A close-up, high-speed photograph of water splashing from a fountain. The water is captured in mid-air, creating a dynamic, textured flow of droplets and streams. The background is a bright blue sky with soft, white clouds, suggesting a clear, sunny day. The overall composition is clean and visually appealing, emphasizing the natural beauty and movement of water.

WATER FOUNTAINS IN THE WORLDSCAPE

ARI J. HYNYNEN • PETRI S. JUUTI • TAPIO S. KATKO (EDS.)

INTERNATIONAL WATER
HISTORY ASSOCIATION

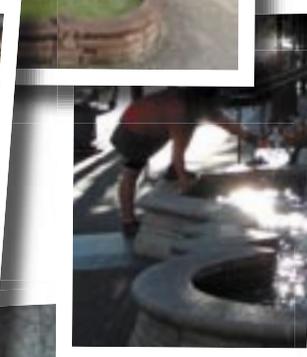
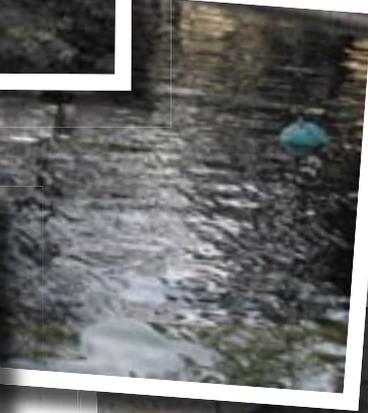
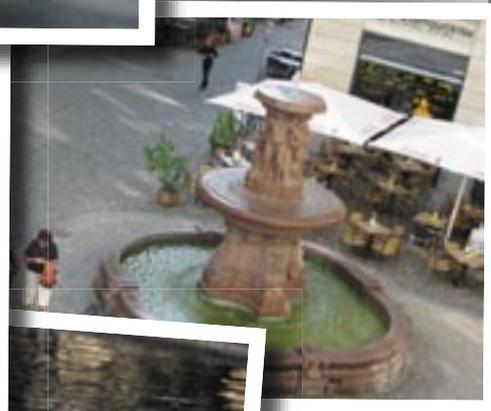
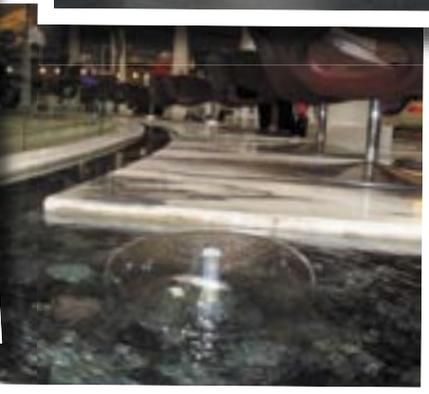
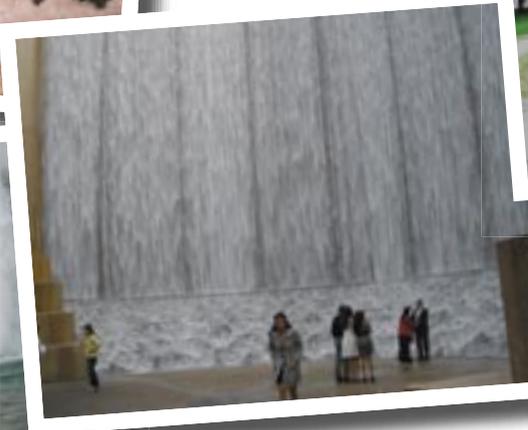
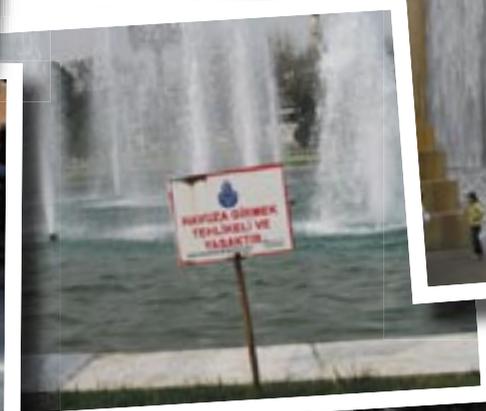


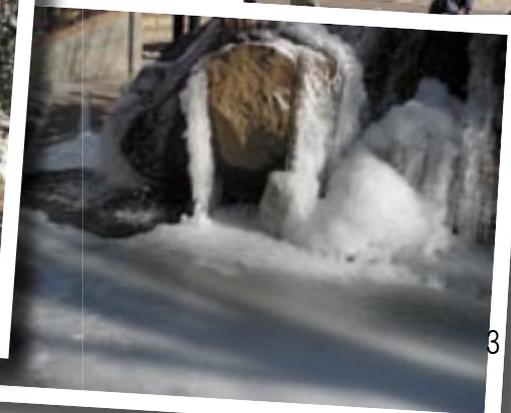
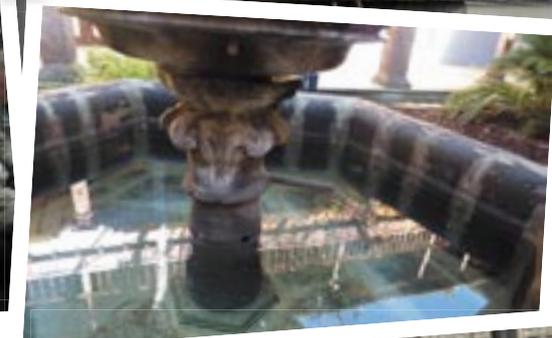
WATER FOUNTAINS IN THE WORLDSCAPE

ARI J. HYNYNEN • PETRI S. JUUTI • TAPIO S. KATKO (EDS.)

© Authors & KehräMedia Inc.

Publisher: International Water History Association and KehräMedia Inc.





WATER FOUNTAINS IN THE WORLDSCAPE

ARI J. HYNYNEN • PETRI S. JUUTI • TAPIO S. KATKO (EDS.)

Keywords: Water Fountains, Cityscape, Water history, Environmental history, diversity

© Authors & KehräMedia Inc.

Publisher: International Water History Association and KehräMedia Inc.

Graphical design: Tommi Kuikka

Printer: Saarijärven Offset Oy 2012

ISBN: 978-951-98151-8-3

Photos and design of covers: Tommi Kuikka

The views expressed in this publication are those of the authors and do not necessarily reflect the views of International Water History Association.

TABLE OF CONTENTS

Foreword	8
Part I: Prologue - Water Fountains Existing Abundantly, Yet Hardly Recognized by Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko	11
Part II: Starting from Necessity: Fountains with Traditions	19
<i>Rome's Fountains: Beauty and Public Service from Geology, Power and Technology</i> by Walter Dragoni	20
<i>Meeting Place of Chinese Culture and Water: The Case of The Nine-Dragon Fountain of Yuxi City, China</i> by Zheng Xiao Yun	36
<i>Sabils (Water Fountains) of Jerusalem from the Medieval Period to the Twentieth Century</i> by Avraham Sasson	44
<i>Budapest: A Rich History of Thermal Water, Fountains and Wanton Politics</i> by Viktor Pál	54
Part III: From Monumentalism to Changing Uses	59
<i>Ornamental Public Fountains in Barcelona</i> by David Saurí	60
<i>Water Fountains of Buenos Aires, Argentina</i> by José Esteban Castro	66
<i>Fountains of Montpellier, France. From Private and Unsafe to Public and Safe Water Supply</i> by Michel Bakalowicz	72
<i>Adelaide's Fountains: A Cityscape of Change</i> by Carol Fort	79
<i>Precious and Treasured Water: The Role of Fountains and Water in Islam and Tunis</i> by Jarmo J. Hukka & Petri S. Juuti	85

Part IV: Expanding to Enjoyment of Modern Times	91
<i>Fountains of Hamburg: From Grand Gesture to Poor Conscience</i> by Hans-Werner Krüger	92
<i>Hochstrahlbrunnen – Stories of Water, Power, and Urbanism</i> <i>The fontaine lumineuse on Schwarzenbergplatz (1946–56 Stalinplatz), Vienna</i> by Staffan Lodenius	101
<i>The Mermaid of Helsinki, Finland</i> by the editors	107
<i>Sammy Marks Fountain, Pretoria</i> by Johannes Haarhoff	112
<i>Fountains in Stockholm, Where the Lake Meets the Sea</i> by Kenneth M. Persson	118
<i>“Rocky Fountains” of Keçiören, Turkey</i> by Tapio S. Katko	127
<i>From Temperance to Thirst Quenching: Drinking Fountains in Washington, D.C.</i> by Sanna-Leena Rautanen & Päivi Spoon	132
Part V: Comparative Analysis of the Omnipresent Water Fountains by Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko	137
Part VI: Epilogue – Flowing Waters by Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko	213
About the Authors	216

FOREWORD

FOUNTAINS, MOTION, AESTHETICS AND WATER HISTORY

The history of words resembles the fluidity of water. Take for example the word 'fountain'. Its origins, in the English language, go back to the Latin term *fontana*, which in the Late Middle Ages was used as *fount*, meaning a 'source'.¹ If it is so that *fountain* has a bearing on a natural object, the question comes to mind: where did the collective human mind start changing the meaning of the word in its modern form to have a far more comprehensive meaning? Does it have a bearing on culture?

I get the impression that the transformation of the meaning started when there was a consciousness that a fountain was something special. It was as if the act of humans transforming nature became a conscious action that turned an object of nature into an artefact of culture. As if by magic, *fountain* transformed itself from something resembling an ice cube, into a fluid. The signification process made of our understanding of the word, additionally, a source of water transformed by humans to generate a sense of motion.

The symbolism of motion in the form of a fountain goes back to classical antiquity where Herodotus provides a discourse on the Ammonians at Thebes in Africa, who venerated the fountain of the sun – a celestial body with apparent motion – that produced heat in the form of hot water flowing from the source in the morning and becoming colder in the evening.²

Although *aisthonomai* (to observe) was familiar to the ancient Greeks,³ it was only aligned with our modern conception of beauty in the eighteenth century, when Baumgarten (1735) coined the by-now famous term *aesthetics*.⁴ It laid the theoretical groundwork for



a strategy to contemplate the fine arts produced by the skilful artistry associated with human culture and creativity.

This study deals with the aesthetics of water fountains. It is a product reflecting the thoughts of scholars who are familiar with the complex nature of the wondrous substance we call water. They are also inclined to think historically – i.e. using narrative discourse to explain how we in the present can contemplate the past. Their collective focus is on the concept of the fountain as a cultural object of great diversity in various localities of the world.

The result is an anthology of thoughtful micro-histories on how we as humans in various parts of the world have chosen to beautify sources of water, which are generally available in the public realm for all and sundry to use. Apart from its functional and symbolic use the fountains also transmit a sense of beauty – humankind transforming nature to create special environments.

Over a number of years it was my privilege to share some creative thoughts on fountains and water history with two of the editors of this work, Petri Juuti and Tapio Katko. I recollect how excited they would get at the prospect of bringing out their book dealing with the theme of water fountains. The book was something special for them. Whenever we met at conferences, or for meetings of the International Water History Association (IWHA) council, Tapio and Petri, would busy themselves with local fountains. Additionally they would also be busy soliciting some contributions from water history colleagues living in various parts of the world. I was also privy to some of the deliberations that preceded the printing process of this study. There were talks about raising funds. Pages had to be made up – a superior artistic layout was considered to be of vital importance. Ultimately it was the creative process of producing a book of good quality that would appeal to the senses of the reader that was uppermost in their minds.

Working through the pages of the manuscript, to write the foreword, I became aware of how many scholars, most of them well known and highly respected persons in the water history fraternity, shared the passion and the vision of the editors of this book project. Many hours of painstaking work has gone into each and every contribution. The illustrations that accompany the lively text are titillating to the senses. They transmit images of natural motion and fluidity.

This study is a fountain of metaphorical delight on a water feature that has thrived on human creativity – primarily with the objective of beautifying a functional facility, intended to provide valuable water.

The fact that the IWHA is a major beneficiary of this project says much for the manner in which the organisation has been the home of like-minded spirits – people passionate about water and its history. Since its establishment in the 1990s the IWHA has promoted the study of water history. Successive presidents, Richard Coopey, Terje Tvedt, Fekri Hassan, Robert Varady and myself were privileged to serve in an academic association where there has always been a lot of enthusiasm. Our Finnish colleagues, Ari Hynynen, Petri Juuti and Tapio Katko, are exemplary members of this fraternity of enthusiastic water workers. The example they and the contributors to this project set for us, stands out. One realises that we only need to look around us, to see where water sometimes unobtrusively, but ever-present, fills up spaces that have a lasting appeal to the senses of the human condition.

Johann Tempelhoff
IWHA President 2009-2011

¹ Term: “fountain” *Oxford Dictionary of Word Origins*. by Julia Cresswell. *Oxford Reference Online*. Oxford University Press. University of North West Library. 25 November 2011 <http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t292.e2135>).

² Herodotus, Volume II, (Translated by W Beloe, AJ Valpy, London, 1830), p. 232.

³ S.L. Feagin. “Aesthetics” in R. Audi (ed.), *The Cambridge dictionary of philosophy* (Second edition, Cambridge University Press, Cambridge, 1999), pp. 11-12.

⁴ H Reiss, “The rise of aesthetics from Baumgarten to Humboldt” in HB Nesbitt and C Rawson (eds), *The Cambridge history of literary criticism. Volume 4: the eighteenth century*, (Cambridge, Cambridge University Press, 2005), pp. 658-60.

*For fountains, they are a Great Beauty and Refreshment,
but Pools mar all, and make the Garden unwholesome,
and full of Flies and Frogs."*

- Sir Francis Bacon, Of Gardens, 1625



**PART I: PROLOGUE - WATER FOUNTAINS EXISTING
ABUNDANTLY, YET HARDLY RECOGNIZED**

Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko

Fig. 1.0 Children enjoying fountains with changing flows and jets in Arvada, Colorado, US (Photo: Dave Hendricks, 2008).

PROLOGUE - WATER FOUNTAINS EXISTING ABUNDANTLY, YET HARDLY RECOGNIZED

Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko

VISIBILITY OF WATER AND INVISIBLE CITY



Water as part of nature is well known to all of us by oceans and seas. Freshwater from its part is best recognized through rivers and lakes, although over 90 percent of that water is invisible as groundwater, appearing sometimes through natural springs. As a resource and element water is one of the most vital for life and human beings. Water is also very important as a cultural element.

In urban settlements we use water for various purposes at households, institutions, commercial and industrial activities. We can also use water for other purposes such as recreation, fishing, energy production, irrigation and as recipient bodies of ideally efficiently treated wastewaters.

