, into areas adjacent to the river. This led to the incorporation of two separate villages, Agios Dometios and Agioi Omoloyites, both of which were not part of Nicosia city in 1832/33 (1832/33 Ottoman Property Survey of Cyprus, 2021).

It is worth noting that the governor's house was also built on a hill between the villages of Strovolos and Agioi Omoloyites, overlooking the Pediaios. As Baker writes, there were wooden structures commanding a wonderful view in every direction. The river Pedias (the largest in Cyprus), when it possessed water, would flow for about 270° of a circle around the base of the position, the sides of the hill rising abruptly from the stream. The dry shingly bed was about 120 yards in width, and although destitute of water at this point, sufficient was obtained some miles higher up the river to irrigate a portion of the magnificent plain which bordered either side (Baker 1879, p. 59).



Fig. 30. Bridge constructed by the British colonialists; it is located near the Nicosia Municipal Garden and the House of Parliament. Photograph by Haigaz Mangoian, postcard with publication number 374846, 1930 (Lazarides 1987). © Stavros G. Lazarides Collection

We cannot be certain whether the Timios Prodromos church, which is currently located very close to the bridge shown in figure 30, is the same one that Jeffery describes as a small modern chapel on the opposite side of the river belonging to the village of Agioi Omoloyites. According to Jeffery, the chapel is built on an ancient crypt or lower church, the arches and some other vestiges of which appear above the surface of the ground. Ancient tombstones with figures in relief have also been used to cover over the aqueduct close by, which in all probability were taken from the ruins of this church (Jeffery 1918, pp. 294-295).

2.5. Zooming In: Strovilos, Strovolos, Strovlylos

Strovolos according to Jeffery was a picturesque village on the banks of Pediaios, embosomed in trees, considerable in size and old, since it was the site of King Henry II's favourite chateau or villa, where he died in 1324 (Jeffery 1918, p. 297). Strovolos was always famous for its fields and its springs.

Savvas Karseras narrates in his book *Στρόβιλος - Στρόβολος - Στρόβυλος* [Strovilos - Strovolos - Strovlylos]:

Strovolos lies in a fertile valley between the hills of Kourtous to the east and Makedonitissa to the west. It is crossed by the Pediaios River. The valley becomes more fertile during the winter because it is irrigated by two ditches [Cypriot Greek: *αυκολιές*, i.e., furrows] of the Pediaios River. The running waters of Strovolos used to come to the surface through a chain of wells interconnected by underground tunnels, which led to the so-called *portolagumo* [Cypriot Greek: *πορτολάγουμο*, i.e., underground tunnels connecting water pits]. From these the water came to the surface and filled the reservoirs to irrigate the fields and orchards. The running waters were the property of chiftliks and families. One of these springs was called the "waters of the Despotis" and belonged to the chiftlik as it filled its water reservoirs which irrigates its orchards. It was named after Archbishop Kyprianos, [Trans. note: in colloquial modern Greek, the word "Despotis" (*Δεσπότης*) is often used to refer to a bishop] who was responsible for setting up this reservoir for the use of the chiftlik.

The Hadjiyiannis family also had running water on their land, which was channelled into their reservoir located on what is now Makedonitissis Street, just above the Agia Marina Care Home.

Nowadays there is no water, as the wells were abandoned and have remained unmaintained. The same is true of the other chains of wells. Another source of running water through chains of wells were the so-called waters of “Arab Ahmed”, which first gushed out of the ground on the east side of the Nicosia Bridge and later at the end of Prodromou Street near the bed of the Pediaios River, next to Giannoudi’s garden.

Another important running water supply, channelled through a chain of wells, was the water of Kykkos Monastery, which powered the large water wheel of the monastery’s flour mill, located where Elise Pool and Makarios Technical School can be found today.¹² It was at this mill that the inhabitants of Strovolos and the surrounding areas used to grind their wheat and other cereals. The water, after powering the water wheel [Cypriot Greek: *αλακάτα*], flowed into the groove, and ended up in the reservoir located north of the Priestly School. The running water from Kykkos Monastery was channelled into a large area of Strovolos at a time when water was not supplied inside the houses by the Water Board. Another body of water that flowed through Strovolos via a chain of wells to the hill of Acropolis is the so-called cemetery water (Karseras 2002, pp. 164-165).



Fig. 31. Based on an oral history, the now-forgotten reservoir (known as the “waters of the Despotis”) was built by Archbishop Kyprianos. © 2020, Evanthia (Evi) Tselika



Fig. 32. The reservoir seems to have been located in the area shown with a pale green colour in the web map application. Kitchener Map (2021): Thematic layer “Land Cover”, with selected layer: “High probability of crop (arboreal or other)”. © Harokopio University and Sylvia Ioannou Charitable Foundation

12. The present-day Technical and Vocational School of Education and Training Makarios III Lefkosias, in Archangelos (<https://tech-makarios-lef.schools.ac.cy/index.php/el/>)

The reservoir seems to have been associated with the chiftlik of the heirs of Hacı İbrahim Ağa chiftlik (it would have been either inside or nearby), who was a member of the corps of the imperial gatekeepers. This particular chiftlik is documented in the 1832/33 Ottoman Property Survey of Cyprus as comprising the following: a field of 450 *dönüm* worth 2,250 *kuruş*, a garden of 5 *dönüm* with mulberry trees worth 500 *kuruş*, 1 house in a chiftlik with 20 rooms worth 4,000 *kuruş*, three old water wheels with running water worth 6,000 *kuruş*, 100 olive trees worth 1,000 *kuruş* and 200 sheep and goats worth 1,600 *kuruş* (1832/33 Ottoman Property Survey of Cyprus, 2021).

2.6. Worksheet for Chapter 2

1. We take a walk along the Pedaios Linear Park, along the Pedaios River, using the mobile app “The River Speaks: Water, Land & People on the Pedaios River” by Harokopio University and Sylvia Ioannou Charitable Foundation (<https://ecoland.hua.gr/en/outcomes/mobile>).

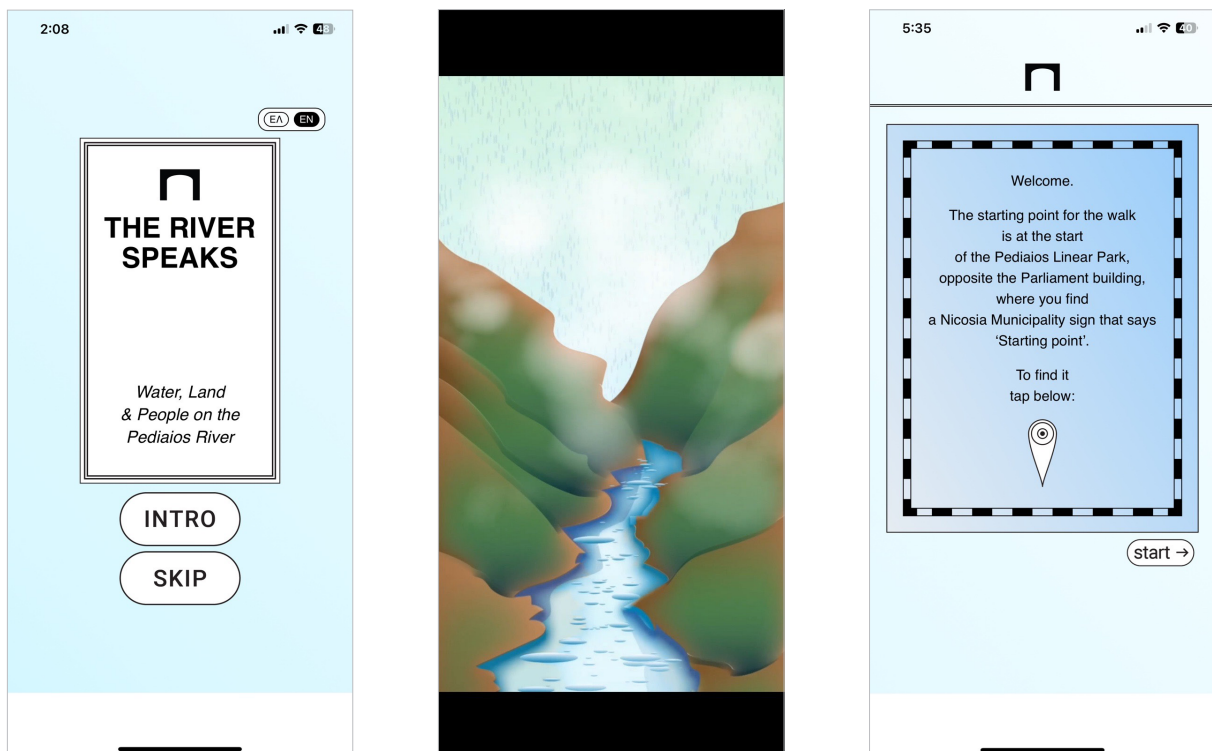


Fig. 33. Screenshots from the mobile app “The River Speaks: Water, Land & People on the Pedaios River”.
© Harokopio University and Sylvia Ioannou Charitable Foundation

The Linear Park begins in the centre of Nicosia and runs parallel to the riverbed of the Pediaios. The mobile app offers an immersive walking experience during which users learn about the cultural history, flora, fauna, and geology of the river. At the same time, through historical maps, postcards, and old photographs, they gain a broader understanding of how the river has changed over time.

2. After completing the walk and using the mobile app, a field activity follows. Using as a reference the book by Nearchos Clerides, a renowned 20th-century Cypriot ethnographer, we read the following passage. We then identify where the sites referred to in the passage are located today and choose one of them to examine its hydrology, geology, flora, landscape, and urban development. We incorporate our findings into the artist's book and experiment with drawing, landscape painting, photography, video and/or land art.

Nearchos Clerides, *Ιστορία τῆς Λευκοσίας* [History of Nicosia], 1959

But the inhabitants were concerned from the early Christian period about the frequent flooding of the river. At that time the dense forests on the mountains and valleys began to be deforested because large amounts of coastal inhabitants began to seek shelter in the inland region of the island, due to the frequent raids of pirates, who were at the time swarming the Mediterranean. The deforestation caused by the colonisation of the inland region resulted in frequent floods and the inhabitants of Nicosia then tried to open up a second path for Pideas to flow. They carved out and deepened a ditch with a northward direction so that in case of a river flood, a large amount of water would shift direction towards the north and thus would not destroy the city. An old oral tradition states that the small turn of the river near the windmill and opposite the chapel of Prodromos represents the original ditch that was opened up since then to collect the excess water. It was here that the two branches of the river were created. The original one followed a straight path from there to Paphos Gate. Another oral tradition says that the new outlet was carved out at the location where the river bends near the bridge of Agios Dometios, next to the hospital. However, the oral tradition adds that the inhabitants, when they foresaw the river flooding, would dam the outlet of the river towards the city, and it was in this way that the river itself created a new path (Clerides 1959, p. 11).

3. Zooming in: creating pages for the artist's book about the Pedaios and its history, using the digital tools of the research project "Economy, environment, and landscape in the Cypriot *longue durée*: a combined analysis using historical data and modern Geoinformatics applications".