Public water supply systems and infrastructure are to a large extent parts of the so-called invisible city – something that is hidden or lies underground. Out of the systems we normally can recognize only two elements: water towers and water fountains. But for many of us even these elements seem to be invisible, unrecognized, or perhaps taken too much for granted.

The idea of this book on water fountains in the built environment was probably largely reflected by a book “Water Tower - Landmark of the Community” (Asola, 2003) that the third editor was involved in the

late 1990s and early 2000s. After this project and visiting with camera some 250 water towers the same editor cannot help identifying water towers as one of the most visible marks when visiting also cities like Denver, Paris, Johannesburg or any urban centre. The experience is the same as after buying a new car: before the purchase hardly anyone had such model but thereafter every second or third.

One Sunday evening in Autumn 2005 the third editor introduced the idea of the book on water fountains by contacting the mobile phone of Professor Emeritus Erkki Helamaa, the supervisor of the aforementioned book on water towers. Helamaa was on his way driving the car from summer cottage to the city. Just after hearing the idea, he stopped his car on the way, breathed a few moments and asked: "From where have you found out such a fantastic theme of research and book?" Without waiting for the reply he continued: "It will be at least as interesting one as the book on water towers!" He also wondered why at least in Finland none has really explored and made a comprehensive research on this theme. Just like many cities and townships are well-known for their church or water towers, many market squares or open spaces are known for their water fountains. For instance, in Finland we have several such fountains that are gained the status of commonly-known national monuments.

Gradually an idea of an internationally published book on fountains was raised in the discussions with the team of the three editors. Dr. Hynynen, urban researcher and urban planner noted the diversity that water fountains seem to have in various conditions while Dr. Juuti, historian pointed out the theme as part of environmental history. The third editor, Dr. Katko has water and sanitary engineering background. We decided that a joint effort combining these viewpoints would be worth trying.

Based on earlier collaboration with various partners on water services, management and research we contacted several research colleagues at various corners of the world, part of them in the connection of the 5th International Water History Association (IWHA) Conference in June 2007 that the second and third editor were in charge of. Fairly soon two dozens of interested authors were identified on this voluntary project through the "bottom-up" approach. It was a pleasure to notice that from the very beginning all the requested persons were very motivated to contribute and write a chapter. Thus, on the whole we followed the approach by "learning by doing" as pointed by e.g. by John Dewey¹ (1859 – 1952) while additional (sisu) "guts" – a Finnish word referring to persistence - was needed by all the authors and editors.

ORIGINS OF FOUNTAINS

Nature itself provides the most spectacular fountains, sights of rising and falling water. Mythology and folk stories are full of magical fountains, such as *Fountain of Youth*. A fountain is a source (Latin *fons*) of water. It may refer to many other things, usually linked to water. For example: a point of origination, beginning, derivation, fount, fountainhead, mother, origin, parent, provenance, provenience, source, spring, well or alike. Depending on the language or translations the world may have different interpretations or tone, such as the Finnish word “suihkulähteet” emphasizing the movement of water through jets.

A traditional fountain (Latin *fons*) refers to a system where water is drawn from a source, fills a basin of some kind, and is drained away. Fountains may be free-standing or connected to walls of buildings. In fountains sheet of water may flow over various types of surfaces: stone, concrete or metal. Basins may overflow from one to another, or the overflow may imitate a natural cascade. Fountains can be located in small, artificial, ornamental ponds, basins or formal garden pools, and often they include sculpture. By modern pumping and pressure water can be forced into the air through a *jet* or multiple jets, such as the famous water fountain of Lake Geneva, Switzerland. Light can be also added for additional decorations.

In the early phases fountains were used especially for public water supply purposes. The first evidence of water supply network emerged with cities of first ancient civilizations (Egypt, Sumerian and other civilizations in Middle East, Indus River, China). Ancient civilizations of the New World (e.g. Maya, Aztec, Inca) also developed sophisticated water systems, fountains being an important part of them. According to Hirst (1996) the first remaining fountains originate from 3000 BC²:

“The earliest surviving carved water basin, dating from around 3000 BC., was discovered at the site of Tello, one of the cities of Mesopotamia. At Mari, another of the most important cities, a stone fountain figure dating from around 2000 BC was discovered. The figure can be considered a prototype for the kind of fountains made in gardens for thousands of years thereafter: a female goddess holding a base into which water is piped to cascade forth, symbolizing the source of all life, the ultimate creative force of the garden.”

The Romans organized centralized system of aqueducts and collection of used water while they also used various types of small systems such as wells and fountains. In the Middle Ages water distribution was largely based on carried water by private water carriers or vendors. Such systems played the key role until industrialization when piped water and sewerage systems were established for growing communities.



Since antiquity fountains existed in cities with natural water bodies such as lakes, rivers and seashores. Their original purpose may have been to supply water to communities, but quite soon they have also been assigned other functions related to cityscape. Fountains have also been used to cool cities during hot spells.

According to Spiro Kostof, a well-known architecture historian, in the antiquity water fountains were normally located along the streets and since the late Middle Ages they started to become monumental accents on squares and plazas. As well vice versa: sometimes the whole square was designed to emphasize a particularly gorgeous water fountain, such as the Fountain of Neptune in Bologna, Italy from 1563.³ The more water hydraulics developed the more dramatic the water jet became and thus increasingly more impressive in the urban space. Later water fountains were increasingly linked with enjoyment of urban citizens. (Kostof, 1991; 1992). Regarding Renaissance Rome, urban historian Rinne (2011) shows how between 1560 and 1630, Rome's religious and civil authorities sponsored the construction of aqueducts, private and public fountains for drinking, washing, and industry, and the magnificent ceremonial fountains that are Rome's glory.

OBJECTIVES AND APPROACHES

From the very beginning the aim has been to explore and understand the development and diversity of water fountains: their birth, use and purpose, and chances over time and place. The more concrete objective has been to produce a first-rate, impressive international book on water fountains based on research that will be of interest to experts of water and related sectors, such as urban studies, town planning, water and environmental history, as well as the general public. The idea has been to provide an interesting, diverse and representative picture mainly of fountains found in the public spaces of cities.

The approach has been diversified. The significance of fountains for community water supply, summertime cooling, urban architecture, social environment, tourism and aesthetics have been studied and analysed. The key materials besides literature are photographs taken mainly by the editors and invited authors, or closely related people, over the last few years. They may be criticized for their amateur style. While recognising this, the approach of the authors is, however, most probably closer to those of ordinary citizens and the ways that they see the fountains in the cityscape in their everyday life.

The book can be considered justified due to the fact that in spite of their visibility quite little attention has been made to water fountains as part of the cityscape – their origin, purpose of use and their chances over time. Except for occasional cities like Rome or some part of books on city landscape and urban history, hardly any good overall book on water fountains exists. This is probably quite a surprise considering that water fountains can be found almost in any cities and townships. On an early phase of this joint effort a publication named "Water Fountains in the Cityscape" based on nine selected case cities was produced by the editors and published by the Public Works Historical Society in the Essay Book Series (Hynynen et al., 2011).

STRUCTURE OF THE BOOK

Contextually this book covers 16 cities in equally many countries from across the world and all the continents, where fountains have been or are an essential feature of the cityscape.

The target countries and cities are as follows: *Argentina (Buenos Aires), Australia (Adelaide), Austria (Vienna), China (Yuxi city), Finland (Helsinki), France (Montpellier), Germany (Hamburg), Hungary (Budapest), Israel (Jerusalem), Italy (Rome), South Africa (Pretoria), Spain (Barcelona), Sweden (Stockholm), Tunisia (Tunis), Turkey (Keçiören), and The United States (Washington DC).*

The geographical location of the case countries and cities is presented in Fig. 1.1. The aim was to have a good coverage of various geographical locations and various types of cases. The invitation of authors was largely based on personal contacts and therefore the Asian region is unfortunately underrepresented. For balancing this possible bias we have invited and requested examples and photos from other countries and regions. Yet, by purpose we did not select water fountains only from capitals and best know cities, but wanted to present them in smaller cities and townships as well.

The case stories were written or co-written by 15 invited and voluntary authors while each of the three editors was also involved in writing or co-writing of a few chapters. The layout was produced by a professional graphical designer, and except for the cases English being the mother tongue of the authors, linguistic checking and editing was carried out.

In this book we focus on historical, architectural and technical dimensions of water fountains. More specifically, the main focus is on public water fountains. Nowadays, they are often landmarks of the cityscape, while in their early history they were mainly used for public water supply purposes. Yet, cases like Japan (Merviö, 2011) reminds us on water fountains in gardens and more private surroundings. We fully recognize also the importance of art sculptural regarding

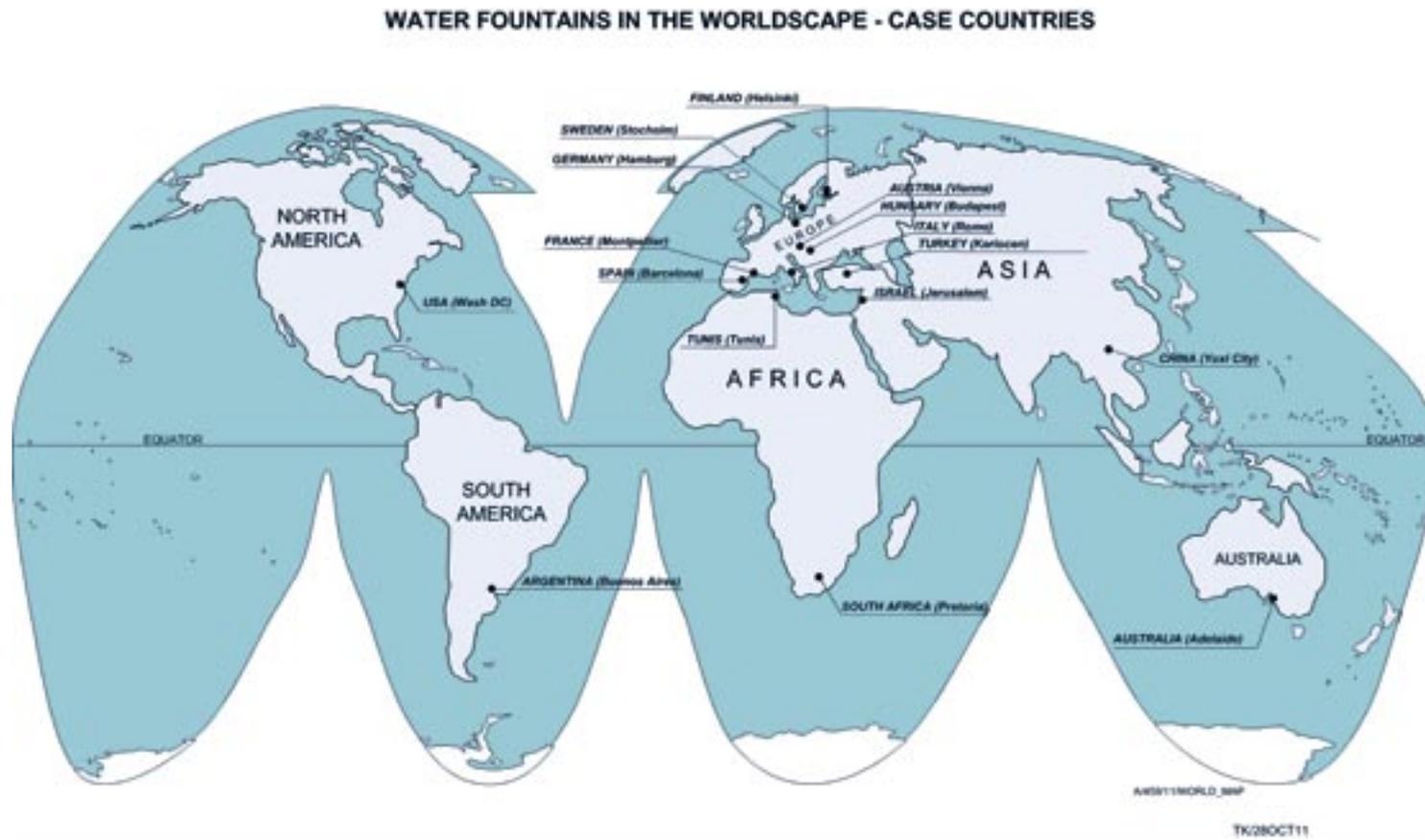
water fountains, while in this book only little attention is paid to it.

Water and fountains may often have religious and other important cultural meanings and allegories. For example, Christian allegory uses this concept in the “Fountain of Life” allegory, where fountain is associated to the rebirth which is intended to be happened at the Baptismal font. This concept appears already in the time of Late Antiquity. Some kind of interesting sidekick from the Fountain of Life was the legend of the Fountain of Youth, from which one lucky one can drink to get lost youth back or even gain immortality. Water fountains are also important for Muslim and Buddhist religions as shown by a few chapters of the book.

After the Foreword by Professor Johann Tempelhoff, and the Prologue by the editors Part II “Starting from necessity: Fountains with Traditions” has four cases. Part III “From Monumentalism to Changing Uses” includes five cases mainly on historical fountains, and Part IV “Expanding to Enjoyment of Modern Times” six more focused and recent cases on fountains. These are followed by Part V: Comparative analysis using additional examples from 72 cities in 39 countries, as well as the Epilogue by the editors. On the back cover of the book statements from internationally recognised experts are presented.

It is noteworthy how people use many devices otherwise than originally planned. For example children of all ages often use fountains for cooling, playing and splashing for fun. Many fountains are even barricaded to keep people out. But a more pleasant solution is to allow easy access and use of nonslip surfaces, so that people can freely and safely use them as they please, for example to cool off during hot days. This kind of approach is more citizen-friendly while it must be noted that historical artifacts cannot be altered for a mere pleasure of people. They must be restored as well as possible. But what comes to the new ones, also common good in the public sphere in this sense should be taken account.

Fig 1.1 Location of the 16 case cities and countries.



ACKNOWLEDGEMENTS

“Water fountains in the Wordscape” – a book project was based on voluntary efforts of many researchers around the world; those who contributed to this book as authors and those to the earlier essay book. As the editors of the book we wish to acknowledge this invaluable contribution. In the early phases of the project we were particularly encouraged by Professor Emeritus Erkki Helamaa, Prof. Neil S. Grigg and Prof. Martin V. Melosi for this effort.

The editors would like to thank all the authors for their cooperation and the following individuals for their useful contributions on photographs, comments and other advice: Ismo Asola, Helen Betts, Filiz Dilek, Paul Fanning, Eran Feitelson, Pascale Gailleton, Alan Hamel, Léo Heller, Dave Hendricks, Kati Hinkkanen, Vesa-Matti Honkanen, Simo Isoaho, Leena Julin, Jemi Katko, Rebekka Katko, Anne Kaksonen, Violeta Kauneliene, Mikko Lainejoki, Pasi Lehmusluoto, Jyrki Luukkanen, Harri Mattila, Vivikka Monto, Alexander

Otte, Nick Ourusoff, Mehmet Pinarevli, Harold Platt, Pekka Pietilä, Riikka Rajala, Pentti Rantala, Annelize Scholtz, Deborah Stansfield, Rory Villaluna, and S.B. Weerakoon.

The English language was checked by Jorma Tiainen, some of the graphs kindly drawn by Sari Merontausta, and the graphical design made by Tommi Kuikka.

Financial support from the Building Information Foundation RTS, the Finnish Association of Non-fiction Writers, and the Foundation of Finnish Association of Civil Engineers- RIL is highly acknowledged. Final thanks are due to the International Water History Association (IWHA) of accepting this book in their series.

In Tampere, the Finnish City of Industrial Heritage
1st of January, 2012
Editors



SOURCES

- Asola I. 2003. Vesitorni –yhdyskunnan maamerkki (Water tower – Landmark of the Community). Finnish Association of Civil Engineers, RIL. 174 p. <http://www.ril.fi/Resource.phx/kirjakauppa/watertower.htm>
- Hirst B. R. 1996. Fountains. A dissertation submitted to the faculty of the school of architecture, Kingston University, in candidacy for the higher national diploma in landscape studies.
<http://www.gardening-uk.com/waterlands/fountains/index.html> Visited 8.8.2011. Katko
- Hynynen A., Juuti P. & Katko T.S. (eds) 2011). Water fountains in the cityscape. Public Works Historical Society. Essay Book Series no. 30.
- Kostof S. 1991. The City Shaped. Urban Patterns and Meanings Through History. Thames & Hudson, London.
- Kostof S. 1992. The City Assembled. The Elements of Urban Form Through History. Thames & Hudson, London.
- Merviö M. 2011. Exploring the Meaning of Fountains in Japan. pp. 14-20. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011).
- Rinne K.W. 2011. The Waters of Rome: Aqueducts, Fountains, and the Birth of the Baroque City. Yale University Press.

Notes

- 1 http://en.wikipedia.org/wiki/John_Dewey 10.8.08
- 2 <http://www.gardening-uk.com/waterlands/fountains/types.html>, 21.1.2008
- 3 <http://www.bluffton.edu/~sullivanm/giambologna/neptune.html>

ROME'S FOUNTAINS: BEAUTY AND PUBLIC SERVICE FROM GEOLOGY, POWER AND TECHNOLOGY

Walter Dragoni

The fountains of Rome are, in themselves, magnificent combinations of art, such as alone it were worth coming to see.

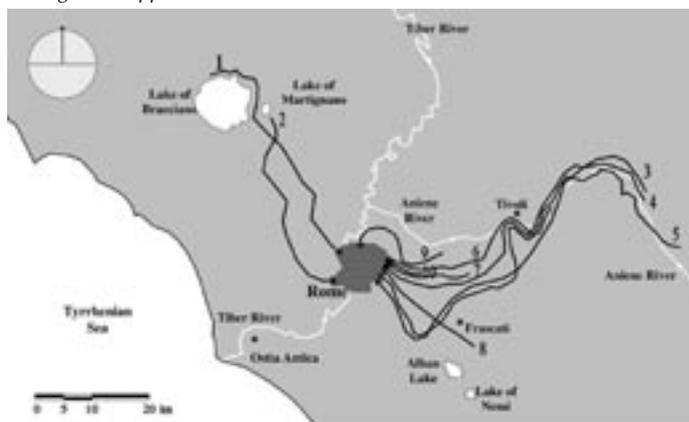
(Percy Bysshe Shelley, "Letters", 1819)

INTRODUCTION

Over the last 2300 years, probably no other city has been endowed with so many fountains and so much water as Rome. According to the press office of ACEA (Rome's water supplier), in 2008 there were about 3000 fountains in the city, several hundred of which are of high artistic and aesthetic value. The number and beauty of the fountains of Rome have inspired a vast amount of literature: just a few examples are the fundamental work by D'Onofrio (1962), the wonderfully illustrated and well documented volume by Cope (2004) and, more recently, the excellent and easy-to-read guide by Marchetti (2007) and the monumental text by Rinne (2011).

The present note is only a brief survey of an enormous subject, with a few technical and historical annotations; attention will focus on some specific fountains from different periods. I take the liberty and the pleasure of expressing a few aesthetic comments which, being made by an art lover and not by an art expert, should not be considered over-reliable. For a "complete" list of fountains, readers are advised to consult the bibliography, which includes some of the many excellent websites available on the subject. The text unavoidably refers to the means by which water was brought to Rome: the aqueducts (due to lack of space, the equally important system of sewers, which took water out of the city, is not discussed).

Fig. 1 Sketch of the ancient aqueducts of Rome. 1) Traiana; 2) Alsietina; 3) Claudia; 4) Marcia; 5) Anio Novus; 6) Anio Vetus; 7) Alexandrina; 8) Tepula-Julia; 9) Virgo; 10) Appia.



ANCIENT ROME

The fountains of Rome were originally simple works for collecting water from the many small springs in the hills on which, from 700 BC onwards, Rome developed. Many of these springs, or at least their locations, are known, but hardly anything now remains of these early collection points.

Monumental fountains presumably appeared after 312 BC, when the first aqueduct was built. According to Sexto Julio Frontinus (the state official in charge of water supply in Rome during the late I century AD), before that date, Roman citizens had to do with



Fig. 2 Ruins of the display fountain of Aqua Julia, (Rome, Piazza Vittorio Emanuele)(Photo: Walter Dragoni, 2008).

water from the river Tiber and from wells. At the height of its fame, in the first century AD, Rome had 11 aqueducts (Fig. 1), which provided about $9 \text{ m}^3/\text{s}$ of water. Assuming a population of between five hundred thousand and one million inhabitants, this is a surprising amount: 750-1500 litres/day/person - much more than the amount available in most modern cities (Pace, 1983). This leads us to conclude that the amount of water brought to Rome was not necessary for the city's survival, but was essentially a cultural attitude. The supply of such a huge quantity of water was, and still is possible, because the area in which Rome was founded is bordered to the north-west and south-east by volcanic hills with high precipitation. These hills also have various lakes and are rich in

groundwater, giving rise to numerous springs. East of Rome, some dozen kilometres away, are the Central Apennines, calcareous mountains which often reach 2000 metres in altitude. They are snow-covered in winter, and their rainfall exceeds 1000 mm/year: large quantities of water are supplied to rich aquifers made up of fractured and/or karstified calcareous rock formations. These underground waters are of exceptional drinking quality, and reach the surface through many high-discharge springs, some producing more than $10 \text{ m}^3/\text{s}$.

In antiquity, water from the Roman aqueducts was subdivided into three flows: about 17% was reserved for the Emperor and the *thermae* (public baths), 39%

for private citizens, and 44% for public use. Each aqueduct in the city had a *mostra*, i.e., a display fountain, sometimes known as a nymphaea, and the side branches of an aqueduct would also often have their own display fountains. The ruins shown in Fig. 2 give an idea of what a display fountain in ancient Rome was like.

Readers can appreciate the great number of fountains in ancient Rome by considering that, during the last part of the I century BC, Agrippa (son-in-law of the Emperor Augustus and in charge of Rome's public works) had 700 reservoirs, 500 fountains and 130 distribution tanks built (Pace, 1983). A few centuries later, some chronicles report that, in the IV century AD, Rome had 11 large public baths, 865 smaller baths, 1352 fountains or cisterns, and 144 public lavatories (Ward-Perkins, 1984).

Today, not much remains of the ancient Roman fountains. Figs. 3 and 4 show two well-preserved specimens, a small one for public drinking purposes in the town of Ostia, the port of Rome, and the nymphaea at Hadrian's villa near Tivoli. Both localities are about 20 kilometres from Rome. Fig. 5 shows the ruins of a fountain near the Coliseum; unfortunately, it was dismantled in about 1930, during the restructuring of the city centre by the fascist regime.

The number of fountains and the complexity of the water network both imply that, although knowledge of hydraulics was empirical and elementary, there was a high degree of organisation and management was very efficient. The conduits were made of wood, stone, mortar, terracotta and lead, and the taps and valves of high-quality bronze alloys, similar to modern ones.

DURING AND AFTER THE ROMAN EMPIRE'S FALL

The decline of Rome brought about the inevitable deterioration of its aqueducts and fountains: the diminished population and, starting from the IV century AD, wars, the civic and economic situation and barbarian invasions made any kind of care or repair



Fig 3 Public fountain in the main street of Ostia, the Port of Rome. Probably to be dated to the first part of II century A.D. (Photo: Walter Dragoni, 2008)

Fig. 4 (right) The nymphaea of Villa Adriana, the villa of Emperor Hadrian (Tivoli). Early II century A.D.. Similar huge fountains were also in Rome (Photo: Walter Dragoni, 2008).



Fig. 5 The picture shows the ruins of the Meta Sudans, a large fountain of the late 1 century A.D., nearby the Coliseum. The picture was taken before the ruin's destruction in the 1930s. (photo reproduced with kind permission of ICCD-Foto-teca Nazionale).





Fig. 6 During the Late Middle Age most of the aqueducts were ruined and without water, and the few working fountains were small and simple. Here there is a fountain, set against the walls of St. Paul Abbey, along the Ostiense Road, which gives an idea of the situation during the Middle Ages (as well as of the carelessness of the present times) (Photo: Walter Dragoni, 2008).

Fig. 7 The Cantaro, a rare example of Middle Age fountain in Rome. Probably of the XII century, Basilica of the Santi Quattro Coronati (Four Crowned Saints) (Photo: Walter Dragoni, 2008).



work almost impossible. The great aqueducts fell into ruins, due to a combination of natural wear and tear, lack of maintenance, and the effects of several earthquakes. In addition, during sieges, assailants would break up the aqueducts in order to deprive the besieged citizens of water, and the latter would often wall them up, for fear the enemy would use them to enter the city. The important aspect here is that such complex aqueduct systems can only be built and function in a region which has achieved peace and is under the control of one centralised political power with substantial economic resources. In general, none of these requisites were met in Rome from the V to the XV centuries AD.

During the Middle Ages, fragmentary information about Rome's aqueducts and fountains can be gleaned from the *Liber Pontificalis* (The Book of Popes), a collection of brief biographies, of varying quality and not always reliable, of the popes from St. Peter to Pius II (1458–1464). The *Liber Pontificalis* chronicles of the papal reigns often mention the public works undertaken. For example, it tells us that work on the aqueducts was carried out under Hadrian I (772–795), Gregorius IV (827 – 844) and Callistus II (1119–1124). Generally, in medieval times, one may say that the aqueduct system was substantially in disuse. This is reflected in the scarcity of medieval fountains, which were small, simple, and often made out of ancient sarcophagi (Fig. 6). One example of a medieval fountain, enigmatic and scarcely known, is the Cantaro, in the cloister of the XII-century Basilica dei Santi Quattro Coronati (Fig. 7). The architect Antonio Muñoz placed it in the cloister in 1912-1914; the Cantaro was probably previously under the apse of the same basilica (Barberini, 1989).

As a consequence of the lack of aqueducts and fountains, the hilly areas of Rome were mostly abandoned in medieval times. Living at the foot of a hill meant that water could be obtained from the Tiber and the wells that tapped into the groundwater, more or less continuously, drained towards the river.



THE FOUNTAIN'S GOLDEN AGE

After the middle of the XV century, a few ancient aqueducts were repaired, new ones were built, and proper water supplies began to reappear in Rome. I only mention in some detail the repair of two aqueducts and their display fountains. The first aqueduct to be repaired was that of the Virgo (Fig. 1) which, although with frequent and lengthy interruptions, had worked better than others during the Middle Ages. This was because it is mostly subterranean and fed by various springs, the farthest of which is only about twenty kilometres from Rome: thus, the Virgo aqueduct was easy to maintain even in difficult and turbulent times. In the late Middle Ages, its first important reconstruction was carried out between 1453 and 1467, during the reigns of Popes Niccolò V and Paulus II; further repairs were made by Sixtus IV in 1481-1483.

In the XV century, the Virgo aqueduct terminated where the famous Trevi Fountain is located today, and supplied water to a rather modest fountain, of which only some drawings survive (D'Onofrio 1970). The total restoration of the Virgo aqueduct was carried out in 1570, during the pontificate of Pius V, by a commission of architects, among whom was Giacomo della Porta. In a few decades and with some difficulty, a water distribution network was created, but it was only in 1762 that the display fountain of the aqueduct was unveiled: today's world-famous Trevi Fountain (Fig. 8). Designed by Nicola Salvi, probably following drawings by Bernini, this fountain is the most scenographic and impressive of Rome's Baroque fountains. As P. B. Shelley states *"The Fontana di Trevi is the most celebrated, and is rather a waterfall than a fountain; gushing out from masses of rock, with a gigantic figure of Neptune; and below are two river gods, checking two winged horses, struggling up from among the rocks and water"*.

In 1611, under Pope Paul V, the restoration of the ancient Trajan aqueduct was also completed (Fig. 1) by the architect Giovanni Fontana. From then on, it was known as the Acquedotto Paolo. The display fountain

for this aqueduct, called the *Fontanone* (Great Fountain) or *Fontana dell'acqua Paola*, is on the Janiculum Hill and, although more sober than the Trevi Fountain, is equally impressive (Fig. 9). It was designed by Giovanni Fontana and Flaminio Ponzi, and built out of ancient Roman materials taken from various archaeological sites, which were thus definitively destroyed. The architect Carlo Fontana designed the great collection basin in 1690.

During the period 1500-1700, besides the Fontanone and Trevi Fountain, a very large number of fountains were also built, some monumental and famous, many small, delightful and useful. Figs. 10 to 14 show some examples. The fountains built after 1500 in Rome and nearby localities, such as the splendid fountains

Fig. 8 (left) Fontana di Trevi, display fountain of Aqua Virgo (by Nicola Salvi, 1762) (Photo: Walter Dragoni, 2008).

Fig. 9 The Fontanone, display fountain of Aqua Paola (by Giovanni Fontana, Flaminio Ponzi and Carlo Fontana, 1690) (Photo: Walter Dragoni, 2008).



of Villa d'Este in Tivoli (about 1550) and Villa Aldobrandini in Frascati (about 1600), contributed to creating a European fashion for parkland decorated with great jeux d'eau, as in Versailles, France (about 1660), Chatsworth, in Derbyshire, England (about 1687) and the imperial park of Peterhof in St. Petersburg, Russia (about 1705). It is interesting to note that, although there is an incredible number of studies on ancient Roman aqueducts and hydraulic techniques, studies on the important aqueducts built or restored between the Renaissance and the end of the 18th century are relatively rare.



Fig. 10 Close-up of the Fountain of Pantheon (Giacomo della Porta, 1575).