Using the web application of the Kitchener Map (2021) (<https://kitchener.hua.gr/en/>):

- We locate on the map a region associated with the riverside lands of the Pedaios.
- We then take a screenshot of this location, using the layers of the Cyprus basemap or the detailed basemap of Nicosia, as well as the layer for the modern basemap (ESRI World Imagery), as in figure 23.
- We search for old photos of this location of interest or of the wider area. Such material can be found in digital libraries, websites with old photographs or digital community pages of specific regions of Cyprus on social networks. For example:
 - the "Apsida" portal of the Library of the Cyprus University of Technology provides access to thousands of digital files (photos, stamps, videos, books) with free access (<https://apsida.cut.ac.cy/items/browse>).
 - social media networks, such as the Facebook page/group "Yesteryears of Nicosia" (<https://www.facebook.com/groups/lefkosia/>).

We will create at least two pages in the artist's book using the images and the information we have collected about our chosen place of interest from the web application of the 1832/33 Ottoman Property Survey of Cyprus (<https://cyprus1833.hua.gr/en/>).

An interesting example from another region, involving a park on land bordering the tributaries of Pedaios, is provided below.

Zooming in: Athalassa

Athalassa Park is a national park that includes a dam and artificial lake built in 1962 near the Fytoria (plant nurseries) and the agricultural and livestock facilities of the Department of Forests. Athalassa Dam is located on the Vathis Stream, which connects to the Xeri River (as depicted on Kitchener's map), a tributary of the Pedaios River (*Dams in Cyprus 1962-1963*).

Neofytides writes, regarding this particular area:

Athalassa Basin 84 km²

The region here is distinguishable by its soils. It is covered by the Lefkosia and Athalassa limestone formations. It is a lowland area and somewhat hilly. Its soils are cultivated. However, waters are relatively in short supply. The region has a low rainfall of 330 mm. So, surface water is scarce. Groundwater is also scarce... In the region here lie the Athalassa Forest, a state forest of 8.8 km². There is the small Athalassa Dam, the Government Mansion, and the plant nursery. There is a Public Park in operation since 1994. The 3 communities of Latsia, Cheri and Geri owe their development, to a certain extent, to the capital city and their good transport link with it (Neofytides 1995, p. 20).

The Athalassa chiftlik was located near Aglantzia, a site included in the 1832/33 Ottoman Property Survey of Cyprus. From that survey, we learn that 47 people lived there in 28 households. This region does not appear to have had many trees in 1832/33, as only 48 are recorded. However, it seems to have had substantial livestock production, with 606 animals recorded. For your convenience, this is the direct link to the page about Aglantzia in the web application: https://cyprus1833.hua.gr/en/households/?belongs_to=5344

At the beginning of the 20th century, the Athalassa chiftlik was converted into plant nurseries and farms (livestock farms) of the Department of Forests, which are still in use today. They are located in the area of the Athalassa National Park, which comprises a series of parks, plant nurseries, artificial ponds, buildings constructed during British rule, walking paths, fields, etc. The purchase of the chiftlik, with the aim of its redevelopment, took place at the start of the 20th century under the direction and on the initiative of Panagiotis Gennadios. He was a Greek botanist and agronomist, best known for his works *Ἑλληνικὴ Γεωργία* [Hellenic Agriculture] and *Λεξικὸν Φυτολογικόν* [Phytological Dictionary], and was also the director of the Department of Agriculture in Cyprus from 1896 to 1903.



Fig. 34. The greater region of Lakatamia, Latsia and Agios Georgios/Athalassa chiftlik, where the Tseriou River (Xéri Potamó) flows through. On the right side of the image is the park area, near the Leontari Mountain, the chiftlik and the wells. Kitchener Map (2021): Hydrographic Network (1st, 2nd, and 3rd class) and Points of Interest (Wells). © Harokopio University and Sylvia Ioannou Charitable Foundation

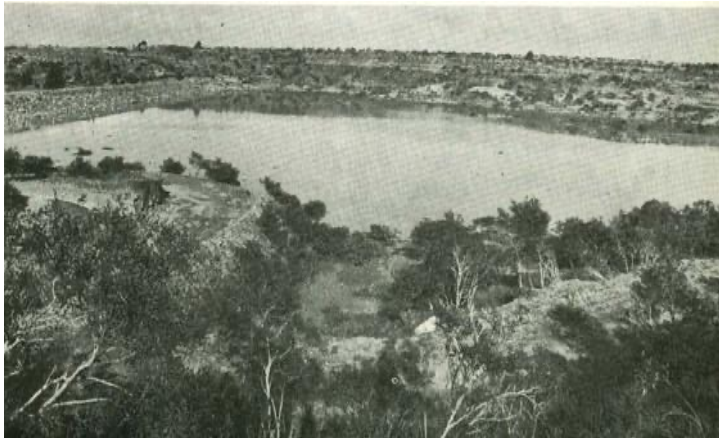


Fig. 35. Athalassa artificial lake and dam. Photograph of unknown date, from the Water Development Department publication *Dams in Cyprus 1962-1963*. © Water Development Department



Fig. 36. Fountain in Aglantzia. Photographer and date unknown. © Municipality of Aglantzia

4. We try to organise a walk with someone who can share information and stories about the waters and rivers of Cyprus with our team, ideally while walking in a river-related area. We record something we find interesting from the story and photograph the landscape.

Our walk was with Noni Drakou, a resident of Strovolos who, together with a team, is trying to prevent the construction of a highway through the fields of Strovolos, in order not to destroy the ecosystem of an important green heart of the city. She showed us the “waters of the Despotis” (an old reservoir that still exists today; fig. 31) and trees (especially plane trees), planted in the early days of British rule in Cyprus, that will be cut down to create the highway. The photograph in figure 37 is from the walk.



Fig. 37. The riverbed in Strovolos during the summer of 2020.
© Evanthia (Evi) Tselika



Fig. 38. The riverbed in Strovolos during the winter of 2019.
© Evanthia (Evi) Tselika

5. We watch the documentary “The Holes of Cyprus”, created by architects Andreas Panagidis and Kleanthis Roussou, about water pipelines and chains of wells:

<https://www.youtube.com/watch?v=iB2p3MUwAY0&t=0s>

We record and document methods of transporting water, for example wells, pits, water tanks, hoses and water pipes. This can be done by drawing on the pages of our artist’s book, by collecting digital images of the above, or by combining both approaches.

Chapter 3: The Mature and Aging Pedaios – From Chora to the Klapsides

3.1. La Citadella: Springs, Waters, and Gardens in the Medieval Chora

In this chapter, we will go even further back in time, to Nicosia during the Lusignan period, when the city was surrounded by walls extending from the present Municipal Garden to the markets of Agios Antonios and Palouriotissa. This was the Nicosia within the walls erected around 1375, which remained until they were demolished to construct the Venetian walls between 1567 and 1570 by Giulio Savorgnan. At that time, the Pedaios flowed through the city, with stone bridges connecting the northern and southern parts. In 1483 the Dominican monk Felix Faber described Nicosia and the Pedaios: a large torrent runs through its midst, which at certain seasons rushes down in a mighty stream: when I was there it had not a drop of water (Cobham 1908, p. 41). This visit took place during the medieval Lusignan period, when Nicosia was known as “Viscontado di Nicosia”, and at which time it comprised the city encircled by walls, plus a broader region extending roughly as far as Kythrea (now Deyrmenlik), a name that was preserved on French maps as late as 1720 (Jeffery 1918, p. 4).

In this chapter, we will focus on the Frankish and Venetian Chora, as well as on the eastern course of the Pedaios, which flows through the island’s largest plain, Mesaoria, and empties into the sea at Klapsides, near the village of Engomi, between the ancient city of Salamis and modern-day Famagusta.

3.1.1. The Waters and Gardens of Medieval Nicosia Under the Lusignans

The wider region of Nicosia has been continuously inhabited since antiquity, when the city was known as Ledra. In 1191 Richard the Lionheart defeated the Byzantines and, a year later, sold the island to Guy de Lusignan. The Latin Lusignan family ruled the island from 1192 until 1489, when control of Cyprus passed to Venice. The Lusignans had fortified the city of Nicosia with walls enclosing a larger area than the Venetian walls that still survive today (Keshishian 1989; Clerides 1959; Coureas, Grivaud and Schabel 2012).



Fig. 39a. Map of Cyprus by Claudio Duchetti, published by Giovanni Orlandi, Rome 1602. © Sylvia Ioannou Charitable Foundation Collection (M.0006).

Fig. 39b. Map detail depicting medieval Nicosia, Famagusta and Pedaios.

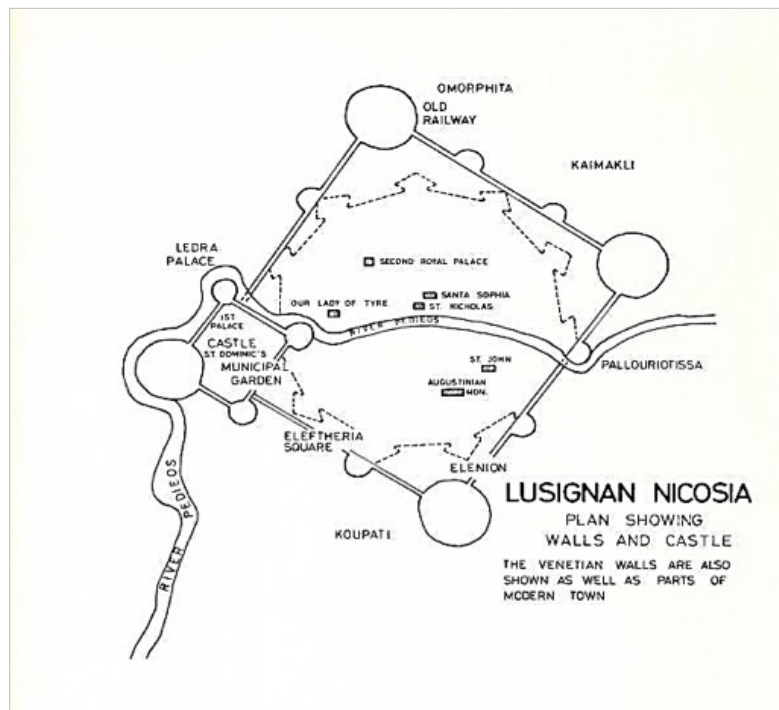


Fig. 40. Map drawn by Maratheftis in 1959. It shows the Lusignan walls of Nicosia in relation to the Venetian walls, Pedaios and parts of the modern city (Maratheftis 1977, between pp. 64-65). © Frixos Maratheftis

Jeffery writes that the enclosed medieval Lusignan city would have had a rather irregular shape, with the southern wall reaching close to the low hills extending from Aglantzia to the present government offices and the river (Jeffery 1918, p. 22). A tradition survives that in the middle ages the river flowed through the city, and that there was a greater supply of water in those days than at present (Jeffery 1918, p. 99). It is more likely that the river flowed either close to or through the city when it was still unfortified, but upon the completion of the defensive walls in 1375 it flowed around the fort, creating a circumferential ditch that would be filled with water. At the same time a moat with a drawbridge –which could also be filled with water– separated the walled city from the mainland, and this would probably have led to the assumption that the river flowed through the city (Jeffery 1918, pp. 99-100).