Fig. 11 Fountain of the Facchino in Lata street. Until the second half of XV century the Romans were using mostly water obtained from wells and from the Tiber; the water was also sold by water vendors. This fountain, built around 1590, reminds about this ancient trade (Photo: Walter Dragoni, 2008).

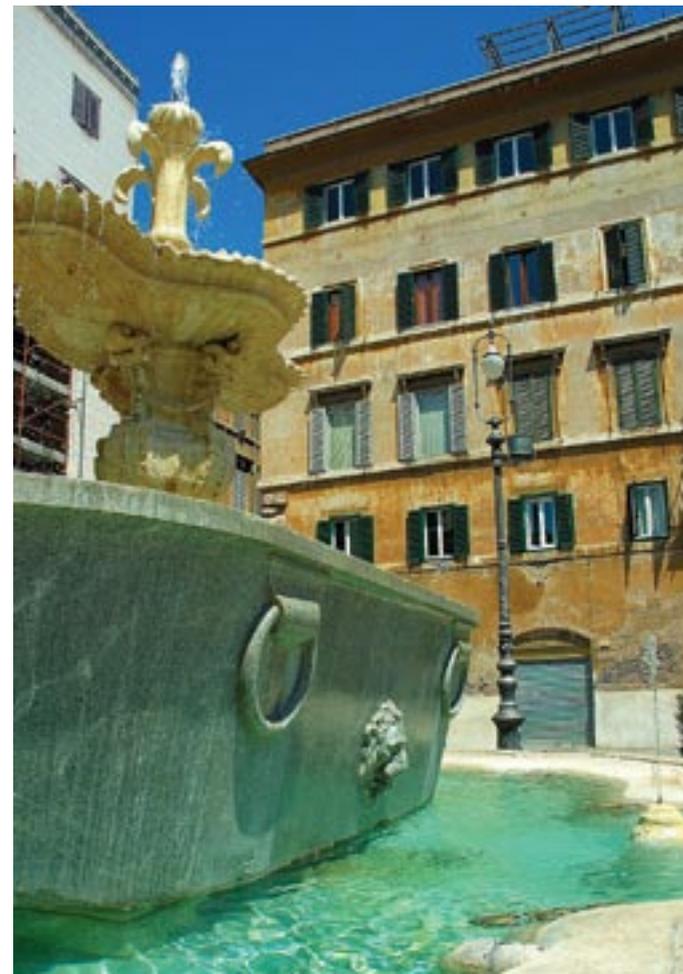


Fig. 12 (left) One of the two fountains in Piazza S. Pietro, built in 1612 and 1670 ca. according to a design of Carlo Maderno, slightly modified by Gian Lorenzo Bernini. They are peculiar for the upper basin which, being "upside-down", forces the water to have an unusual curtain-like flow (Photo: Walter Dragoni, 2008).

Fig. 13 One of the twin fountains in Piazza Farnese, by Girolamo Rainaldi, 1626. The granite basins were found in 1466 at the Caracal Terms (Photo: Walter Dragoni, 2008).

There are few detailed studies regarding work on springs, hydraulic gradients, inverted siphons, drop-shafts, topographical instruments, valves and taps. Some evidence suggests that, at least until the end of the 17th century, some of the architects who had beautified Rome with artistic masterpieces and fountains and built aqueducts, did not know much about the developments in hydrology and hydraulics which had occurred since the last decades of the 15th century. For example, Leonardo da Vinci clearly described the water cycle around the end of the 15th century and the potter Bernard Palissy and the “Receiver General of Finances” Pierre Perrault described it in even more detail, respectively in 1580 and 1674. Despite this, in 1690 the great architect Carlo Fontana, in a technical book, wrote that the origin of springs could be found in the constant condensation of water inside the earth: “vapours are attracted to the concavity of earth by the heat of the heavens, we should frown upon those that believe rivers and springs to have their origin solely from rainwater” (Fontana, 1690).

During the 19th century, some new fountains were built and others were modified: for instance, the beautiful Fountain of the Dioscuri (in Piazza del Quirinale) acquired its present look in 1818, when the large Roman granite basin, found in the ruins of the Forum, was set in place (Fig. 15).

Fig. 15 The great basin of the Fountain of the Dioscuri in Piazza del Quirinale (Domenico Fontana 1588 and Giovanni Antinori, 1816). “On a pedestal or white marble rises an obelisk of red granite, piercing the blue sky. Before it is a vast basin or porphyry, in the midst of which rises a column or the purest water, which collects into itself all the overhanging colours of the sky, and breaks them into a thousand prismatic hues...” (P. B. Shelley) (Photo: Walter Dragoni, 2008).



Fig. 14 Piazza Navona, Fountain of the Four Rivers (particular), designed by Gian Lorenzo Bernini, 1653. “That (fountain) in the Piazza Navona, a large square, is composed of enormous fragments of rock, piled on each other, and penetrated, as by caverns” (P. B. Shelley).

AFTER THE UNIFICATION OF ITALY

The tradition of building fountains in the city continued even after the unification of Italy (1861), when Rome became the capital (in 1871) and papal rule was restricted to within the walls of the Vatican. An example from this period is the large Fountain of the Naiads (water-nymphs) in *Piazza della Repubblica* (Fig. 16). In 1870, Pope Pius IX had inaugurated a much simpler version in another location; around 1885, it was moved to its present position. In 1901, the statues of the Naiads were added by the sculptor Mario Rutelli, creating quite a scandal at the time, as their bodies and poses were seen to be too lascivious. Unfortunately, at present, the square where the fountain is located is spoiled by heavy traffic, and this clashes with the fresh, watery beauty of the smiling Naiads who, in my opinion, are really quite happily lascivious. I would also like to mention two other impressive twin fountains of the same period, at the base of the monument to King Vittorio Emanuele II, officially inaugurated in *Piazza Venezia* in 1911, next to the Capitoline Hill (Fig. 17).

Fig. 16 (below) *Fountain of the Naiads, Piazza della Repubblica* (Alessandro Guerrieri and Mario Rutelli, 1980 – 1901) (Photo: Walter Dragoni, 2008).

Fig. 17 (right) *The Fountain of the Tyrrhenian Sea, by Pietro Canonica*. This is one of the twin fountains which lie at the base of the *Monument to King Vittorio Emanuele II, in Piazza Venezia* (Photo: Walter Dragoni, 2008).



In the early decades of the XX century, apart from the thousands of gracious and useful cast-iron fountains producing free drinking water for everybody (Fig. 18), many small fountains were built, like the charming ones drawn by the architect Pietro Lombardi. They often recall some characteristics or functions of the place in which they are located (Fig. 19).

Many large new fountains were built between the early 1930s and 1942, in the “rationalist” style of the fascist period, making a radical change from the past. Fig 20 shows the Fontana della Minerva (goddess of knowledge) in the central square of the University of Rome “La Sapienza”, inaugurated in 1935. Figs. 21 and 22 show some of the magnificent but cold fountains of the new EUR district, which were designed in the late 1930s.

Fig. 18 One of the thousands of iron cast fountains giving free drinking water in the streets of Rome. They began to be built at the end of the XIX century (Photo: Walter Dragoni, 2008).



Fig. 20 Fontana della Minerva, in the central square of the University of Rome “La Sapienza”, ca. 1935 (Photo: Walter Dragoni, 2008).

Fig. 19 (below right) Fountain of the Books, sited against the Palace of the old “La Sapienza” University (Pietro Lombardi, 1927) (Photo: Walter Dragoni, 2008).





Fig. 21 (left) A modern fountain in the EUR district (Gaetano Minnucci, late 1930s - 1942 ca.) (Photo: Walter Dragoni, 2008).



Fig. 22 (right) Palazzo dei Congressi, EUR district (Adalberto Libera, late 1930s - 1940s). (Photo: Walter Dragoni, 2008)

During the XX century, many old fountains were repaired, moved or rebuilt: one example is the fountain of the *Mascherone di Santa Sabina*, on the Aventine Hill (Fig. 23). The great meditative, frowning, bearded face (*mascherone*, or great mask) was carved in about 1593 by a little-known sculptor, Bartolomeo Bassi, for a fountain designed by the architect Giacomo della Porta. Through the centuries, the mascherone was moved several times and ended up in the city council's deposits. In 1936, Antonio Muñoz built the present fountain, using the old mascherone and an ancient Roman basin. I consider this to be one of the most fascinating fountains in Rome.

THE LAST DECADES

After World War II, some display fountains for new aqueducts were built, but a stroll through the new city districts quickly demonstrates that times have changed, and not much building land of high commercial value is used for public parks and fountains.

Rome's most recent large fountain was built in 2005, as part of a new arrangement of the Ara Pacis, the Altar of Peace, built at the end of the I century BC to exalt the peace established by the Emperor Augustus throughout the Roman Empire (Fig. 24). This fountain, designed by the architect Richard Meier, did not receive universal approval. Its glaring white and sharp orthogonal lines remind me of the fountains of the 1930s: very nice, totally perfect and gelid. No, it is not an easy task in Rome to build new fountains, able to stimulate the fantasy of travellers and children's games as much as the old ones.

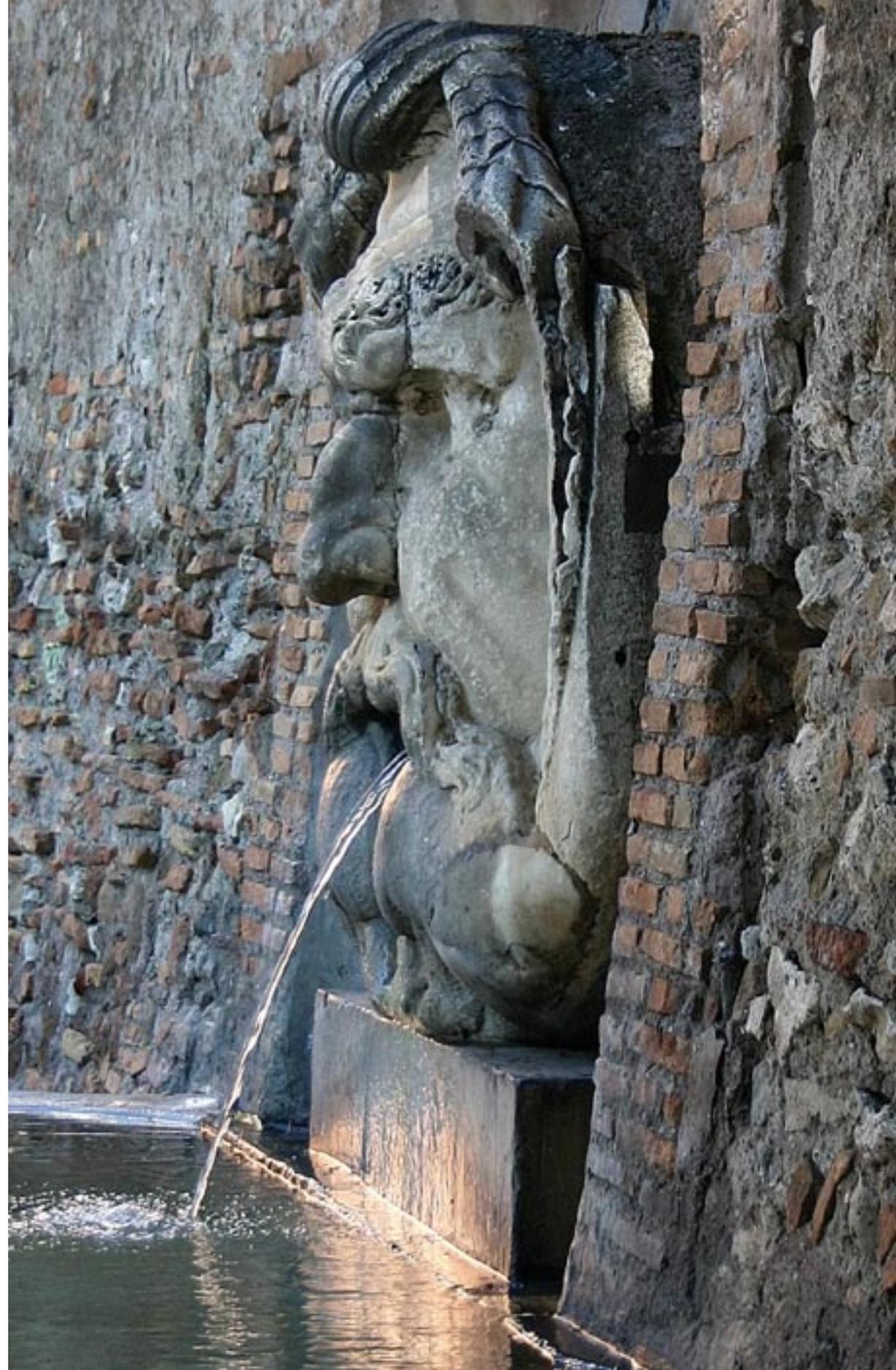


Fig. 23 *The Mascherone of Santa Sabina, in the Aventine Hill (Giacomo della Porta, Bartolomeo Bassi, Antonio Muñoz, 1593 – 1936) (Photo: Walter Dragoni, 2008).*



Fig. 24 Fountain of Ara Pacis (Richard Meier, 2005).



SOURCES

- Barberini M. G. 1989. *I Santi Quattro Coronati a Roma*. Fratelli Palombi Editori, pp. 72. ISBN 88-7621-307-4 (in Italian).
- Cope F. 2004. *Fontane di Roma*. Rizzoli Libri Illustrati, Gruppo Skira, Ginevra – Milano, pp. 207 (in Italian).
- D'Onofrio C. 1962. *Le Fontane di Roma, con documenti e disegni inediti*. Staderini Editore, Roma, pp. 309 (in Italian).
- Fontana C. 1696. *Utilissimo Trattato dell'Acque Correnti*. Reprint 1998, edited by Hager H., Edizioni dell'Elefante, ISBN 88.7176.103.0 (in Italian).
- Marchetti F. C. 2007. *Piazas and Fountains of Rome*. Mondadori Electa Spa, Milano, pp. 128. ISBN-10: 8837049730.
- Pace P. 1983. *Gli Acquedotti di Roma*. Art Studio S. Eligio, Roma, pp. 330 (in Italian).
- Rinne K. W. 2011. *The Waters of Rome: Aqueducts, Fountains, and the Birth of the Baroque City*. Yale University Press. pp. 262
- Ward-Perkins B. 1985. *From Classical Antiquity to the Middle Ages. Urban Public Building in Northern and Central Italy AD 300-850*. Oxford University Press, USA, pp. 296. ISBN-10: 0198218982.

Web-pages:

<http://www.romaspqr.it/ROMA/Fontane.htm>

<http://www.iath.virginia.edu/rome/>

http://www.thais.it/citta_italiane/roma/fontane/fontane.htm

MEETING PLACE OF CHINESE CULTURE AND WATER: THE CASE OF THE NINE-DRAGON FOUNTAIN OF YUXI CITY, CHINA

Zheng Xiao Yun

CHINESE TRADITION ON FOUNTAINS

The Chinese can boast a long history of utilizing fountain water, but their approach and views on natural fountains are clearly different from people in other, particularly western countries. The Chinese people have always endowed fountains with religious or cultural connotations, the dragon being the most popular symbol of these. Thus, the places where fountains gush out are often referred to as dragon fountains. People prefer to have temples or related buildings near fountains. Therefore, they have little interest for jet or drop type fountain outlets with artistic creations built above the fountain outlet as people have e.g. in many European cities.

Some Chinese people think that changing of the outlet violates the sanctity of the fountain: the ideal was to build a pool near the outlet to enjoy the fountain and the clear water as well as to build temples to sacrifice to gods and saints, or other buildings to enjoy the fountain, as in the case of the Bao Tu Fountain of Ji

Nan City, the most famous fountain in China (Fig. 1). Jin Nan, the provincial capital of Shandong province, is located in the central western part of Shandong province in eastern China on the lower reaches of the Yellow River. People have built pools around the outlets of the fountain and sub-fountains to watch and enjoy the water gushing from the fountains as well as buildings and gardens in memory of famous people to savour the ambience. In summer time, being able to watch the gushing fountain means a lot to the citizens.

The earliest function of the fountain was irrigation, but as local communities developed, it received new and more extensive functions, often endowed with profound cultural connotations. It was typically connected to the dragon culture. Moreover, it has become a landmark and center of social life for local urban and rural settlements. Thus, the dragon fountain has become the meeting place of Chinese culture and water.

Fig. 1 Bao Tu Fountain of Ji Nan City, the most famous fountain in China (Photo: Zheng Xiao Yun, 2008).





Fig. 2 The main fountain in the Nine Dragons Fountain, waterscape with stones and trees (Photo: Zheng Xiao Yun, 2008).



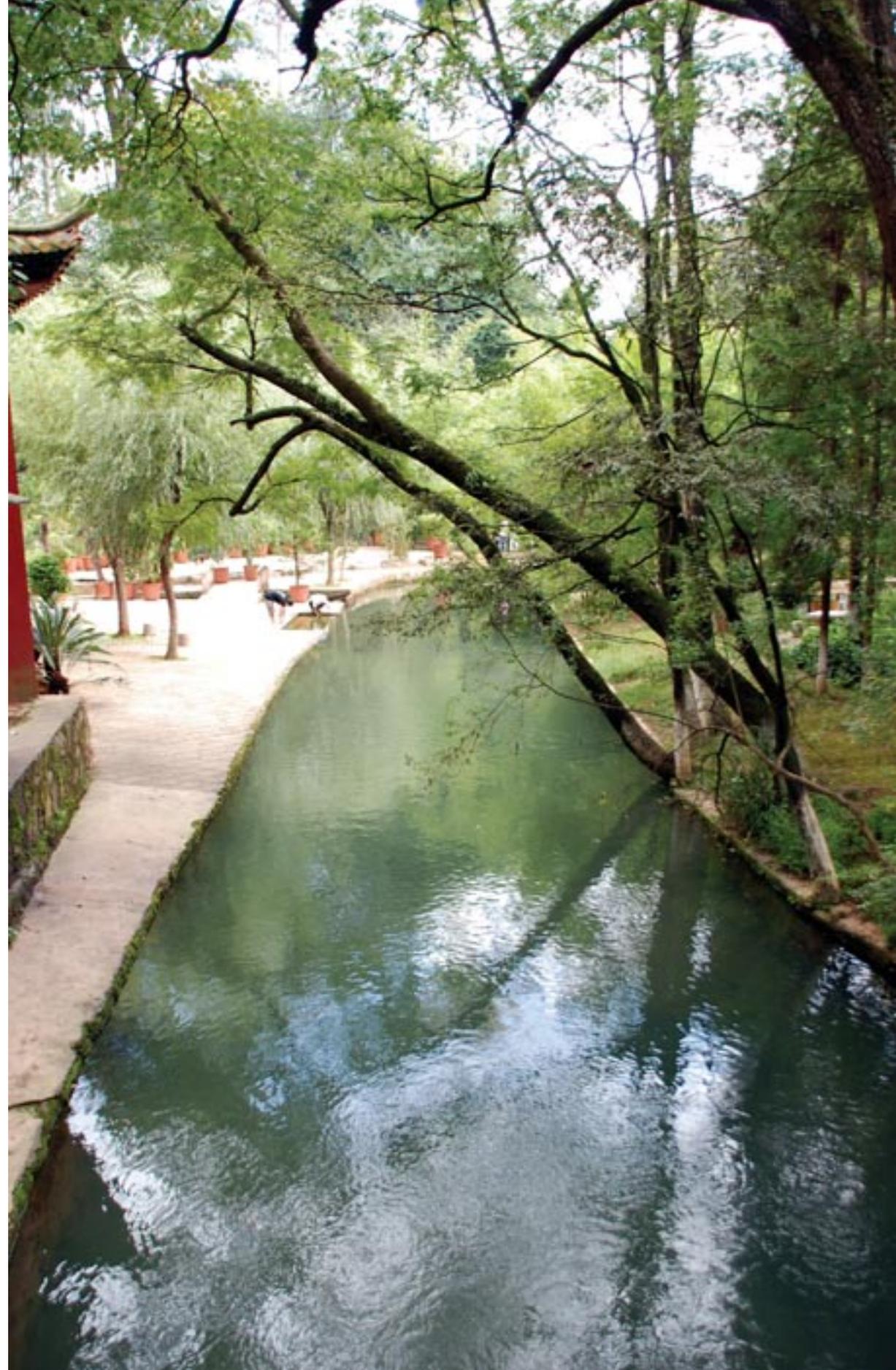
Fig. 3 The second biggest fountain and waterscape in the Nine Dragon Fountain (Photo: Zheng Xiao Yun, 2008).

THE NINE-DRAGON FOUNTAIN

The Nine-Dragon Fountain of Yuxi City, Yunnan Province, in Southwest China is a typical example of Chinese dragon fountain culture. It is located 10 km northwest of downtown Yuxi, comprising nine fountain outlets. The gushing volume of the fountain water is considerable all year round and forms a river called the Nine-Dragon River. Since its utilization started, it has been an important water source for local agriculture and has irrigated tens of thousands of hectares of farmland. Because the outlets are surrounded by ominously quiet hills, dense forests, and crystal clear ponds, the scenery is wonderful. Thus, it has been a popular tourist attraction since the Ming Dynasty which considered water an important component of the cityscape and people's social life.

At the end of the Ming Dynasty, about 300 years ago, people started building many religious and sightseeing buildings near the fountain. Most of them are situated along the stone cliff behind the largest fountain. An oblong pond called the Large Dragon Pool, about 110 square meters in area (Fig. 2, 3, 4) was built of stones at the outlet of the largest fountain. The water gushing out of the fountain is crystal clear, one can even see the carps swimming at the bottom. The main buildings include the "Nine-Dragon Palace", a temple dedicated to the dragon king (Fig. 5, 6, 7), the "Five Si Temple" dedicated to the tiger, the monkey, the chicken, the sheep and the rabbit, the "Tower of Three Saints" dedicated to Sakyamuni, the founder of Buddhism (Fig. 8), Lao Zi, the founder of Taoism, and Confucius, the founder of Confucianism, the pavilion where tourists can watch and listen to the fountain, as well as the Opera Building for staging operas (Fig. 9). There are also three pine parks planted with large pine trees dozens of meters high, said to have been planted by monks during the Ming Dynasty. All the construction was done with the fountains in mind which enabled perfectly blending the buildings into the natural landscape.

Fig. 4 The channel flowing into the Nine Dragons River with thousands hectares of paddy fields for hundreds of years (Photo: Zheng Xiao Yun, 2008).



Although the Nine-Dragon Fountain is a natural attraction, it also has profound cultural connotations deriving mainly from the relationship between Chinese culture and water – a national symbol. Firstly, because it is linked to the most important natural god of Chinese culture – the dragon. Chinese people believe that dragons live in fountains and spit out the fountain water, which is why they hold fountains sacred. That is also why a temple of the dragon king was built beside the largest fountain to honor him. According to a legend, the water is spit out by nine dragons, hence the name the Nine Dragon Fountain.



Fig. 5 The dragon 's temple near the main fountain (Photo: Zheng Xiao Yun, 2008).

Fig. 6 The statue of the dragon king and his wife inside the temple (Photo: Zheng Xiao Yun, 2008).





Fig. 7 The sculpture of dragon in the temple (Photo: Zheng Xiao Yun, 2008).

The founders of Buddhism, Taoism and Confucianism – considered sacred by the people – as well as some animal gods of local legends and myths are also honored there, which also serves to increase the sacred status of the fountains. The Nine Dragon Fountain is also the most important place for local urban social life where, during the annual fountain festival, tens of thousands of local people come to attend the largest temple fair in Yuxi City to make sacrificial offerings to the dragon god, watch opera performances

and engage in other recreational activities. In normal times, it was a famous scenic spot where people could relax. In the past three centuries, the Nine Dragon Fountain has changed from a water source for agricultural irrigation to an important local attraction. Since the fountain is an object of worship, the local people are eager to build waterscapes in the city. The big waterfall as a symbol of the city is one of the big waterscapes built in recent years.

CONCLUDING REMARKS

The past three centuries have seen the Nine Dragon Fountain change from a water source for irrigation to an important landmark for the townspeople. And fountain worship has caused the local people to build waterscapes in the city.



Fig. 8 The buddhism temple built near the fountain (Photo: Zheng Xiao Yun, 2008).



Fig. 9 The arena in the fountains park (Photo: Zheng Xiao Yun, 2008).



SOURCES

The Fountain Protection Office of Jin Nan City 1998. A view of the famous fountain of Jin Nan Freehouse. Jin Nan Freehouse.

The committee of records of Yu Xi 1994. The city recods of Yu Xi. China Bok Bureau. Beijing.

SABILS (WATER FOUNTAINS) OF JERUSALEM FROM THE MEDIEVAL PERIOD TO THE TWENTIETH CENTURY

Avraham Sasson

The term "*sabil*" has two meanings in Islam. In the religious sense, it refers to the upright and righteous way in which a man should walk with his God and his fellowman. In the physical sense, it denotes the means that a person dedicates for the general good, with no intent of receiving any consideration in return, such as an installation for providing water to travelers that is known in the Eastern world as the *sabil*. These installations were so important that Turkish authorities would grant tax exemption to anyone who privately built a *sabil* for public use, on condition that he ensured that water would always be available for travelers at the *sabil*. This article describes and analyzes the *sabils* discovered in Jerusalem and their distribution and typology, which have recently drawn scholarly attention (Behrens-Abouseif 1995; Bosworth 1995; Burgoyne 1987: 109; Canaan 1927: 39; Kana'an 2001; Natsheh 2002; Rosen-Ayalon 1989; Sasson 2001; 2002; 2006).

STRUCTURE OF THE *SABIL*

The *sabil* has three main elements: (i) in the back of the *sabil*, a storage tank was built for the water that came from a well or spring; (ii) the facade was built in the shape of a large arch that sheltered the water faucet and trough. At times it incorporated ancient architectural details. The top of the arch sometimes

bore an inscription on a marble tablet that sang the praises of the builder of the *sabil* and cited the date of its erection; (iii) the drinking water and drainage system, installed in the lower part of the *sabil*, included a faucet, cups, and a trough for the drainage of water.

The main water supply system for the *sabils* in Jerusalem in the medieval period and the time of the sultan Suleiman (sixteenth century) was the aqueduct (*Qanat al-Sabil*, "*Sabil* Aqueduct") that brought water from Solomon's Pools, in the vicinity of Bethlehem, to the reservoirs on the Temple Mount (*Haram*).

TYPOLOGY OF THE *SABILS* IN JERUSALEM

Some 30 *sabils* were located in Jerusalem, which I divided into a number of characteristic groups (Sasson 2002), with some *sabils* possessing the features of more than a single group. By their builders two groups are identified. First, government *sabils*, that were built by the authorities, generally in the medieval period and the beginning of the Ottoman period (nos. 1-14, 25, 27 in the table). Second, *sabils* built upon private initiative, by people of means, usually in the late Ottoman period (nos. 14-23, 26).

Fig. 1 *Sabil Sha'lan*, view from the west (Photo: Avraham Sasson, 2006).



By their architecture and functionality three groups of sabils are distinguished. First, the wall *sabil*, that was built in the wall of a structure for public or private use (nos. 6-8, 10-11, 15, 18-19, 23-24, 26). Second, the freestanding *sabil*, an independent structure, at times in the form of a kiosk (nos. 3-5, 9, 12, 17, 20-22, 25, 27). Third, the *misca*: a sabil without a constant supply of flowing or stored water that was built as a stylized tank, and was externally filled by a volunteer; built either as a separate structure, supported by another structure, or incorporated within the wall of a structure (nos. 2-4, 12-14, 16-25).

Fig. 3 *Sabil Qasim Pasha*, view from the east (Photo: Avraham Sasson, 2006).

Fig. 2 *Sabil Qayat Bay*, view from the west (woodcarving from the nineteenth century).





Fig. 4 Inauguration of the Sabil Birkat al-Sultan, 1901 (Central Zionist Archives, Jerusalem).