Jeffery quotes Felix Faber, who wrote during his visit in 1483 that the Royal Palace of Nicosia was in ruins, as well as Duke Otto von der Pfalz, who visited Nicosia in 1460 and wrote that its walls were crumbling and therefore useless for its defence (Jeffery 1918, p. 22).

Ascanio Savorgnan states in his study of the fortifications of the cities of Cyprus in 1562 that neither the nearby nor the distant [mountains] pose a threat to the city, which has a perimeter of four miles and an almost circular shape with old-style, small round towers (Grivaud 2016, p. 211).



Traces of the medieval moat of Nicosia near Lykavittos Police Station.

Fig. 41. Traces of the medieval wall and moat near the Lycabettus police station in the city centre. Photographer and date unknown (Maratheftis 1977). © Frixos Maratheftis

Particularly well known to this day is the catastrophic flood that occurred in the 14th century in the medieval city of Lusignan, documented by Leontios Machairas in his work “Recital Concerning the Sweet Land of Cyprus, Entitled ‘Chronicle’”:

Hugues de Lusignan, his nephew, was crowned king, and I will relate the events that occurred in his time. On 10 November 1330 A.D., there was a great disturbance from the rain and, at night, the river of the city of Nicosia came down with such violence that it uprooted many trees, carried them into the city, and blocked the bridge of Sinescardo. The river flooded and spread over the city, many houses were destroyed, and many people drowned. The height of the water is marked for commemoration with a nail on St George of Ornithon, and with another nail on the house of the Count of Tripoli, opposite the fortress. For those who drowned, and for commemoration, there is a litany to this day on 10 November (Machairas and Pavlides 1995, p. 53).

The philologist Ioannis Sykoutris published a handwritten pamphlet informing us that another great flood struck the city four centuries later: On Wednesday, 7 November 1789, a great river flooded and swept away the city’s bridge (Sykoutris 1924, p. 159).

Travellers who wrote about medieval Nicosia, before the Venetian walls were built, repeatedly referred to the stone bridges over the river that flowed through the city. Nicolai de Martoni visited Cyprus in 1394 and writes: Nicosia is larger, I consider, than Aversa, and through its midst flows a brook which a man can cross on stones when it does not rain. When it is rainy weather a great quantity of water runs down, and so there are several bridges over the stream, some of stone and some of wood, by which men cross during rain (Cobham 1908, p. 26).

Some texts refer to five bridges and others to six, which would have made it easier to get from one side of the city to the other. There were both large stone bridges and smaller wooden ones.

- The bridge of the Holy Apostles or Peter and Paul
- The bridge of Saint Dominic
- The bridge of Seneschal (Seneciallo or Sinescardo)
- The bridge of the Exchange or the Bridge of the Money Changers
- The bridge of the Jews
- The Berlina bridge which goes by many names: the bridge of the prison, of the square, of the Kato Mesi, of the Yarn Market, of Pilliris

It is believed that during medieval times, close to today’s Paphos Gate, the monastery of Saint Dominic occupied an extensive area. The bridge of Saint Dominic is thought to have been named after it, either because of its proximity to the monastery or because it directly served it. Keshishian writes that in 1949, near Paphos Gate, under the northern end of Electra House (Cyprus Telecommunications Authority/Telegraph Office), the pillar (facing north to south) of the arch of a stone-built medieval bridge was discovered. Walls measuring 6.7 m in length

were found below the present ground level. The opening was 2.74 m long and 2.9 m high (Keshishian 1989, p. 65). In 1483 Felix Faber reports that an archbishop's palace was joined to the church, inside the castle where the monastery was located. High walls protected it, with the river surrounding it, and access was by means of a stone-arched bridge (Cobham 1908, pp. 43-44).

John Locke, who visited Cyprus in 1553, writes:

The sixt day we rid to Nicosia, which is from Arnacho [Larnaca] seven Cyprus miles, which are one and twentie Italian miles. This is the ancientest citie of the Island and is walled about, but it is not strong neither of walles nor situation: It is by report three Cyprus miles about, it is not throughly inhabited, but hath many great gardens in it, and also very many Date trees, and plentie of Pomegranates and other fruites (Cobham 1908, p. 71).

The gardens of the medieval city, when the Lusignan walls still stood, were quite famous, judging from travellers' accounts. The silk merchant Jacques Le Saige visited Cyprus in 1518 and writes: A horse turns a big wheel, and many earthen pots are fastened to this wheel, which pour out a wonderful quantity of water, and there are many small pipes in the garden by which the water is distributed. There is a great abundance of fruit-bearing trees, mostly pomegranates, and under the trees the ground is completely covered with gourds, melons, cucumbers, and other good things. Were it not for these wells there would be no dainties in Cyprus, whereas there are so many that it is a wonder (Cobham 1908, pp. 58-59). In 1562 Ascanio Savorgnan confirmed that the city was full of open spaces because of the many gardens (Grivaud 2016, p. 211).

A similar observation was made by Martoni, who was in Nicosia in 1394:

In this city are monasteries and places, of S. Francis to wit, of S. Dominic and S. Augustine, which are very large and fair, and each monastery has two cloisters, one large and another small, with oranges and other fruits. Within the city are many gardens and orchards, and fields sown with green stuff, wheat and barley. And truly near the monastery of S. Augustine I saw a field sown with wheat and barley within the walls of the city of about 30 modia (over 6 acres). I saw too the gardens of S. Theodore, which is a church of Nuns, also within the walls of the city, of cabbages and sundry other fruits, which are of about 20 modia (over 4½ acres) (Cobham 1908, p. 26).

The medieval royal garden of Pefkou (in French "le jardin du Pin"), within the walled city, was also well-known, as we learn from a document dated to 1468. It seems to have been named after a large and probably ancient pine tree (Weaver 2006, p. 6).

As the wet season lasts only two or three months a year, Nicosia has always depended on its springs. A 1563 expedition states that its most important spring was the so-called "la citadella", which fed the public fountains and supplied water to the northern part of the city through a system of ditches. It is possible that the water supply also determined the construction of the medieval city fortress founded by the Latins around 1370. Later, in 1530, a network of pipes was built from this spring to supply water to the second palace. A magnificent public fountain was located in the "Piazza Superior". Another important spring was located in the

Latin convent of Madre Misericordia (Coureas, Grivaud and Schabel 2012, p. 117). In 1553 John Locke observed that there was a fountain dedicated to Saint Mark in the city, which was used every eight days to water the gardens (Cobham 1908, p. 71).

3.1.2. Pediaios and the Remodelling of the Forts by the Venetians

Abbot Giovanni Mariti, having lived in Larnaca during the 18th century, states that Nicosia is set in the middle of a vast plain almost in the centre of the island: mountains and hills surround it on all sides at a distance of ten miles. From the time of Constantine the Great to 1567 its circumference was nine miles. The Venetians to make it more compact and easier of defence, reduced it to three, and rounded it off with eleven bastions and three gates. The other two-thirds of the city they levelled to the ground, sparing neither churches nor palaces, the foundations of some being still in many places to be seen (Mariti and Cobham 1909, p. 39).

Steffano Lusignano writes, in his book published in 1573, that there were about 250 to 300 churches in Nicosia, an excellent city with a perimeter of three leagues, or nine miles, and many large gardens. The old city had a fortress built by James I (1334-1398), which enclosed the palace and monastery of Saint Dominic and was surrounded by the waters of the river, which flowed into the moat. When the Venetians built the new fortification walls (fig. 42), they destroyed the fortress, the palace and two drawbridges (Cobham 1908, p. 120).



Fig. 42. Nicosia, anonymous map (ca 1571). Pediaios is pictured flowing through Nicosia while the Venetian walls appear already built. The river is crossed by five bridges. © Sylvia Ioannou Charitable Foundation Collection (M.0808)

These walls still surround old Nicosia and remain the most distinctive feature of our city. The Venetians ruled the island from 1489 to 1571, using Nicosia as their administrative centre. Having recognised the Ottoman threat, they decided to fortify the cities of Cyprus more effectively. However, in 1562 Ascanio Savorgnan wrote in a study, during his visit to the island, probably at the invitation of his brother Giulio, that he did not agree with new fortifications for Nicosia, as the city was not adjacent to the sea (Grivaud 2016, pp. 163, 166).

The army engineer Sforza Pallavicino proposed refortifying the city, and Giulio Savorgnan oversaw the design and construction of the new fortifications. As the engineer responsible for building the Venetian walls of Nicosia, in a letter to Sforza Pallavicino dated 27 May 1567, he stated that it would be impossible to construct a fortification that included both the city and the seasonal river, citing the following reasons:

- The spring is so far from the city that to incorporate it would have required a twelve-bastion enceinte, but such a fortification would not have protected any houses.
- The citadel would have faced the hills, from which the city needs to be protected.
- The terrain around the fountain is rocky.
- The river being so nearby, it would have been necessary to build several bastions on muddy ground, delaying construction.
- To build such a citadel would be to treat islanders as potential rebels, an idea that nobody accepts (Grivaud 2016, p. 299).

A few months later, on 15 November 1567, in a letter to the Doge, he states that during the month of October the orillons of the bastions were completed, except for the one at the Caraffa bastion, which has been left out in order to see whether or not the water from the river can be diverted, as the *rettori* stipulated in their plan [...]. It rained heavily at the start of November, which should result in good harvests next year. The river has followed its specified course without any trouble, meaning that work can begin on the orillon at the Caraffa bastion, situated exactly at the old mouth of the course once followed by the Pediaios (Grivaud 2016, p. 369).

Peristianis refers to the change of the river's flow in the eastern part by recording the words of an elderly man who remembered the following:

The river flooded in 1859 and carried away trees which stood before the bridge and clogged it up [here the reference is about the bridge of Sinescardo] because at that time it was smaller. Because the water flow was now obstructed, the water overflowed the riverbanks initially from a point near the present windmill of Mr. C. Papadopoulos and then from Paphos Gate, which, as the old man says, the Turks did not have the foresight to close it in time, and the water entered the city and caused great destructions to the houses, shops, etc. This old man added that the present large, covered sewer of Nicosia, of which we make extensive mention above, commonly called the "Kotzirkas River", was then uncovered and flooded at the same time by the waters of the city causing damage to houses. The old man says that the Kotzirkas River was covered from the time of the English occupation onwards. So it was the communication of the Kotzirkas tributary, which the Venetians cut off from the main bed of Pediaios, and not the bed of the old Pediaios, as the Abbot Mariti claims (Peristianis 1910, pp. 760-761).

Eight months before the completion of the walls, Giulio Savorgnan was ordered back to Venice. He was then replaced by Colonel Leonardo Roncore, who worked on completing the project until the arrival of the Ottomans in 1570 (Maratheftis 1977, p. 79). When Selim II began the siege (figs 43 and 44), the moat around the city had not been fully dug and the walls had not been fully filled in.

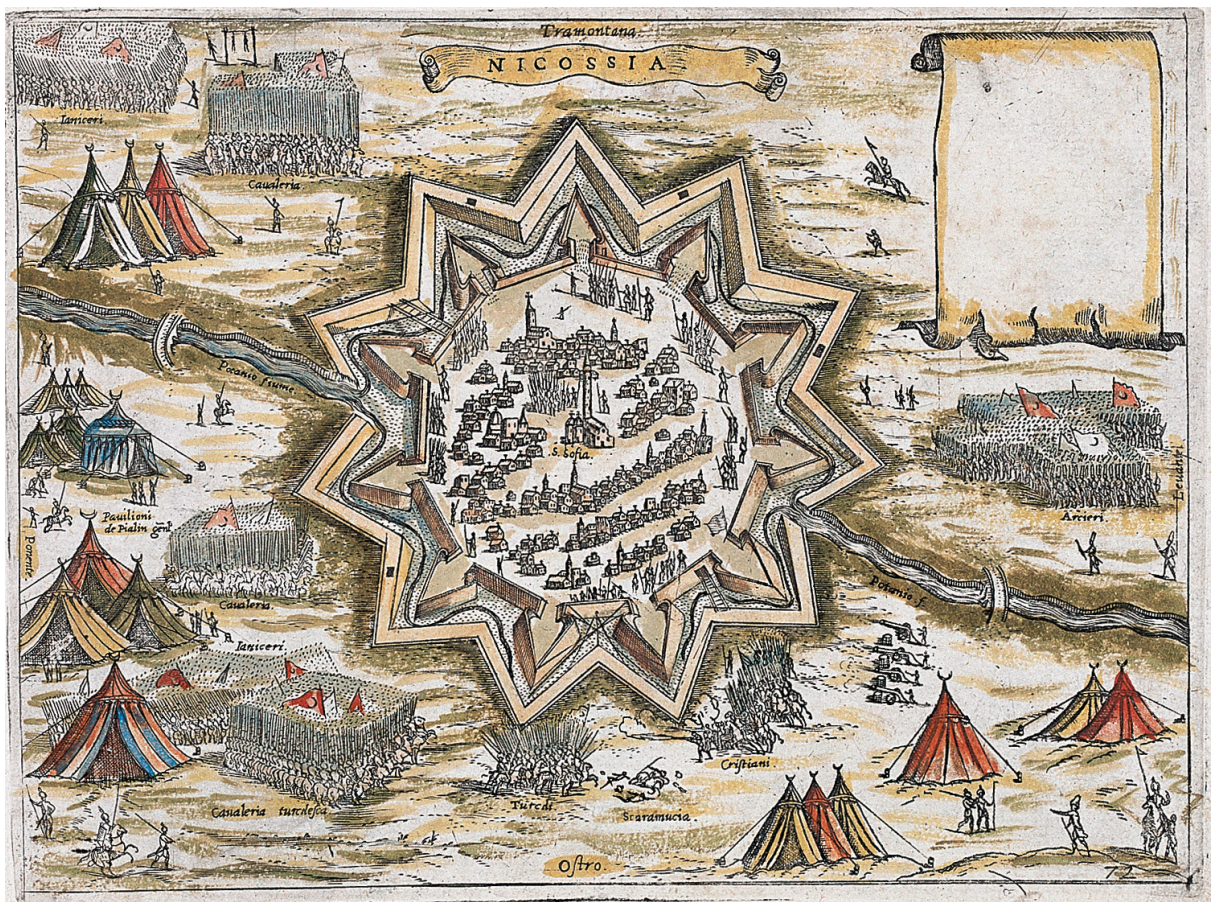


Fig. 43. Nicosia from a drawing by Giovanni Francesco Camocio (Venice, ca 1575). The siege of the city by the forces of Selim II is depicted, while two bridges of Pedaios can be seen outside the city walls. © Sylvia Ioannou Charitable Foundation Collection (M.0303)

In his book *Chorographia* (1573) Steffano Lusignano mentions that in Nicosia, before it was controlled by the Venetians, the torrent ran through the centre of the city. It entered the city at one location but exited from three. In 1567, when the city was fortified again, they left the torrent outside the walls (Cobham 1908, p. 120). Jeffery writes in connection to this that Giulio Savorgnan in his drawings (preserved in the Biblioteca Ambrosiana in Milan) included a water ditch in the new moat, and based on this evidence, he assumes that the water of Pediaios, which in his time was supplying the city through aqueducts, would formerly have filled the moat while the inhabitants depended on their “Persian wheel” wells for their water supply (Jeffery 1918, p. 100).



Fig. 44. The siege of Nicosia by Selim II, in a drawing by Balthasar Jenichen (Nuremberg, 1570). © Sylvia Ioannou Charitable Foundation Collection (M.0297)

Topographical engineer Basil Stewart writes that Nicosia is a walled city with about 14,500 inhabitants. He describes the walls as circular, three miles in circumference, and not as complete or as high as those in Famagusta. There are two central gates for entering the city, namely Keryneia Gate to the north and Famagusta Gate to the east, while the gates of Paphos and Morphou are simply openings in the walls. He also notes that, when the Venetians rebuilt the city walls, the Pediaios was diverted into a canal outside those walls, whereas formerly it used to flow through Nicosia, which must have greatly improved the general health of the community (Stewart 1906, pp. 129-130, 132).

3.2. Waters Within the Walls of Nicosia During the British Colonial Period

In 1878, the same year that Kitchener began surveying the island, and specifically on 30 July, Sir Garnet Wolseley reported that the surface ground was furrowed by torrents of rain, although water was then scarce and wells few. What was mapped as a river was nothing more than scattered pools of water. As he noted, some three or four aqueducts supply the city with good fresh water. Without them the place would be uninhabitable (Wolseley 1991, pp. 22, 27). Captain Savile was clearly writing in a different season, since he states that the water supply is plentiful and that, when it first enters the city, the water is cool, clean and of excellent quality (Savile 1878, p. 41).

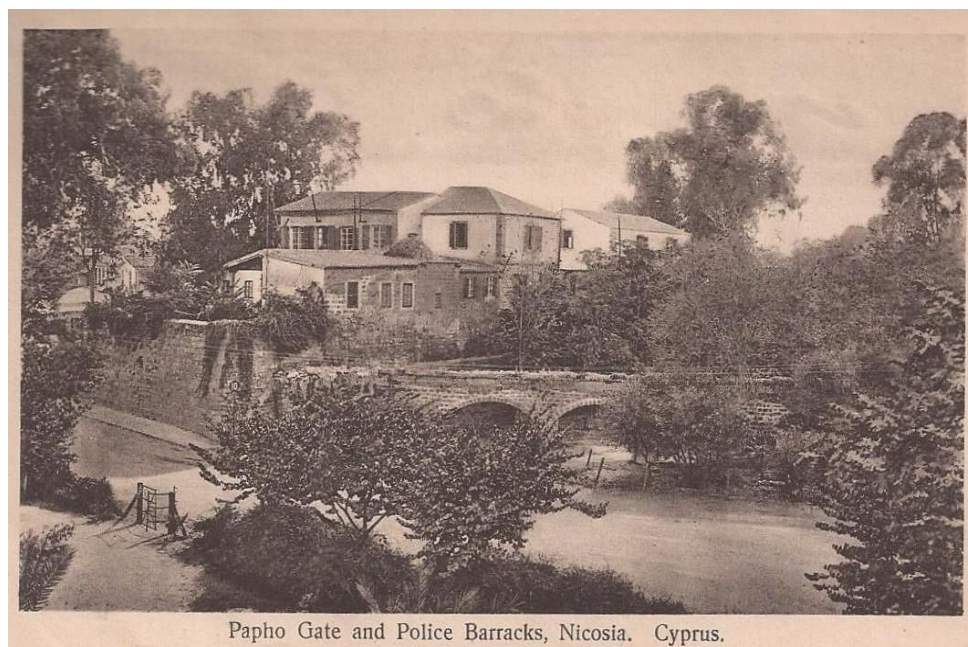


Fig. 45. Paphos Gate and the police facilities; the Arab Ahmet Aqueduct can be seen in the foreground. Photograph by Ioannis P. Foscolo,¹³ postcard with publication number 1495/27, 1923 (Lazarides 1987, p. 229). © Stavros G. Lazarides Collection

13. Ioannis P. Foscolo, a Frankish-Levantine photographer of Limassol, was an official photographer of the British troops and had an artists' photo studio at the intersection of Agiou Andreou and Ifigenias streets.

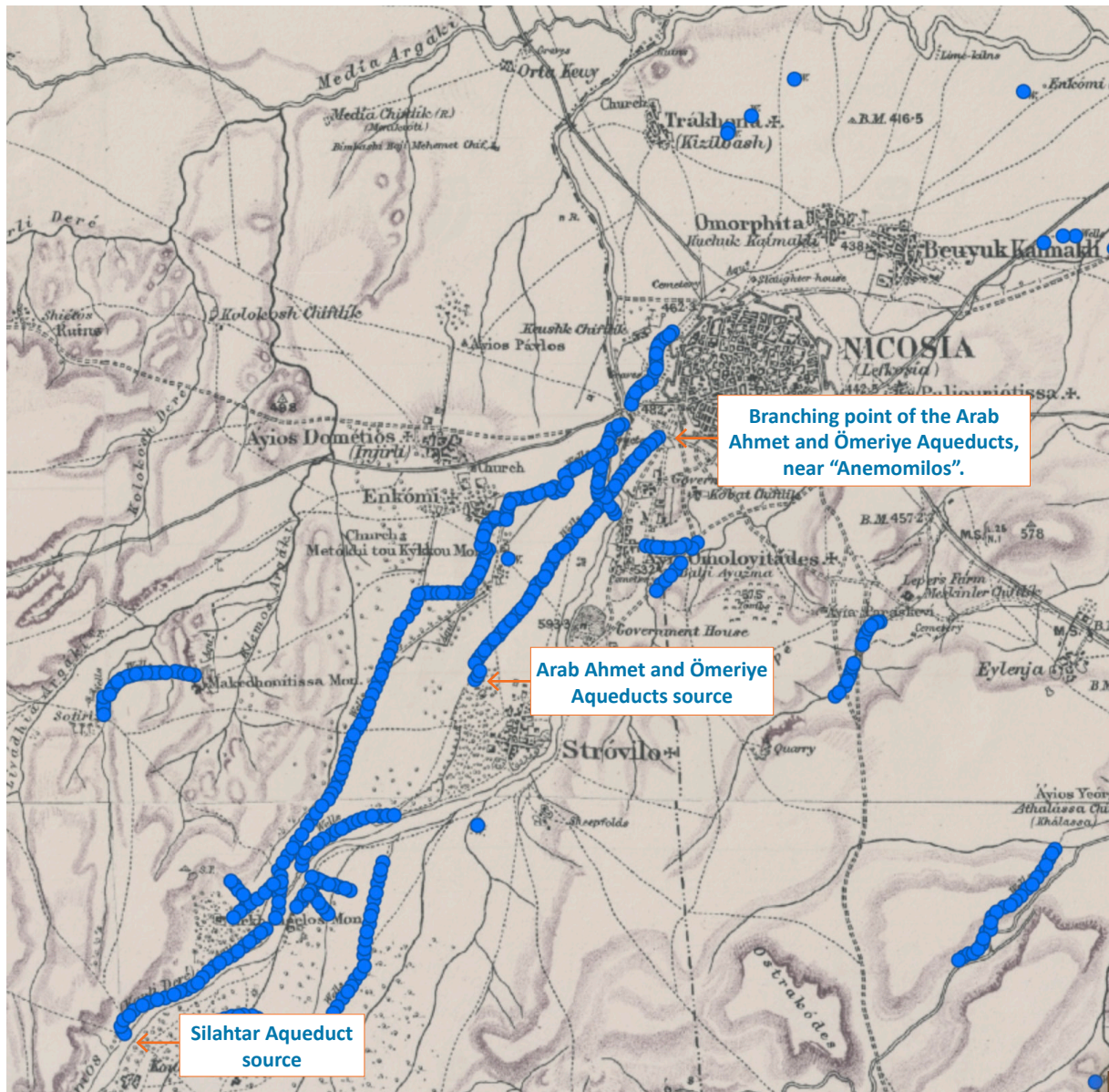


Fig. 46. Chains of wells. Kitchener Map (2021), with selected Points of Interest (Wells). © Harokopio University and Sylvia Ioannou Charitable Foundation