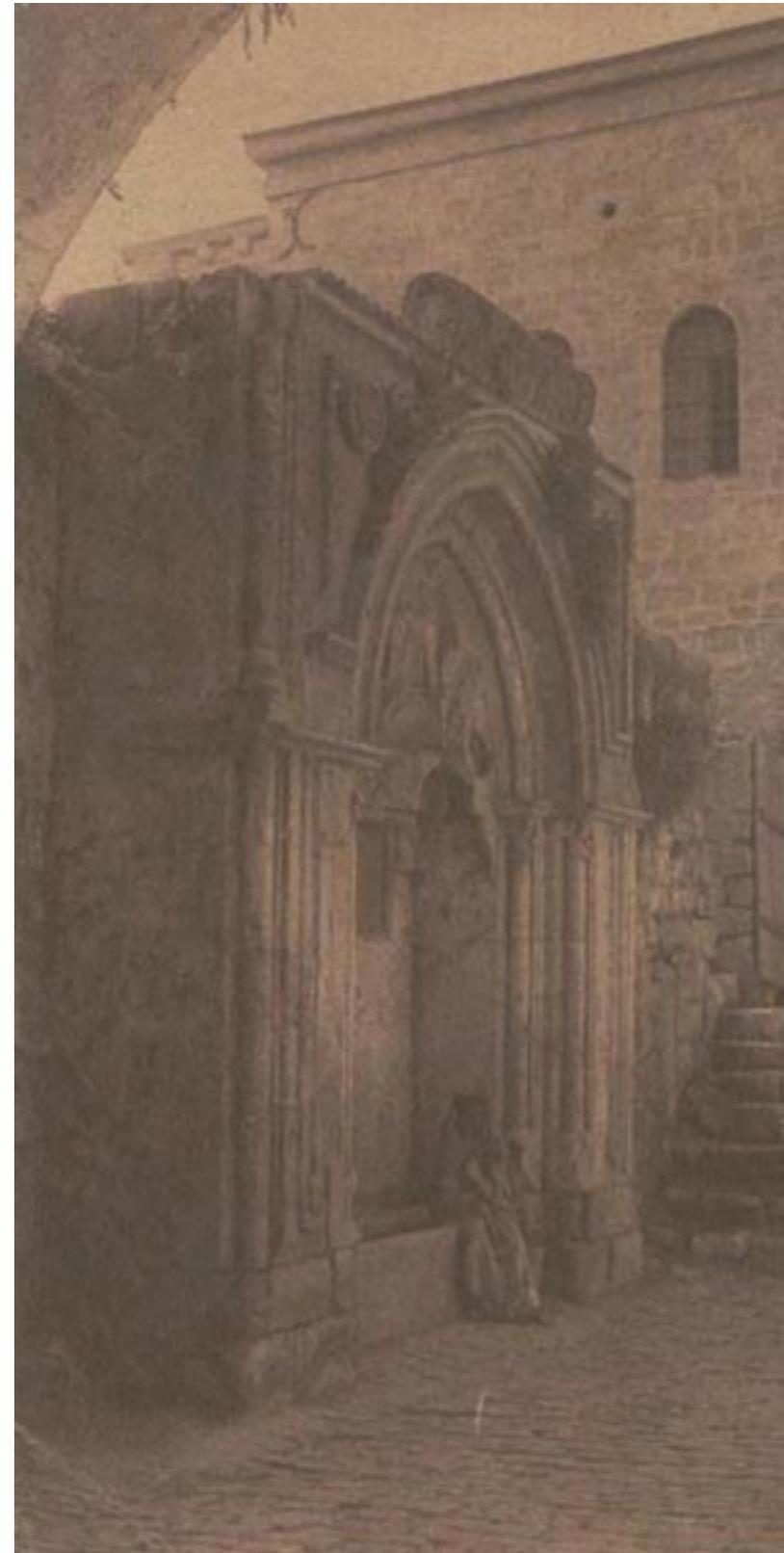


Fig. 5 Sabil Tarq al-Wad (Hagay Street), postcard from 1921 (collection of Abraham Sasson).

THE *SABIL* INVENTORY IN JERUSALEM

The scope of the material prevented us from giving a full and detailed description of the *sabils*. The table below concisely describes the central elements and the extent of the phenomenon.

No.	Period	Site name	Location	Dates from	Builder	Water source	Type
1	Ayyubid	<i>Sabil</i> Sha'lan (Fig. 1)	Temple Mount	1216	Malik al-Mu'atam Issa	reservoir	<i>misca</i>
2		<i>Sabil</i> Sheikh Jarah	Sheikh Jarah mosque, north of the Old City; along the historical road to Shechem (Nablus)	Ayyubid-Ottoman(?)		cistern	<i>misca</i>
3	Mamluk	<i>Sabil</i> al-Basiri	Temple Mount	1266	Ala ad-Din al-Basiri	aqueduct	Freestanding / <i>misca</i>
4		<i>Sabil</i> Qayat Bay (Fig. 2)	Temple Mount	1460, by al-Ashraf Inal; 1482 – restored by Qayat Bay	Qayat Bay	cistern	<i>sabil qutab</i> ; freestanding / <i>misca</i>
5	Ottoman, 17 th century	<i>Sabil</i> Qasim Pasha (Fig. 3)	Temple Mount	1527	Qasim Pasha	aqueduct	freestanding
6		<i>Sabil</i> Birkat al-Sultan (Fig. 4)	Sultan's Pool (Birkat al-Sultan), Hebron Road	1536	Suleiman	aqueduct	wall
7		<i>Sabil</i> Tarq al-Wad (Fig. 5)	Hagay Street	1536	Suleiman	aqueduct	wall
8		<i>Sabil</i> Bab al-Silsila (Fig. 6)	Shalsholet Gate	1537	Suleiman	aqueduct	wall
9		<i>Sabil</i> Bab al-Atam (Faisal Gate)	Temple Mount	1537	Suleiman	aqueduct	freestanding
10		<i>Sabil</i> Bab al-Asbat ("Bab Sitti Maryam")	Lions' Gate/Via Dolorosa	1536-7	Suleiman	aqueduct	wall
11		<i>Sabil</i> Bab al-Nazir (Gate of the Inspector) (Fig. 7)	Hagay Street	1537	Suleiman	aqueduct	wall

12		<i>Sabil Bab al-Maghariba (Maghribi Gate) (Fig. 8)</i>	Temple Mount	1579		reservoir	Freestanding / <i>misca</i>
13	Ottoman,	<i>Sabil Sha'lan</i>	Temple Mount	1651	Muhammad Pasha	reservoir	<i>misca</i>
14		<i>Sabil al-Shurbaji</i>	Hagay Street	1686	Abed al-Karim Shurbaji	external filling(?)	<i>misca</i>
15	eighteenth century	<i>Sabil al-Khalidi</i>	Shalsholet Gate	1713	Muhammad San'allah al-Khalidi	Reservoir /cistern(?)	wall
16		<i>Sabil al-Husaini</i>	Temple Mount	1724-5	Hasan al-Dani al-Husaini	Reservoir /cistern(?)	<i>Misca</i>
17		<i>Sabil Mustafa Agha (Sabil al-Shaikh Budair) (Fig. 9)</i>	Temple Mount	1740-1	Mustafa Agha and Uthman Beq al-Fiqari		<i>Misca</i> /freestanding
18	nineteenth century	<i>Sabil Bab Hitta (Fig. 10)</i>	Temple Mount	nineteenth century(?)		external filling	<i>Misca</i> /freestanding
19		<i>Sabil Turba Birka Khan (Fig. 11)</i>	Shalsholet Street	nineteenth century(?)	Khalidi family(?)	external filling	<i>misca</i> /wall
20		<i>Sabil Mar Elias (Fig. 12)</i>	Mar Elias monastery, Hebron Road	early nineteenth century		external filling	Freestanding / <i>misca</i>
21		<i>Misca Mar Elias</i>	western wall, Mar Elias monastery	early nineteenth century		external filling	wall/ <i>misca</i>
22		Armenian Quarter <i>sabil</i>	Entrance gate, Armenian Quarter	mid-nineteenth century		external filling	Freestanding / <i>misca</i>
23	late Ottoman period, late	<i>Sabil Qutneh (Fig. 14)</i>	Nablus Road, facade of exterior wall			external filling	wall/ <i>misca</i>
24		<i>Sabil St. Etienne</i>	St. Etienne monastery, wall	1890		external filling	wall/ <i>misca</i>
25		<i>Sabil Abdul Hamid</i>	Jaffa Gate	1900	Abdul Hamid		Freestanding / <i>misca</i>
26	British Mandate	<i>Sabil Talpiot</i>	Hebron Road			water pipe	wall
27		<i>Sabil Arthur Voulkup (Fig. 15)</i>	railroad station	1938	Arthur Voulkup	water pipe	freestanding



Fig. 6 (far left) Sabil Bab al-Silsila (Hashalshalet Gate), woodcarving from the mid-nineteenth century.



Fig. 7 Sabil Bab al-Maghariba (Maghrabi Gate), view from the west (Photo: Avraham Sasson, 2006).



Fig 8. (far left) Sabil Sha'an, view from the west (Photo: Avraham Sasson, 2006).



Fig. 9 Sabil Mustafa Agha, view from the south (Photo: Avraham Sasson, 2006).

Fig. 10 Sabil Bab Hitta, view from the west (Photo: Avraham Sasson, 2006).



Fig. 11 (far right) Sabil Turba Birka Khan, view from the north (Photo: Avraham Sasson, 2006).



Fig. 12 Sabil Mar Elias, view from the north (Photo: Avraham Sasson, 2005).

Fig. 13 (far right) Armenian Quarter sabil view from the west (Photo: Avraham Sasson, 2005).



MAIN CHARACTERISTICS AND CHANGES IN THE APPEARANCE OF THE SABILS IN JERUSALEM: SUMMATION AND CONCLUSIONS

I The *sabils* in Jerusalem were typically constructed by Muslims.

II The installation of *sabils* on or near the Temple Mount attests to the builders' desire to act for the religious benefit of the believers, and to elevate the latter beyond the physical need for drinking water.

III The collapse of the city's water system was matched by a corresponding awakening of local entrepreneurs to build *sabils*.

IV The absence of dedicatory and memorial inscriptions from the private *sabils* highlights the altruistic nature of the builders' fulfilment of the commandment to give charity anonymously.

V Only government *sabils* were built as independent structures that were conspicuous in the urban landscape.

VI Most of the inscriptions that were discovered appear in government *sabils*. Only an extremely limited number of dedicatory inscriptions were found on private *sabils*.

VII The construction of *sabils* of the *misca* type was prevalent mainly on the Temple Mount, due to its numerous reservoirs.

VIII Although all the rulers who built *sabils* emphasized in their inscriptions their obligation to God and the city's residents, they spared no effort to make their activity known. The diverse range of *sabils* in the Temple Mount plaza eloquently expresses the gallery of sultans and other rulers active in the construction and development of the city.

IX The *sabil's* size and imposing appearance corresponded to the means at the disposal of the builder. The largest *sabils* were constructed by rulers, while the private *sabils* were small and modest.

X Private initiatives for the building of *sabils* were incorporated in municipal planning by the governmental system.

XI All the *sabils* are in the built urban expanse of Jerusalem; none were found in its rural expanse.

XII The distribution of *sabils* in Jerusalem extends from the nucleus (the Temple Mount) to the surrounding city and beyond.

XIII All of Suleiman's *sabils* were built at street intersections and at central sites in the city, around the Temple Mount. The medieval *sabils* were built on the Temple Mount. In the early Ottoman period, the *sabils* began to spread into the city, and starting at the end of this period, *sabils* began to be built beyond the Old City walls, following the development of the settlement outside the walls.

XIV The geographical orientation of the distribution of the *sabils* established by Suleiman continued for many years after him. The centrality of al-Wad (Hagai) Street was responsible for the construction of the majority of the *sabils*, until the British Mandatory period, on or near its course.



Fig. 14 Sabil Qutneh, view from the west (Photo: Avraham Sasson, 2005).

XV The only *sabil* built by Suleiman beyond the city wall, on Hebron Road, attests to Suleiman's preference for this road and the city of Hebron, over other cities and roads that were no less important in the urban hierarchy of the Land of Israel at the time.

XVI In the late Ottoman period, the *sabil* builders considered the gates and entrances to the Temple Mount as the key factor in *sabil* location.

ACKNOWLEDGEMENTS

This study was conducted with the assistance of the Research Fund of the Ashkelon Regional College. The late Amnon Kidron, Yonel Sharvit, and Abraham Izderechet aided in the fieldwork.

Fig. 15 *Sabil Arthur Voulkup, view from the west*
(Photo: Avraham Sasson, 2005).



SOURCES

- Behrens-Abouseif D. 1995. *Sabil*. pp. 679-83. In: Bosworth C. E. et al. (eds.). *The Encyclopedia of Islam*. Brill.
- Burgoyne M. H. 1987. *Mamluk Jerusalem: An architectural study*. British School of Archaeology in Jerusalem.
- Canaan T. 1927. *Mohammedan saints and sanctuaries in Palestine*. Luzac.
- Kana'an T. 2001. Two ottoman *sabils* in Jaffa (c. 1810-1815): An architectural and epigraphic analysis. *Levant*. Vol. 33, pp. 189-204.
- Natsheh Y. 2002. *Architecture survey*, pp. 1-1012. In: Auld S. and Hillenbrand R. (eds.). *Ottoman Jerusalem: The living city, 1517-1917*. British School of Archaeology in Jerusalem.
- Rosen-Ayalon M. 1989. On Suleiman's *sabils* in Jerusalem, pp. 589-607. In: Bosworth C. E. et al. (eds.). *The Islamic world from classical to modern times: Essays in honor of Bernard Lewis*. Darwin.
- Sasson A. 2001. The road from Jaffa, to Jerusalem toward the end of the Ottoman period: Aspects of the material culture, pp. 201-19 (Hebrew; English abstract: pp. 14 =15). In Faust. A. and Baruch E. (eds.). *New studies on Jerusalem*. Vol. 7. Bar-Ilan University.
- Sasson A. 2002. Water for the sojourner: Introduction to the history and the typology of *sabils* (water fountains) in the Land of Israel in the late Ottoman period, pp. 113-25. In Ohlig C., Peleg Y., and Tsug T. (eds.). *Cura: A quorum in Israel*. Siegburg.
- Sasson A. 2006. Water supply in the „*sabils*“ of Jerusalem: Geographical, architectural, and social aspects, pp. 307-34 (Hebrew; English abstract: pp. 49 *-50). In. Baruch E., Greenhut Z., and Faust. A. (eds.). *New studies on Jerusalem*. Vol. 11. Bar-Ilan University.

BUDAPEST: A RICH HISTORY OF THERMAL WATER, FOUNTAINS AND WANTON POLITICS

Viktor Pál

INTRODUCTION

Thermal water and wells have been one of the most integral parts of the cultures of various peoples living in the Carpathian Basin. Romans, Turks and Hungarians have made a use of the vast amounts of thermal and karst waters springing up in Budapest and the rest of Hungary. There are some nine major areas of natural thermal springs and more than ten other sources of thermal water from great depths. Some of these springs, such as the ones at "Római Fürdő" (Roman Bath) and "Óbuda" (Old Buda) were explored and used already by the Romans. (Alföldi & Bételky, 1968, pp. 152-153)

The present area of the Hungarian capital hosted a series of settlements already in Roman times. After the Romans, Huns, Gepidas, Langobards and various Slavic tribes were accommodated; the Magyars arrived to the Carpathian Basin in the end of the 9th century. Hungarian tribes soon discovered the geostrategic importance of the Budapest region. After the Tatar invasion in 1241-42, Buda gained increasing attention from rulers, and became the capital of the powerful and expanding Hungarian kingdom. Buda, Pest and Óbuda, the three settlements of which the united Budapest was created in 1873, were fostered by growing trade links between the Balkans, Eastern Europe and the Western parts of the continent. Simultaneously with the expansion of commerce - more peoples, such as Armenians, Greeks, and Arabs settled in the Buda area and engaged in trade. Germans and Hungarians made up most of the population of those settlements until 1541, when the Turks gained control over the area of the Hungarian capital for over 150 years. Despite the several negative historical consequences, a sophisticated bath culture did flourish

under Turkish rule. Only in the early 19th century, did the Buda region regain political, economic and cultural importance. Then, the citizens of Buda and Pest began following international trends, such as the construction of artistic public wells.

THE ROMANS

Romans were the first to realize the great hygienic and wellness potential of the thermal springs in the vicinity of Budapest right after they conquered the present territory of Western Hungary in the second half of the 1st century. The Romans created sophisticated water use technologies based on Italian methods at military posts and provincial towns in the vicinity of the present capital. The civilian town of Aquincum, established close to the Roman military camps became a bustling settlement by the 2nd century. (Gerevich 1975, Vol 1, p. 122) One of the most important ruins of that Roman settlement is the Proconsul's Palace, discovered in 1942. The Palace included various social and private buildings, frescos, mosaics, a sophisticated three phase Roman bath; even an astonishing marble Fountain with Dolphin Figures (Fig. 1). The fountain was one of the decorative elements of the palace garden. It was a splendid sight to see that displayed the wealth and power of the proconsul. The fountain was removed from its original place and is displayed among other highly valuable antique mosaics, statues and jewelry in a recently opened permanent exhibition of the Aquincum Museum. (Póczy, 1976, p. 58)

Fig. 1 Marble Fountain with Dolphin Figures, Originally in Aquincum, Proconsul's Palace. Now in Aquincum Museum (Photo: Viktor Pál, 2008).



A HELYTARTÓI PALOTA
THE PROCONSULS PALACE



THE MIDDLE AGES

After the Romans left Pannonia in the 4th century, the sophisticated waterworks and artistic fountains were forgotten for a long time. When pagan Hungarians arrived to their present homeland in the 9th century, they knew very little about baths, fountains and the outstanding thermal water resources hidden beneath the ground. Sophisticated water structures began to reappear by the 15th century. For example, under the reign of Mátyás Hunyadi (1458-1490), an elegant, red marble Hercules fountain in renaissance style was built in the Royal Palace at Visegrad. In 1541, the Turks gained control over much of the territory of Hungary, and soon thereafter elements of their sophisticated bath culture spread around Buda and Pest. (Gerevich, 1975, Vol 2, p. 355) A number of baths were built to exploit the thermal water resources, many of which are still operating in the same building or the same location. (e.g. the Kücsük Ilidzsa (Rác Bath), Jesil direkli Ilidzsa (Rudas Bath) and the Tahtali Ilidzsa (Lukács Bath). These baths have been very popular among Budapest people, and since the 1980s they have been a “must” for tourists visiting Hungary. For example the Király Bath is now open for male and female visitors on separate days. (Fig. 2)



Hungarians adopted many elements of Turkish water culture, but by the 19th century, as in other European countries, the need for sophisticated urban water structures was born. In 1835, the Fountain of the Nereid's, the first public fountain decorated with a stone statue was built in Budapest. The story of that fountain goes back to 1818, when the city council of Pest decided to build an artistic stone public fountain instead of the wooden well situated in downtown Pest, at the Barátok Tere (Monks Square, now called the Ferenciek Tere – Franciscans Square). The application and decision making process took over 25 years, slowed down by various issues. Pest began to have increasing importance politically, economically and culturally in the early 19th century. (Bácskai, 1993) Yet, despite large number of new investments, Pest was lagging behind major European towns, and was not a favored destination of most Western travelers.

THE “BEAUTIFICATION COMMITTEE” AND THE DAWN OF A METROPOLIS

János Hild, one of the most prominent architects, and István Széchenyi, one of the richest Hungarian aristocrats of their time, believed that Pest deserved more than just being a mid-size Hungarian town with sluggish infrastructure. Therefore, they established the Szépítési Bizottmány (Beautification Committee), for city-planning, to devise and carry out a major plan to e.g. modernize the streets, and the water- and street lighting infrastructure of Pest. The Plan included, for instance, comprehensive regulation of the Danube in the Buda and Pest area and construction of underground storm water canals, and was approved by Franz I, the King of Hungary, in 1808. It took a couple of years to raise funds for the Szépítési Bizottmány by selling real estate. When a significant amount of capital had been accumulated, the Szépítési Bizottmány became the subject of various pressure and interest groups resulting in much of its investment capital being spent irresponsibly and exhausted by the mid-1810s. Due to corruption, and irresponsible investment strategies, only one of the major aims of the city planning committee, the German Theater, was con-

Fig. 2 Király Bath in the Buda side of the River Danube (Photo: Viktor Pál).

Fig. 3 The blueprint of the Fountain of the Nereids' by Mihály Pollack. Photo: Fővárosi Levéltár /Budapest City Archives/ IV-1202-C, Int. a. n. 4919.)

structured costing about 80 per cent of the Committee's capital.

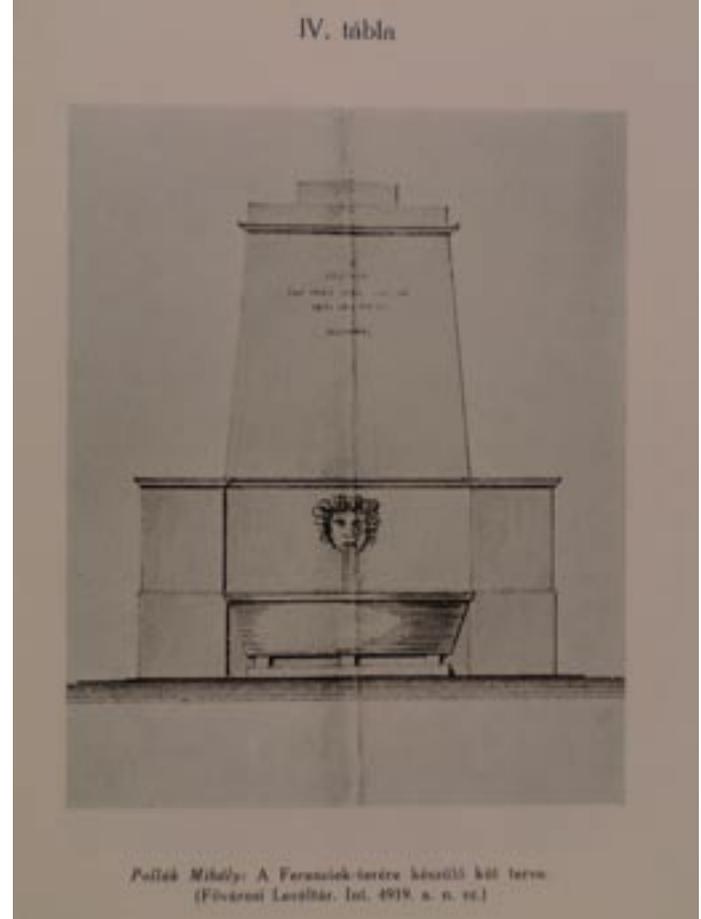
After the scandals of the 1810s, the Szépítési Bizottmány began to lose its importance rapidly, and most of the major infrastructural tasks set in its investment plan had to be financed from the municipal budget of Pest. (Gerevich, 1975, Vol. 3, p. 446) The fiasco of the Szépítési Bizottmány was not unique - the application process for the Fountains of the Nereids involved similar economic problems and political incompetence.

In the beginning of the 19th century the citizens of Pest began to demand higher standards of urban services and infrastructure, which is why the city council of Pest decided to build an artistic public fountain downtown. According to Lajos Nagy, the work of Hungarian hewers and sculptors was equally artistic at that time. Many of the city's houses had unimpressive facades and minimal decoration. The designs of the seven applicants for the tender for the first public fountain in town were not any better.

Even the design of Mihály Pollack, one of the prominent Hungarian architects of his time, who designed a number of aristocratic urban and rural palaces and the classicist Hungarian National Museum, came up with a slightly simplistic fountain in classical style based on earlier Vienna models. (Fig. 3) Yet, in 1828, the jury decided in favor of Lőrinc Dunaiszky. Six years later the municipality of Pest overturned the decision due to financial problems, and gave Ferenc Uhl the opportunity to carry out the fountain project – his proposal was the cheapest. (Marczevicz, 1931, pp. 18-19) One needs to ask, what happened between 1828 and 1834 that led to a completely new decision?

Dunaiszky proposed a red marble fountain in cooperation with József Feszl. The latter was responsible for the plinth of the statue while Dunaiszky was to design the sculptural upper part. They proposed a fairly expensive budget for the stylish work. Feszl, the prime contractor of the project, soon realized that the town of Pest, was considering finding a cheaper option. Therefore, he submitted a new design with Ferenc Uhl, cutting Dunaiszky out of the project. Dunaiszky became so frustrated that he decided drop

Fig. 4 A Close-up of the Fountain of the Nereids in Ferenciek Tere in downtown Budapest (Photo: Viktor Pál).



out of the second round. Hence, when the city council made its final selection, Feszl and Uhrl got the project. That was not the first time Uhrl won a tender over artistically more advanced colleagues. He was one of the most popular sculptors of his time, but his artistic quality was far beneath that of some of his less popular but appreciated colleagues, such as Huber József and Bauer Mihály. (Marczevicz 1931, p. 20) Yet, he became the “star” sculptor of Buda and Pest in the 1830-40s, and a financially successful entrepreneur. (Gerevich, 1975, Vol 3. p.533)

The craving for public art by the residents of Pest in the 1830s resulted in a large number of high quality public buildings, private residences and other objects of art in Budapest by the early 20th century. The Fountain of the Nereids proved to be only a modest beginning which paved the road for more sophisticated fountains and water structures, such as the Mátyás Fountain by Alajos Stróbl and the Fountain of the New York Palace.

Today, the Fountain of the Nereids is a work of art meeting the practical needs of “budapesti” and tourists. (Figs. 4 and 5) Situated in the very center of Budapest, the fountain hides in the shadow of artistic historical buildings where most people pass it by without noticing the statue of grey sandstone.



Fig. 5 Tourists and the Fountain of the Nereids in 2009 (Photo: Viktor Pál).



SOURCES

Alföldi Dr, L., Béltelky, L., Böcker dr., T., Horváth, J., Korim dr., K., Lieve, P. & Rémi, R. (eds.) 1968. Budapest Hévízei (The thermal waters of Budapest), VITUKI, Budapest.

Bácskai, Vera 'Széchenyi tervei Pest-Buda felemelésére és szépítésére', Budapesti Negyed, vol. 1, no.2. Available at: <http://www.bparchiv.hu/magyar/kiadvany/bpn/02/bacsikai.html>

Gerevich, L. (chief ed.) 1975 Budapest története (A History of Budapest) Vol. 1-5., Akadémiai, Budapest.

Marczevicz, E. 1931. A pesti Ferenciek-terének kútpályázata, Adatok a pesti szobrászat történetéhez a XIX. Század elején (The tender for the fountain at the Franciscans Square. Data on the history of sculpting in Pest at the beginning of the 19th century), Budapest.

Póczy, K. 1976. Pannoniai városok (Cities of Pannonia).

The image shows the Fountain of the Nereids in Buenos Aires, Argentina. The central focus is a large, white marble sculpture of a Nereid, a sea nymph, riding a hippocampus (a mythical creature with the head of a horse and the tail of a fish). The Nereid is depicted in a dynamic, almost dancing pose, with her body arched and her arms outstretched. She is perched atop a large, craggy rock formation. Below the rock, two more hippocampuses are visible, each with a human-like torso and a horse's head, appearing to support the central figure. The base of the fountain is surrounded by a low wall and a chain-link fence. In the background, there are palm trees and other greenery, suggesting a park or public square setting. The sky is overcast.

**PART III: FROM
MONUMENTALISM
TO CHANGING USES**

Fig. III.0 Fountain of the Nereids or Lola Mora's fountain in Buenos Aires, Argentina (Photo: Esteban Castro, 2009).

ORNAMENTAL PUBLIC FOUNTAINS IN BARCELONA

David Saurí

INTRODUCTION

This chapter introduces some of the most important ornamental fountains of the city of Barcelona, and, after a brief historical account of some older water ornaments, explores the linkages between the construction of these fountains and the large urban renewal projects implemented in the Catalan capital during the last century and a half (approximately). Barcelona has more than 200 ornamental fountains of different periods and origins. The largest and better known (as well as their renovation) were made possible by events such as World's Fairs (1888 and 1929) and the Olympic Games (1992). We will examine in turn the more salient characteristics of these projects and introduce thereafter the most important ornamental fountains built for each event. Towards the end of the chapter we will make also some brief remarks about the city's management of these cultural assets, especially during periods of water shortage.

THE FIRST ORNAMENTAL FOUNTAINS

Located between a mountain range and the Mediterranean Sea, with abundant hills and smaller elevations, Barcelona has always been a city of wells and springs, though many of them have unfortunately fallen victim to urbanization. Water was first used as an ornamental element in the Roman and Medieval periods when small fountains were located in the

center of patios of palaces and residences. One example is the fountain at the "Casa de l'Ardiaca" near the cathedral in the so-called Gothic Quarter of the Old City. Other similar fountains abound in highly reputed medieval streets such as the "Carrer Montcada", also in the Gothic Quarter. However, the oldest still existing example of an ornamental fountain of considerable size dates back to the end of the 18th century. It is the so-called "Font d'Hèrcules" (Hercules Fountain) located in the Gràcia neighborhood and designed by Salvador Gurri in 1798 in the neoclassic style (Fig. 1).

THE PARC DE LA CIUTADELLA AND THE WORLD'S FAIR OF 1888

Not being a capital city, Barcelona has attempted to stimulate urban change since the demolition of the medieval walls in the mid 19th century and the beginning of urban development outside the old town, by taking advantage of the opportunities offered by the celebration of singular events. In 1888, the city organized the World's Fair which was to be sited east of the old quarter on land previously occupied by a military citadel built at the beginning of the 18th century with the basic mission of preventing and repressing urban riots. The citadel was demolished by popular pressure in the mid 19th century, and the land it oc-

cupied was turned into a park where the World Fair's exhibits were placed. City architect Manuel Fontseré who was commissioned to design the Parc de la Ciutadella (Citadel Park) envisaged several ornamental fountains as one of the most important features of this new public space. Two of them deserve special attention. One is the so-called "Waterfall Fountain" located in the center of the lake built in the park (Fig. 2). This fountain was commissioned from Antoni Gaudí, then still a student at the University of Barcelona. Gaudinian themes of intricate and baroque rock sculptures are already noticeable in the layout of the fountain. Gaudí was also the designer of some of the iron motifs that embellish the water fall. The other fountain meriting attention is the so-called "Lady of the Umbrella". It is topped by a gracious figure of a woman holding an umbrella, and for many years (perhaps less so today) it was one of the most popular symbols of Barcelona (Fig. 3).