The aqueducts supplied by chains of wells were the most important source of water for the city of Nicosia within the walls up until the 20th century. As shown on Kitchener's map, the Arab Ahmet and Omerie aqueducts were supplied from the same point, which is connected to a chain of wells beginning in Strovolos. Near the area of "Anemomilos" [windmill], a branching of the river is noted (fig. 46; more information in Chapter 2), and this is the area where we see the river flowing in fig. 47. The Silahtar Aqueduct is connected to a chain of wells starting from the Koulourato area in Lakatamia, near the Monastery of Archangelos, passing through the Metochi of Kykkos and along the western side of the present-day Municipal Garden, in front of the Courts of Justice towards Keryneia Gate and then towards Famagusta Gate (fig. 48).



Fig. 47. The Pediaios during January 2020, near the location where it was probably split into a northern and an eastern branch (Arab Ahmet and Ömeriye aqueducts on Kitchener's map). © Evanthia (Evi) Tselika

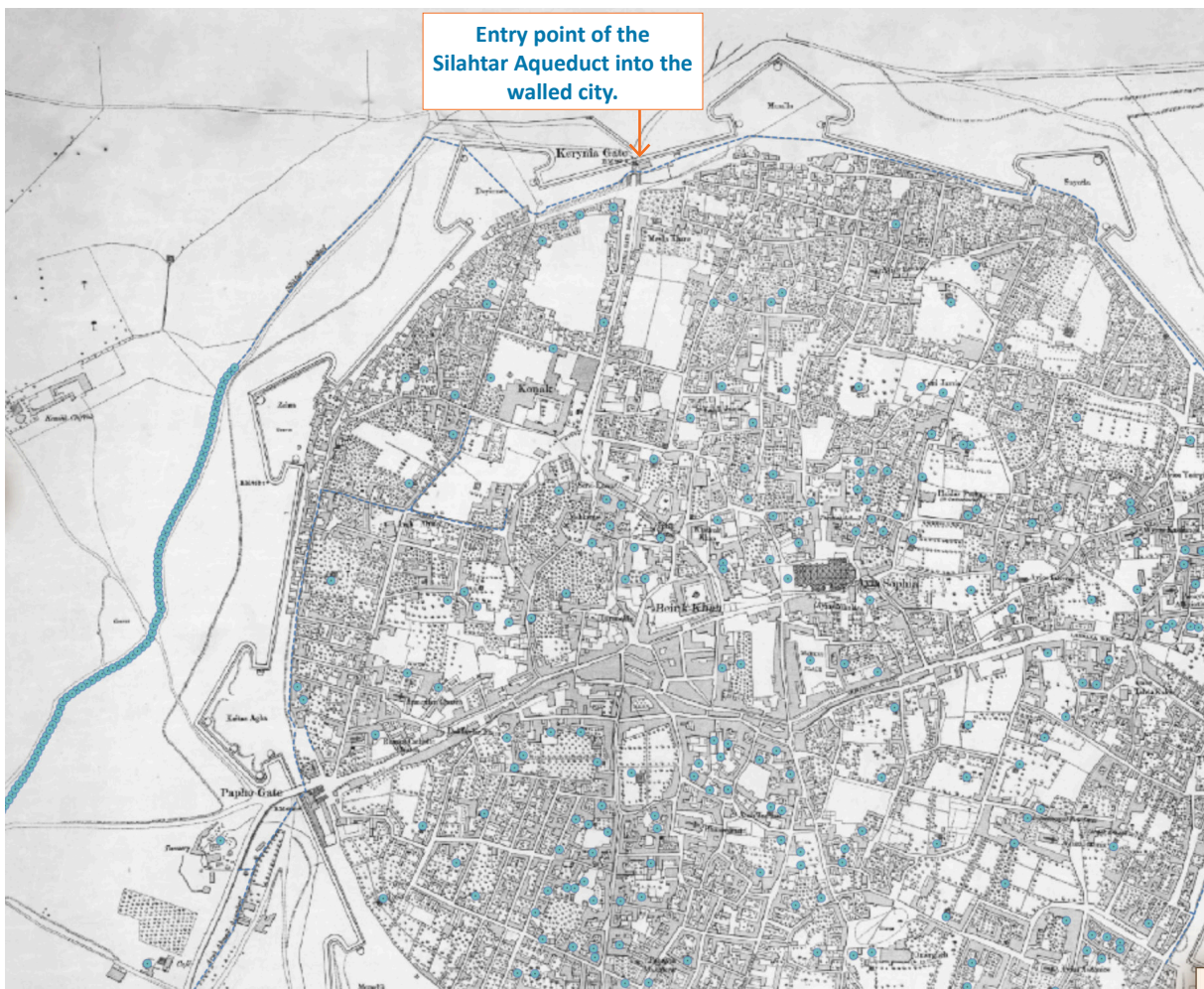


Fig. 48. The Silahtar Aqueduct enters the city as a chain of wells from Keryneia Gate and continues to Famagusta Gate. Kitchener Map (2021): Detailed plan of Nicosia with a selection of thematic layers (Well, Aqueduct). © Harokopio University and Sylvia Ioannou Charitable Foundation

Much confusion prevails as to who built the Silahtar Aqueduct, although most likely it would have been either Silâhtar Hacı Hüsseyin Ağa (1805-1809) or Silâhtar Mehmet Paşa (1801-1803) or even Silâhtar Mustafa Ağa who financed the Silahtar Fountain (1796-1797). The spring was thought to have been located between Agioi Omologites and Metochi of Kykkos, about one and a half kilometres outside the walled city, although, as we can see on Kitchener's map, it is also connected to the chain of wells starting from the Koulourato area. In the *vakf* records, some of the chain of wells and consequently part of the Silahtar Aqueduct are referred to as Yeni Cami Suyu [the running water of the New Mosque] (Bağışkan 2009, p. 547). From the spring, the aqueduct would cross the bridge over the Pediaios to the north-west of the Old Hospital (fig. 46), reach the city walls and then flow over them above the Keryneia Gate. It re-entered the city near Keryneia Gate from the Parparo-Musalla bastion and headed towards Famagusta Gate, near Agios Ioannis (the Archbishop's Palace) and the Greek School at that time (figs 48 and 49), and even as far as Kaimakli (Yildiz 1996, pp. 100-101). Dixon writes that the Silahtar Aqueduct enters the city by Sebhana bastion on the north and, after feeding half the capital, ends in the archbishop's tanks, supplying his seminary and his female school, as well as the courtyards and planted walks of St John, his cathedral church (Dixon 1879, p. 144).

The Silahtar Aqueduct supplied water to many of the city's fountains. The arches that can be seen today in front of Famagusta Gate and in front of the Liberty Monument appear to be part of this aqueduct on Kitchener's detailed plan of Nicosia (figs 49 and 50).

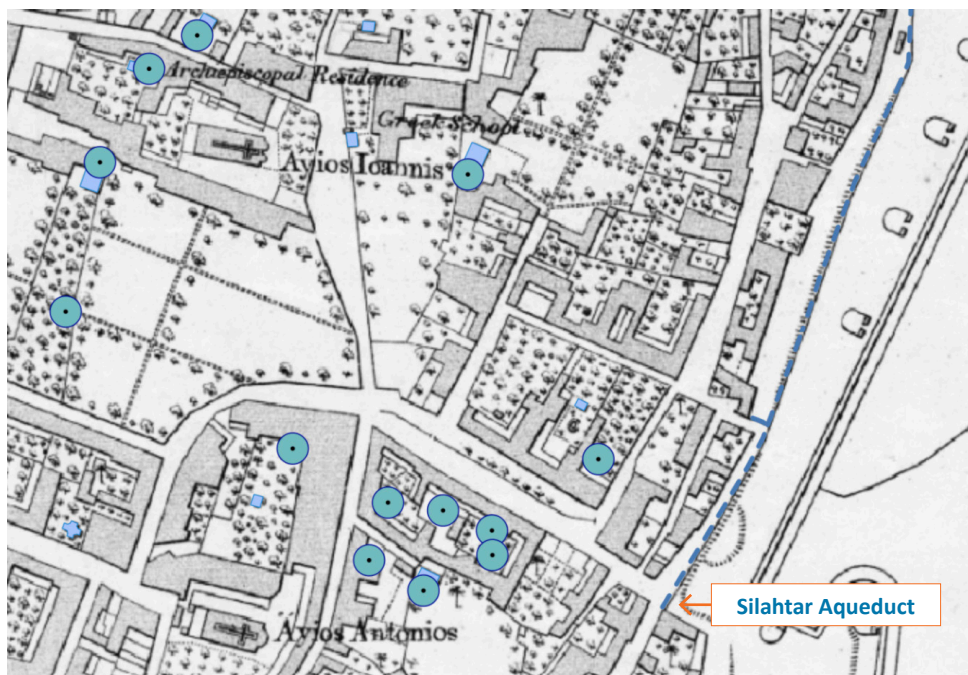


Fig. 49. The Silahtar Aqueduct near Agios Ioannis (found within the area of the Archbishop's Palace) and the Greek School at the time. Kitchener Map (2021): Detailed plan of Nicosia with a selection of thematic layers (Well, Water tank, Aqueduct). © Harokopio University and Sylvia Ioannou Charitable Foundation



Fig. 50. Part of the Silahtar Aqueduct in Nicosia within the walls, near Famagusta Gate and very close to the Archbishop's Palace, 2020. © Evanthia (Evi) Tselika

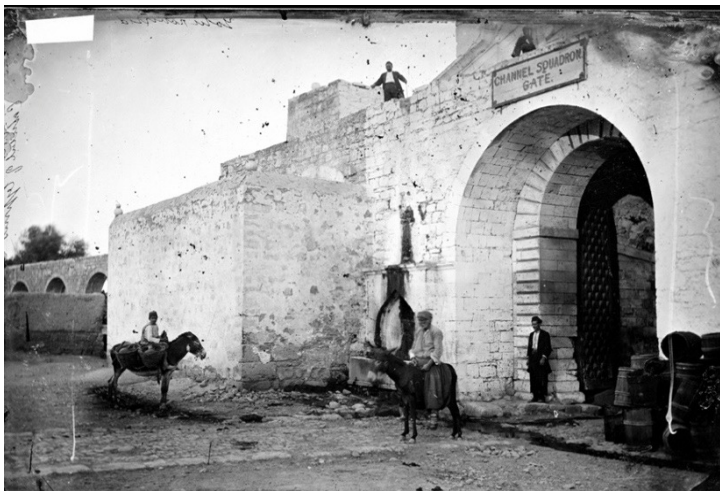


Fig. 51. Silahtar Aqueduct, Famagusta Gate. Photograph by John Thomson, 1878. © Wellcome Collection

Savile mentions that an aqueduct which is supplied from the adjacent hills by a communication supported on arches, encircles the town following the line of the fortifications; at frequent intervals, subsidiary conduits lead from it to the fountains in the lower area within; along these conduits pure water constantly flows, and it is better to take water directly from them, than to use the well water. The overflow of the fountains runs along shallow open ditches in the centre of the streets, and from these ditches small drains are cut into the gardens that abound all over the town; thus these are well irrigated and are very productive, the fruit trees being especially fine. It may perhaps be found necessary in future to convey the aqueduct water all over the town in pipes, in order to insure a good supply for drinking in all parts (Savile 1878, p. 41).

The Silahtar Aqueduct can be seen in figure 51 near the Channel Squadron Gate, which was named Famagusta Gate by the British Empire's blue-jacket military corps when they took up duty on the island (Thomson 1978, number 11).

In the late 19th century, Nicosia was divided into 25 neighbourhoods [Turkish: *mahalle*, trans. note: meaning “quarter”] and was supplied with water by the Arab Ahmet and Silahtar aqueducts. The water pipes passed through the city walls, and families who had their own water supply received it from pipes built along the wall, which were opened by the “soubashi”. The water was privately owned, could be sold, and was measured by the “sakkorafi” [Cypriot Greek: *σακκοράφι*], which conferred the right to a small amount of water, and the “masouri” [Cypriot Greek: *μασούρι*], which meant four times the amount of a “sakkorafi”. Water reached houses through stone-covered channels until a system of pipelines serving the whole of Nicosia was created in 1930. Few people had clean water at home, so there were many wells in house yards and even in the streets. Water was drawn with hand-operated wooden water wheels or buckets and was used mostly for cleaning houses, since it was not drinkable (Aristeidou 2006, p. 367).

The wells of the Nicosia region are on average 50 feet deep, the water accumulating in aquifers of sand sandwiched between layers of clay, which underlie the thinner layers of Pleistocene deposits. These water-bearing beds are replenished by direct rainfall, by underground seepage from outside the area in the region of the river, and by infiltration of part of the surface flow of the river into the young alluvium. The amount of water stored in the wells of the Nicosia region is ample for the needs of its gardens (Maratheftis 1977, p. 6). As already mentioned, few households had running water in their homes, and housewives who did not have running water were obliged to collect drinking water from the public fountains. The process was time-consuming and involved long periods of waiting, and since housewives could be waiting for many hours to gather water, these gatherings took on a particular social character involving gossip, laughter and at times disagreements (Aristeidou 2006, p. 367). Figure 52 depicts such a scene.



Fig. 52. Women at a fountain in Kaimakli filling their pots. Photo by Haigaz Mangoian, ca 1950.
© Stavros G. Lazarides Collection

Agni Michaelides notes that many such fountains survive to this day, including the stone fountain of Tzoutzous, the fountain of Mavros, of Karydia, of Rogiatiko and of Kamarouthkia. There were also fountains located outside mosques and churches (Michaelides 1977, p. 91). Most of the fountains still standing in Nicosia were built during the Ottoman period.

3.3. Cyprus' Granary: Messarka (Mesaoria)

Mariti, departing from Nicosia and heading to Keryneia, writes in 1760:

After travelling an hour and a half in the plain, I fell in with two arms of the river Pedicus, which I crossed by two stone bridges, exceedingly well built. The streams below roll over a bed covered with small pebbles of red jasper, which may be easily perceived through the clear and limpid water (Mariti 1791, p. 76).

Following the route of the Pedaios in our case, we depart from Chora and head towards the Famagusta Kaza (district). This was the name of the Famagusta wider region during the Ottoman period (reference to the 1832/33 Ottoman Property Survey of Cyprus), which included much of Mesaoria, the largest plain of the island, considered as the granary of Cyprus.

Jeffery writes:

The Nicosia district is the largest of all the administrative divisions in the island, and within its boundaries may be found all the most varied physical conditions of Cyprus. On the north and south it is bounded by mountain ranges which enclose the well wooded and fruitful valleys of Kythrea, the Marathasa, and the upper courses of the Pediaes River, whilst the central plain surrounding Nicosia presents the barren *steppe* character of Central Asia, diversified with large tracts of arable land. Several torrent beds of great width occupy part of the Morfu Nahieh; the Pediaes torrent in a different way has cut deep *canyons* in the flat loamy levels of the Messaoria plain, and in winter time its stream gives a sense of life and animation, which the presence of flowing water always confers (Jeffery 1918, p. 4).



Fig. 53. Kythrea springs and rivers flowing into the Pedaios. Kitchener Map (2021): Hydrographic Network (1st, 2nd and 3rd class). © Harokopio University and Sylvia Ioannou Charitable Foundation

Upon arriving at Chora, that is, the city of Nicosia inside the Venetian walls, Pedaios changes its course and flows eastwards. Its eastern flow is also fed by the springs of the other mountain range of the island, namely Pentadaktylos. Ludwig Ross mentions to this regard that the Pedaios subsumes several streams flowing from the northern mountains (Ross and Cobham 1910, p. 43). Savile also records that the springs in Kythrea (the Kefalovrysos) located northeast of Nicosia and at the foot of Pentadaktylos provide large quantities of water. The water springs from the muddy limestones and forms five large streams that all join together to form a small river of particular importance, because it fertilises the landscape and is used to operate nearly a dozen mills. The river flows southward and empties into the Pedaios about two and a half miles away from the ancient city of Chytra (this is depicted on Kitchener's map, fig. 53). He points out that the water is of good quality and always cold in the summer. This water once supplied a large aqueduct which watered the populous city of Salamis, 25 miles away, but now what is left over after irrigation flows into the Pedaios (Savile 1878, pp. 36 and 37).



Fig. 54a. Map of Cyprus by Abraham Ortelius (Antwerp, 1573). © Sylvia Ioannou Charitable Foundation Collection (M.0140)

Fig. 54b. The ancient aqueduct from Kythrea to Salamis (map detail).

Ortelius' map clearly depicts the aqueduct from Kythrea [Chytroi] to Salamis (figs 54a-b). The original date of construction of this impressive aqueduct, which brought water from Kefalovrysos to the city of Salamis-Constantia, is not known. The earliest archival references originate from the Byzantine period and mention its maintenance during the reign of Justinian (Yildiz 1996, p. 90). Ross, as he passes through the villages of Lysi, Kontea, Kouklia and Kalopsida, notes that in this region the flat plain is interspersed with mounds [Cypriot Greek: *βόλλιστρα*, i.e. muddy holes filled with water all year round], which, however, had dried up due to drought during the period he visited the area. He writes that he chose to pass through the village of Styloi because he found the name interesting and speculates that it may have been so named because of the aqueduct that Justinian had built to carry water from Kythrea to Salamis (Ross and Cobham 1910, p. 35). An interesting point in his text is the reference to Agios Sergios, near which the remains of this ancient aqueduct of Salamis-Constantia can still be found today (figs 54b and 55).



Fig. 55. Part of the stone aqueduct that transported water from Kythrea to Salamis. Photographer and date unknown. © Department of Antiquities, Republic of Cyprus

Baker considers it noteworthy that by his time the ancient water supply methods had been abandoned in Cyprus. He cites Kythrea as an example of an ancient city associated with running water and mentions the aqueduct that transported water from Chytroi to ancient Salamis, where ruins of the structure still exist. He observes that wherever an important spring existed there was a settlement of corresponding extent and value, which suggests that rainfall was then as uncertain as it is today, meaning that every spring became a centre of attraction (Baker 1879, pp. 73-74).

Savile and Baker give a thorough overview of how the Mesaoria plain appeared to the British once they arrived on the island. They describe it as a large expanse of land without trees stretching from Famagusta Bay to Morphou Bay. As Savile writes, the plain is watered by rivers, such as the Pedaios, and tributaries that dry up in the summer and overflow during the winter and spring, creating particularly fertile alluvial soils. The plain contains a large proportion of the island's cultivable land and almost all of the northern part is tilled annually and produces good grain crops (Savile 1878, p. 38).

Baker, whilst crossing the plain, writes that the Cypriots have the awkward habit of leading their watercourses straight through any route that may exist for wheeled conveyances, and you suddenly arrive at a deep ditch and high bank, which block the thoroughfare (Baker 1879, pp. 54-55). He compares Cyprus with Egypt in matters of water, irrigation, and cultivation, but notes that unlike the Nile which literally is the saviour of Egypt, the Pedaios and other rivers which flow from the mountains are [nothing] but torrents or mere watercourses carrying rainwater or channelling the excess water when there is a flood, while during other times they are completely dry (Baker 1879, p. 347).

Ludwig Ross also compares Cyprus with Egypt in terms of the management of its scarce water resources. In particular, he mentions reliance on the swelling of rivers for the irrigation of the plain, a phenomenon also encountered in Egypt (Ross and Cobham 1910, p. 44). He describes the soil of Mesaria or Mesaoria as uneven and hilly, with scattered low hills in the form of table mountains (as seen in fig. 56) or pyramid-shaped hills called “Trachones” (*Τράχωνες*). Because of the small population, the land is not tilled at all: most of the land is admirably fitted for the plough or for the cultivation of olive, fig, almond and mulberry trees (Ross and Cobham 1910, p. 43).



Fig. 56. Mesaoria and the trapezoidal hills, 2007. © Evanthia (Evi) Tselika

The plain around the city is a great cornfield, much of which one can see, is flooded at seasons by the over-flowing of the river, the bed of which is now dry except from here and there where there are pools of good and stagnant water (Wolseley 1991, p. 27).

Savile, writing in the same year as Wolseley, notes that the river heads east, flows through the plain of Mesaoria, and empties into the sea near the ruins of the ancient city of Salamis, four miles north of Famagusta. The water in the mature part of the river which crosses the

plain is used to irrigate the grain fields bordering the Pediaios, the channel of which is quite narrow (Savile 1878, p. 36). When there is heavy rainfall the river overflows, flooding the plain. In the Mesaoria, the Pediaios again meets its brother river, the Yialias. The flow of these two rivers through the plain makes the area ideal for cereal cultivation, and the British engineers sent to Cyprus initially chose it for the development of water reservoir projects.

3.4. The Pediaios Delta – Artificial Lakes and Wetlands

Bevan, when writing about the Famagusta region, notes the large reservoirs constructed some years earlier to collect excess water from the Pediaios and Yialias rivers. These were not very successful because most of the water was lost before it even reached them. He considered it very important to find a solution to the island's water problem because every year fertile soils were left uncultivated, whereas with proper irrigation they could produce excellent quality cotton, vegetables, and fruit (Bevan 1919, p. 9). Raeburn refers to the work of the engineer J. H. Medicott, who worked in Cyprus in the early 20th century, as the man responsible for the design and implementation of the first major projects to create reservoirs for storing river water (Raeburn 1945, p. 19). Medicott created artificial lakes, such as the one at Kouklia, shown in a photograph from the archives of the Water Development Department (fig. 57) and in a contemporary photograph of the same place (fig. 58). In his study, Colonel Ellis states that the layout of the country does not favour the construction of cheap water reservoirs, as in most cases the cost of constructing such reservoirs for irrigation is not in fact outweighed by the revenue generated from the consumption of this water (Ellis 1921, p. 9, paragraph 25B).



Fig. 57. The Kouklia Dam built in 1900 by J. H. Medicott. Photographer and date unknown (Christofides, Kyrou, Pisti *et al.* 2009, p. 18). © Water Development Department



Fig. 58. View of the Kouklia wetland, 2019. © Despo Pasia

The Kouklia wetland area includes two habitats: the artificial lake/reservoir and the salt marsh. In Cyprus, reservoirs and dams are constructed in floodplains, ravines, gorges and riverbeds (Beton and Snape 2017, p. 6). This particular reservoir was constructed in 1900 in a floodplain, in the mature lowland section of the river, forming a salt marsh. The embankment is six metres high, the reservoir has a capacity of 4,545,000 cubic metres of water, and was used to meet people's needs during the period of British rule (Christofides, Kyrou, Pisti *et al.* 2009, p. 18). Although the storage capacity of the reservoir has been reduced because its bed has become muddy over time, various species of ducks and wading birds make use of the site, especially during years of heavy rainfall.

Agios Loukas Dam was also constructed in a marshy area of the Pedaios and Yialias delta near Famagusta in 1955. It has a water capacity of 455,000 cubic metres, equal to that of the freshwater lake to its right. The dam is fed by water from the lake, as well as by a pipeline from the Agios Nikolaos Dam (Konteatis 1974, p. 258).



Fig. 59. Agios Loukas Dam that became operational in 1955. Photographer and date unknown (Christofides, Kyrou, Pisti *et al.* 2009, p. 27). © Water Development Department

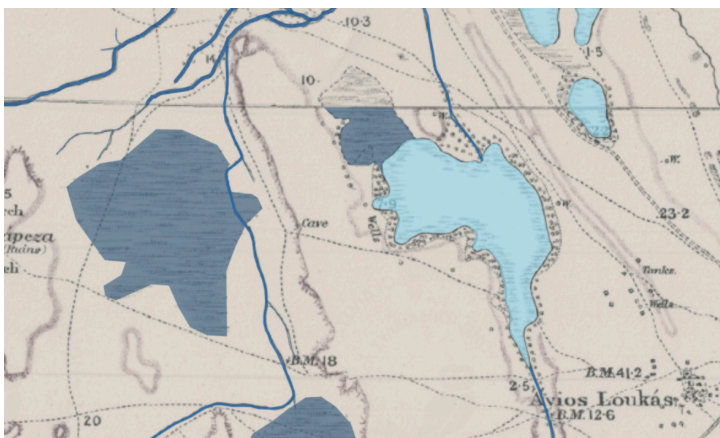


Fig. 60. Agios Loukas region. Kitchener Map (2021): Hydrographic Network (1st, 2nd and 3rd class) and Land Cover (Swamp, marsh and Stagnant water). © Harokopio University and Sylvia Ioannou Charitable Foundation

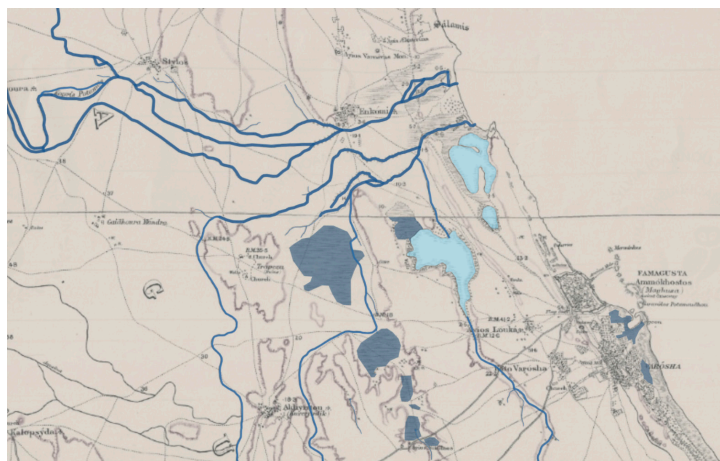


Fig. 61. The wider Famagusta region where the flow and the estuaries of the Pediaios and Yialias rivers can be seen, with the characteristics of a river delta. Kitchener Map (2021): Hydrographic Network (1st, 2nd and 3rd class) and Land Cover (Swamp, marsh and Stagnant water). © Harokopio University and Sylvia Ioannou Charitable Foundation

According to Jeffery, the modern road leading to Salamis passes between marshes and lagunes formed by Pedaios, and he points out that the large freshwater lake near Famagusta is strewn with salt in summer and in winter it gets crowded by flocks of wild fowl (Jeffery 1918, p. 230). The marshes and lagoons mentioned by Jeffery are clearly visible on Kitchener's map (figs 60 and 61) in the vicinity of Famagusta, where both the Pedaios and Yialias rivers discharge. The region from Klapsides –the point where the Pedaios empties into the sea, south of ancient Salamis– to Agios Loukas Dam near Famagusta is a unique wetland because it functions as a delta for both rivers. The Pedaios, from Chora to its mouth at Klapsides, very close to the village of Engomi, can be described as a mature, elderly river and therefore slower and calmer. This elderly river meanders slowly through wide valleys. Due to heavy erosion, the terrain has become an almost flat plain, as we also observe in the case of Mesaoria. As rivers grow older, they overspill their banks, creating new riverbeds; the waters become stagnant and a river delta is formed. The wetland habitat of the lagoon at Klapsides, where the river meets the sea, is unique, as shown in figure 62 (Korukoğlu *et al.* 2017).

Brothers Stelios and Paraskevas Marangos from Engomi remember that in certain years the Pedaios used to overflow. The bridge located southeast of Engomi, which connected the village with the city of Varosha, could be covered by the river's overflowing waters, cutting off access to Varosha. They also recall that during their childhood summers in the 1950s and 1960s, they spent all day at the seaside, fishing for all kinds of fish, even shrimps, in the waters of the lagoon at Klapsides (fig. 62). They speak of two lakes (lagoons) in the wider region that were more prominent at different times of the year: the lake of Yialias near Klapsides, mentioned above, and the lake of Pedaios near Salamis. One of these could be the lake mentioned by Mariti in the 18th century: "the lake of Costanza, not far off, does not always dry up in summer, and its exhalations infect the air. This lake has formed since the river or torrent Pedicus, which flows here from the neighbourhood of Nicosia, has no longer its usual outlet to the sea between Salamina and Famagusta, as it is marked in ancient maps" (Mariti and Cobham 1909, p. 68). The wetland habitat of the wider delta area includes Klapsides, an area classified as an alluvial plain and marsh (fig. 62), and the area of Agios Loukas, further south, which is mainly covered by marshes surrounded by aquatic vegetation (Beltrame, Guelmami and Perennou 2014, p. 31).



Fig. 62. Lagoon at Klapsides beach, where the mouth of the Pedaios is located, 2021. © Antonis Hadjikyriacou

Bustron, author of the history of Cyprus up to the 15th century, states that Salamis in Christian times was named Constantia and that the lake near Famagusta is named the lake of Constantine (Bustron 1886, p. 18). He notes that the mouth of this very important torrent, which flows only in winter, is located near the ancient city (Bustron 1886, p. 29). The city was surrounded by the waters of the Pediaios torrent and the sea, making it very powerful in times when there was no artillery. However, that water was brackish, and the city suffered from a shortage of fresh water, which was brought from Kythrea through an exceptional aqueduct (Bustron 1886, pp. 18 and 28). In figure 63b we see a specific reference to Salamis and Constantia in Jean Le Clerc's map of Cyprus. Salamis is described by Jeffery, who was in charge of antiquities, as the most important archaeological site in Cyprus (Jeffery 1918, p. 230). He refers to the marshes to the south of the ancient city, as does Ross, who describes the marshy bed of the Pediaios near Salamis as the "Cyprian Nile" overflowing the surrounding plain (Ross and Cobham 1910, p. 37). In antiquity, three important cities lay along our river: Tamassos near the springs, Ledra on the mature section of the river, and Salamis on the older Pediaios grounds. The importance of the river to the island is evident over time, across landscapes, in maps and in texts. The Pediaios (Pithkias or Kanlı Dere) serves as a reminder that our passage through this place is fleeting, while its waters, which swell in winter, flooding the gorges and plains, are timeless.



Fig. 63a. Map of Cyprus by Jean Le Clerc, published by Covens and Mortier (Amsterdam, 1730). © Sylvia Ioannou Charitable Foundation Collection (M.0279)

Fig. 63b. Detail of the map showing Salamis-Constantia.

3.5. Worksheet for Chapter 3

1. We explore the web application (<https://kitchener.hua.gr/en>) after studying several examples of its use in the three chapters, and take screenshots that we then save on our mobile phone, tablet, or computer. We examine the region that is most relevant to our research and create our own versions of the map by adding different thematic layers, such as wells, aqueducts, fountains, trees, palm trees, settlements, place names, and so on. Here is an example of this type of experimentation:

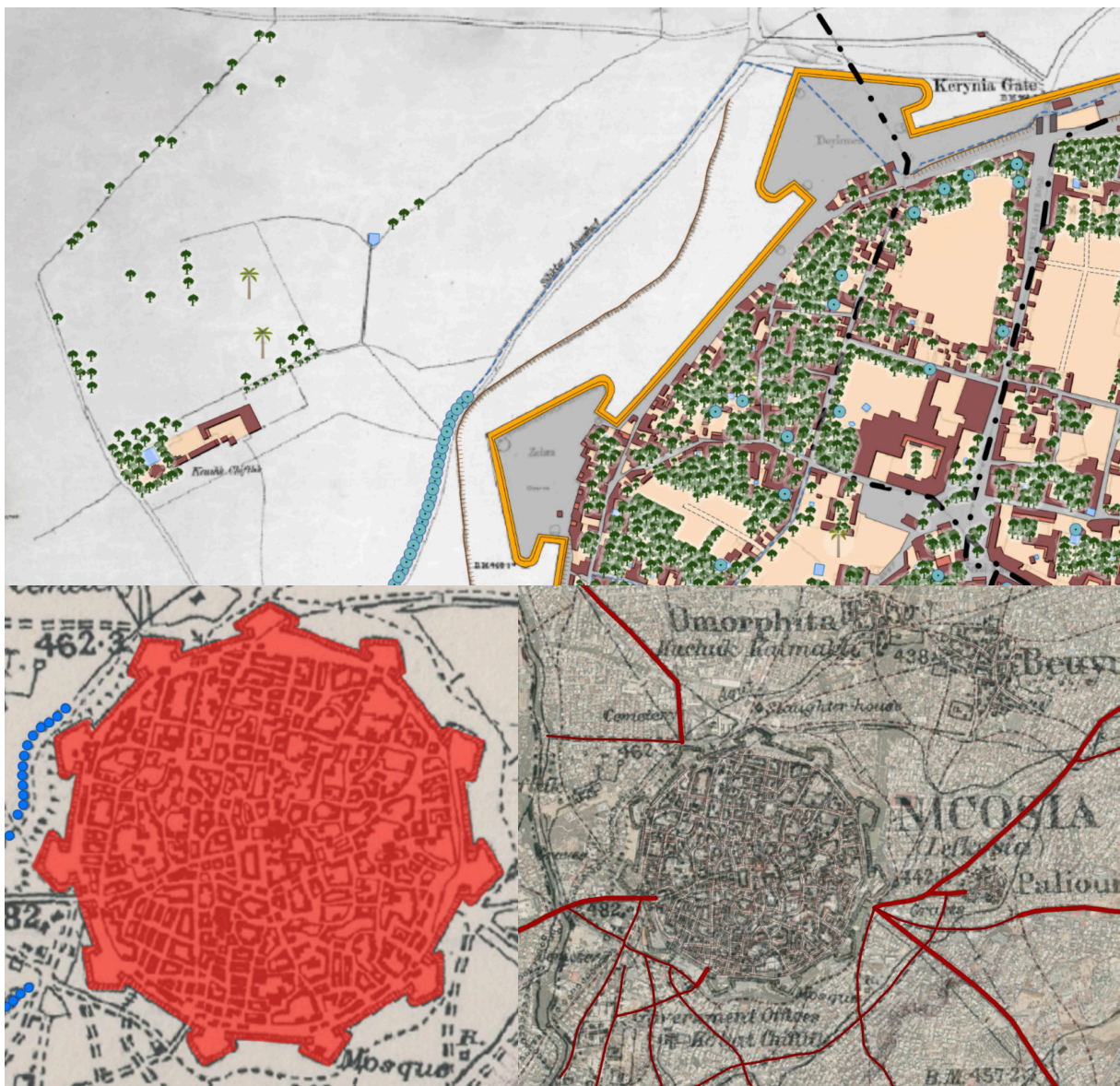


Fig. 64. Kitchener Map (2021): Map of Cyprus and detailed plan of Nicosia (with the walled city). Visual games with different thematic layers that the web application provides. © Harokopio University and Sylvia Ioannou Charitable Foundation

2. We explore the urban regions (areas with settlements), mapping old fountains as well as water collection and pumping points.

Example

During the project “Its Water: Taps and Sources of Nicosia”, artist Kyriaki Costa identified forgotten drinking fountains, springs, water tanks and ornamental fountains in Nicosia, some of which she repaired and returned to operation. Figure 65 shows one of these fountains. A publication of the same name was released in 2015 as part of the project.



Fig. 65. “Peonos Street”, Kyriaki Costa, “Its Water: Taps and Sources of Nicosia”, 2015. © Kyriaki Costa

Inspired by the work of Kyriaki Costa, we explore the area that interests us, discovering old fountains, forgotten drinking taps and springs within the urban fabric. There are many. We photograph them and mark them on the map. We seek to find out whether, during Kitchener’s time, there was a fountain, a well, a water tank and so on at the same location.

3. We study printed texts, focusing on their visual aspects, the design of books and other printed matter, and typography. We may also collect information from academic research projects and books available on open-access platforms if we are interested in further researching a particular topic (e.g. agriculture, geology, hydrology, urban landscapes, and so on).

Examples

In 1904, Basil Stewart was on the island planning to build a railway that, similarly to the Pediaios line, would connect Famagusta with Nicosia. In a clear and descriptive style (see the photograph of the original text in figure 66), he presents his contemporary view as a cosmopolitan subject of an empire, describing the character and temperament of the island’s inhabitants (Stewart 1906).

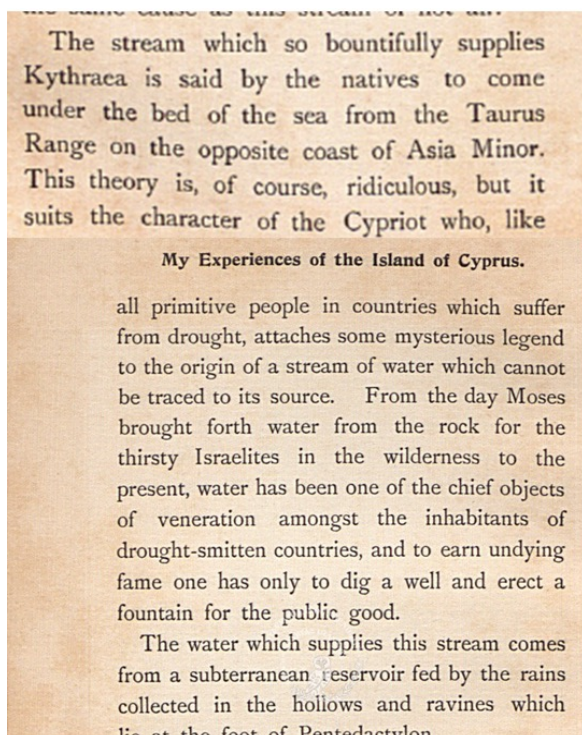


Fig. 66. Combined screenshots from two digitized pages of Basil Stewart's book, *My Experiences of the Island of Cyprus*, 1906 (Sylvia Ioannou Charitable Foundation Collection, B.0588).

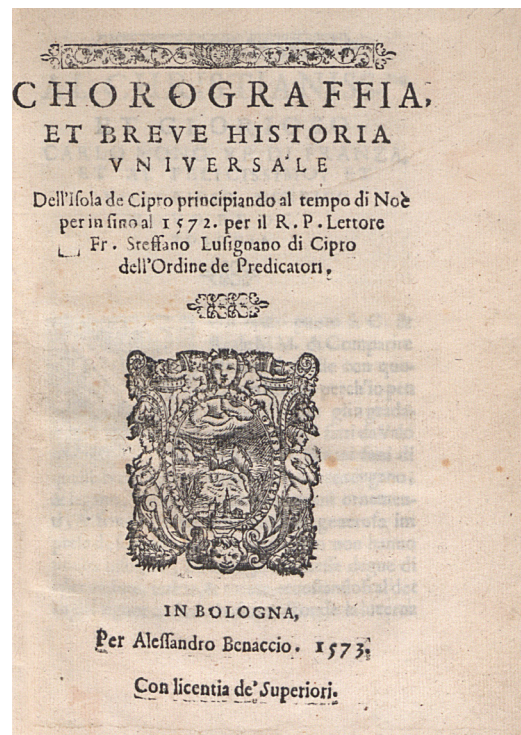


Fig. 67. Title page of *Chorographia ...* by Stefano Lusignano (Bologna, 1573). © Sylvia Ioannou Charitable Foundation Collection (B.0213)

We use the school library or the municipal, university, or state library to consult Cyprus-related books on history, geography, arts, language, and folklore in order to find references to Pediaios. An example of particular importance is Stefano Lusignano's *Chorographia ...* (1573), shown in figure 67 (source: INSPIRAL portal for travel literature, <https://inspiral.org/en/cyprus/books/9/>).

We create a collage in which each member of the team contributes an image encountered during our research. Using a computer or smart mobile device, we can create a shared digital folder (e.g. a Google Drive folder) where each member of the group can upload an image they have found. Using a digital image-editing programme (e.g. Adobe Photoshop or GIMP), we experiment and create a digital collage by combining whole images or parts of them. Group members can work either individually or in pairs. We can print the collages and display them in the classroom, as well as incorporate them into the artist's book.

4. Each member of the group collects data on the history of water in Cyprus by researching various web resources (see below), and then we create a joint presentation file using a platform such as Google Slides, incorporating the information we have gathered. We use the shared file as a source of information for our artist's book.

Online resources for data collection in relation to the history of waters in Cyprus

We can use the research projects of the Sylvia Ioannou Charitable Foundation, related to history, cartography, travel texts, digital representations, etc.:

<https://sylviaioannoufoundation.org/en/academic-programmes/research-programmes/>

An example is the website of the research project developed at Harokopio University: "Economy, environment, and landscape in the Cypriot *longue durée*":

<https://ecoland.hua.gr/en>

Another example is the INSPIRAL portal for travel literature, with 15th-18th century texts: <https://inspiral.org/en/cyprus/books/?page=1&size=15>

Information and books can also be found in the following open-access websites:

The "Polignosi" website (electronic encyclopaedia of Cyprus by the Bank of Cyprus and Politis Newspaper) under the category "Lemata" we can find information on various topics related to Pediaios, such as aqueducts, wells, lakes, historical and archaeological information:

http://www.polignosi.com/cgi-bin/hweb?-V=atoz&_FATOZ=%C1&-b=20&-datoz.html&-SsortA

Website of the Water Development Department, where we can refer to publications and annual reports dating from 1878 and onwards: <https://www.gov.cy/moa-wdd/en/documents/>

For example, using this website we can access the publication *Cyprus Water Development Before 1960* by I. L. Ward (1989), a Water Engineer and Director of Water Development in the period 1954-1959. This study records the history of water development in Cyprus with references to engineers who led similar projects, such as Medlicott:

<https://www.gov.cy/media/sites/168/2026/02/CYPRUS-WATER-DEVELOPMENT-from-1878-1.pdf>

Access to digitised books with extracts from the works of medieval and Ottoman travellers and writers (e.g., Cobham's *Excerpta Cypria*, 1908) can also be found at: <https://archive.org/>

5. Photograph a waterscape. If possible, visit a natural lake, salt lake, artificial lake, or dam.

Photograph or film the water (using both long shots and close-ups), and experiment on the spot with drawing and colour.

Using a digital image editing programme (e.g. Adobe Photoshop or GIMP), experiment by composing a new landscape (real or imaginary) or an abstract image of the water in the form of a digital collage, based on what you recorded during your visit to the river. Finally, incorporate the digital collage into your artist's book.

[web links were last accessed in September 2026]

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