THE ORNAMENTAL FOUNTAINS OF THE MONTJUIC MOUNTAIN (1929)

In the mid-1920s Barcelona was again allowed to organize a large World's Fair, and as in 1888, the city also took this event as an opportunity to undertake large-scale urban development. This time, the Montjuic Mountain and its surroundings were selected as the site. The 300-meter high Montjuic Mountain, in the Southwest of the city, overlooks Barcelona as well as the sea. It was selected as the site of a number of facilities to be developed for the 1929 World's Fair, including an ambitious gardening and ornamentation project.

One of the most important features of the World's Fair in Montjuic was the set of fountains stretching from Plaça d'Espanya (at the foot of the mountain) to the Palau Nacional located about halfway up the Montjuic hill. Promenading visitors see monumental stairs, fountains, cascades and small ponds. Three thousand workers were involved in the project com-

Fig. 1 Font d'Hèrcules in Barcelona (Photo: Anna Serra, 2009).



pleted in less than a year – a few weeks before the official opening of the fair. The upper part of the set consists of five large fountains that provide a colorful light and water show designed by the engineer Carles Buigas (Fig. 4). He presented to the World Fair’s organizing committee a project consisting of a number of small circular fountains running along both sides of the so-called Maria Cristina Avenue as well as 117 columns or obelisks. The smaller fountains change color in sync with the bigger fountain. Together, the five fountains are known as the “Magical Fountains of Montjuic” and constitute one of the main tourist attractions of the city. During the 1980s music was incorporated into the show, and all the fountains were totally renovated for the 1992 Olympic Games. In 2007, more than 2.5 million people attended the light and water shows, but in 2008, due to the severe drought affecting the city, the Magical Fountains of Montjuic was in operation for only four hours a week.

Another important fountain linked to the World’s Fair of 1929 is the ensemble located in the middle of the Plaça d’Espanya (Spain’s Square) known as the “Fountain of the Three Seas” (Fig. 5). It was designed by Josep Maria Jujol, a collaborator of Gaudí and one of the most significant representatives of the “Modernista” (Art Nouveau) movement in the city. It is intended to symbolize and pay homage to the relation between Barcelona and the sea. The “Fountain of the Three Seas” is composed of three sculptoric groups in white marble representing three of the main Spanish rivers, namely the Ebro, the Tajo, and the Guadalquivir. Navigation, public health and abundance are depicted by the three bronze sculptures topping the fountain.

THE OLYMPIC GAMES OF 1992

The third project of large-scale urban renewal in Barcelona was prompted by the Olympic Games of 1992. They provided the opportunity transform a neighborhood of mills, warehouses and factories near the sea into a residential area for the accommodation of the athletes participating in the games. After the games,

this area, known as the “Olympic Village”, became the newest neighborhood in Barcelona. This urban project included also parks and several ornamental fountains such as the large fountain (56 meters in diameter) located in the so-called “Square of the Volunteers” designed by Josep Maria Mercè; the smaller Vila Olímpica Fountain by architects Enric and Robert Mir, and the Cobi Fountain, the latter named after the pet dog that symbolized the Olympic Games. As said before, this event served as an opportunity to renovate thoroughly the Magical Fountains of Montjuic which had deteriorated severely by then.

WATER MANAGEMENT IN ORNAMENTAL FOUNTAINS

In 2007, the total number of ornamental fountains in Barcelona was 226, with a total consumption of some 2 million cubic meters per year. Most of them are supplied from the municipal network. A few obtain their water from local underground sources. About 70 percent of the ornamental fountains are equipped with systems for the recirculation of water, and 94 percent with automatic starting systems. The Spanish Water Law as well as regional and municipal regulations state that water supply to ornamental fountains must be among the first uses to be curtailed during periods of drought. Because of the recent droughts suffered by the city (four since 2000), water supplied to ornamental fountains has been severely restricted, and a number of fountains were left without water especially during the very dry year of 2007.



Fig. 2 Font de La Cascada, Parc de la Ciutadella in Barcelona (Photo: Barcelona City Council).

Fig. 3 Font de la Dama de Paraigües, Parc de La Ciutadella, in Barcelona (Photo: Anna Serra, 2009).





Fig. 4 (left) Font Màgica de Montjuïc in Barcelona, shut down because of drought conditions (Photo: Anna Serra, 2008).



Fig. 5 (right) Font Monumental dels Tres Mars in Barcelona shut down because of drought conditions (Photo: Anna Serra, 2008).

WATER FOUNTAINS OF BUENOS AIRES, ARGENTINA

José Esteban Castro

INTRODUCTION

The city of Buenos Aires, federal capital of Argentina, has a population of around 2.8 million people, which rises to around 12 million when we take into account the whole metropolitan area of the Great Buenos Aires (INDEC, 2008). The Buenos Aires Metropolitan Area is the third largest urban agglomeration in Latin America after Mexico and Sao Paulo, and concentrates around one third of the country's population.

Buenos Aires is a city endowed with numerous public fountains that form an important part of the city's history. In this brief synthesis I have decided to focus on just four examples, which illustrate a wide range of aspects connected with the function of fountains in the cityscape. It necessarily covers a very limited sample given that, according to a recent survey by the local government, there exist 69 public fountains in the Argentinean capital (Government of the City of Buenos Aires, 2008), some of which date from the nineteenth century.

Nineteenth-century urban development of Buenos Aires was greatly influenced by the main trends emerging from Europe, especially the sanitary movement and the radical policies epitomized by Baron Haussmann's urban reforms in Paris during the 1850s and 1860s. Also important was the impact of the influx of European immigration, which included urban designers and artists often invited by the country's authorities (Pena and Shaw, 1992). The very



close affinity with Western European culture boasted by the landowning oligarchic class that governed the country at the time was a crucial driving factor in the design of public urban spaces during this period. In particular, the consolidation of Buenos Aires as the country's capital in 1880 was marked by large-scale urban reforms aimed at creating ample public spaces following the examples of Paris and Barcelona, and European architects, engineers, and artists played a fundamental role in this process. However, this strive to Europeanize the urban space was not the preserve of the Argentinean elites but rather a characteristic of the rising Latin American bourgeoisies of the time, who sought to assert themselves in the international scene by erasing the signs of the colonial past under Spanish and Portuguese domination and recasting their countries' capital cities along the lines of Haussmann's Paris (Romero, 1976). The first three fountains considered here are examples of this process.

THE PLAZA DE MAYO FOUNTAINS

The Plaza de Mayo [May Square] is at the heart of the city's history. Originally named Plaza Mayor [High Square] by Juan de Garay, the Spanish officer in charge of the permanent foundation of the city in 1580, it has been the centre of political and social events ever since. In the early times it housed a market and was a meeting point for travellers and traders; but it was also the space for public punishment, for religious and military ceremonies as well as the celebration of festivities. The Plaza's current site is the result of urban reforms carried out in 1884, when two then-existing squares, the Plaza de la Victoria [Victory Square] and the Plaza del Fuerte [Fort Square], were merged to create the Plaza de Mayo.

In 1868 the Plaza de la Victoria had been adorned with two fountains commissioned by the government from the French art foundry Du Val D'Osne, a company that had already been providing the city with art works for several years and even had a local office and storehouse in Buenos Aires (Pena and Snyder, 1992: 231). In fact, Du Val D'Osne provided

Fig. 1 One of the original Plaza de Mayo fountains (Photo: Esteban Castro, 2009).

numerous fountains for various cities in those days, including Valencia in Spain, Valparaíso in Chile, and several towns in France (Pena and Shaw, 1992: 208). These fountains had a mainly decorative purpose and were ornamented with classical figures of cast iron after the neoclassical tradition of Italian Renaissance sculptures. They remain among the most valued artistic monuments of the city. However, they were moved from the Plaza de Mayo and are currently located at the intersection of 9 de Julio Avenue and Córdoba Avenue. Fig. 1 shows one of the two fountains originally located at the Plaza de Mayo.

PALERMO'S PARKS AND FOUNTAINS

The French landscape architect Charles Thays (1849-1934) and the Belgian architect Jules Dormal (1846-1924), who completed the construction of the famous Colon Theatre in 1908, played a substantial role in the development of Buenos Aires' public amenities. In particular, they were responsible for the design of the Tres de Febrero Park [February the 3rd Park] in Palermo featuring three artificial lakes, which was largely based on Paris' Bois de Boulogne (Pena and Shaw, 1992: 207). Today Palermo continues to be one of the greener spaces in the city, with numerous parks, artificial water bodies and several fountains. These include the Fuente Riqueza Agropecuaria [Agricultural Wealth Fountain] donated by the German government in 1910 in commemoration of Argentina's first centenary as an independent republic (Fig. 2). The Fountain was designed by the German sculptor Gustav Adolf Bredow (1875-1953), who was a specialist in fountains and other public monuments. It is over 25 meters long and was built with Carrara marble, white stone and bronze (Haedo, 1978).

This account looks at a number of the functions played by fountains: a) to commemorate a historical event, the Argentinean independence from Spain in 1810; b) to symbolize the flourishing cultural and political ties between Germany and Argentina at the turn of the twentieth century, at a time when Germany was actively competing with England and France



Fig. 2 (left) *Fountain Riqueza Agropecuaria*, located in Plaza Alemania [Germany Square] in Palermo (Photo: Esteban Castro, 2009).

Fig. 3 Detail, *Fountain of the Nereids* or *Lola Mora's fountain*, located in Costanera Sur (Photo: Esteban Castro, 2009).



for political, economic and military influence in Latin America and had already become an important trading partner for Argentina and other Latin American countries; and c) to reflect the strong influence of the Argentinean landowning class, which dominated the country's economic and political scene. Agricultural production was the driving force behind Argentina's incorporation into the world market, which took place roughly between 1870 and 1914.

THE FOUNTAIN OF THE NEREIDS OR LOLA MORA'S FOUNTAIN

The third example chosen for this brief review is the work of the Argentinean sculptress, Dolores Mora de la Vega, popularly known as Lola Mora (1866-1936). She was a student of the Italian master Giulio Monteverde (1837-1917), who worked in Buenos Aires and produced a number of important public sculptures, especially in the imposing Recoleta Cemetery (Pena and Shaw, 1992: 209). In the late 1890s Lola Mora was awarded a government scholarship to follow a career in Rome, first with the artist Francesco Paolo Michetti (1851-1929), and later with Giulio Monteverde (Corsani, 2007: 170). After winning several prizes in Europe, the Argentinean government commissioned her in 1901 to design a fountain, which was eventually inaugurated in 1903 in the vicinity of the Plaza de Mayo. Lola Mora's fountain was carved in Carrara marble and is a sophisticated representation of the birth of Venus (Fig. 3 and III.0), which was very well received by virtue of its artistic quality, but also became the target of sustained criticism for political and moralistic reasons.

The history of Lola Mora's fountain casts light on the complex socio-political and cultural configurations characterizing Argentina on the eve of the twentieth century. The original plan envisaged the location of the fountain in the Plaza de Mayo, but this proved unfeasible for a number of reasons including controversies over the funding of the project by the government (Corsani, 2007) and, particularly, the opposition of the conservative members of the local elite who considered that the nudity and sensuality of Lola

Mora's sculpture made the fountain unacceptable for the city's main public square. As a consequence, the inauguration of the fountain originally planned for 1902 was delayed for about one year, and when it finally happened, the government decided to relocate it to a less conspicuous and controversial spot, two blocks away from the Plaza de Mayo. Even then, the controversies continued and the fountain was removed in 1918 and relocated to its current position to the south of the city centre, in the riverfront area known as Costanera Sur (Pena and Shaw, 1992: 209-210; Solá, 2003; Corsani, 2007).

A TWENTY-FIRST CENTURY FOUNTAIN

The three examples considered above belong to the period of Buenos Aires' emergence as a world city between the late 1860s and the start of the Great War in 1914. For much of the rest of the twentieth century, and particularly between 1955 and 1983, the country was subject to authoritarian rule by military dictatorships with very brief periods of democratically elected governments in between. Argentina has enjoyed an uninterrupted period of electoral democracy since 1983, and therefore it is highly appropriate that our fourth example is the Fuente-Monumento de Homenaje a la Democracia (Fountain Monument to Honor Democracy), designed by the Czech-Argentinean sculptor Gyula Kosice (Fig. 4).

The fountain was inaugurated in May 2000 and is located at the intersection of 9 de Julio Avenue and

Fig. 4 Fountain Monument to Honor Democracy (Nicolás Geller, August 2008).



Marcelo T. de Alvear Street. Gyula Kosice has dedicated much effort to developing what he calls hydraulic art, which includes sculptures where water is the essential element, and has also designed sketches for a futuristic Hydrosatial City. The monument is composed of two groups of columns of concrete emerging from a round fountain supporting a metallic sphere of polished stainless steel. According to the sculptor, it is the first monument in the world dedicated to democracy (Kosice, 2000).

CONCLUSIONS

This review of the water fountains of Buenos Aires is brief due to space restrictions, which is why it leaves out, not only most of the city's fountains, but also much of their historical, artistic and socio-political significance. However, the four examples chosen offer insights into a wide array of elements connected with the role of public fountains in the Buenos Ai-

res cityscape since the late nineteenth century. The fountains considered here have served a combination of decorative and commemorative functions, while playing a clearly more limited role in serving any utilitarian purposes beyond the enhancement of public spaces for recreation and socialization activities. Also, these fountains embody the influence of the European traditions of the time, in a city where by the late 1880s about half of the population were immigrants, mostly of European origin. However, the examples also reflect the internal tensions within the governing elite caught between the influence of liberal European ideas and institutions and deeply held conservative social practices and traditions in a context of rapid social change, as patently illustrated in the case of Lola Mora's fountain. Finally, our last example embodies the long-term struggle for the country's democratization, and for the democratization of world politics at large. It is only fitting that water has been chosen to symbolize such a cherished human hope.



SOURCES

- Corsani, Patricia Viviana. 2007. Honores y renunciaciones. La escultora argentina Lola Mora y la fuente de los debates (Honours and renunciations. The Argentinean sculptress Lola Mora and the contested fountain). *Anais do Museu Paulista: História e Cultura Material*. São Paulo, Brazil. Vol.15, No.2, pp. 169-196 (available at: <http://www.scielo.br/pdf/anaismp/v15n2/a17v15n2.pdf>).
- Government of the City of Buenos Aires. 2008. Green spaces – fountains (in Spanish) (<http://www.buenosaires.gov.ar> – accessed July 2008).
- Haedo, Oscar Félix. 1978. Las Fuentes Porteñas. Cuadernos de Buenos Aires. No. 51. Municipalidad de la Ciudad de Buenos Aires, Buenos Aires.
- INDEC – National Institute for Statistics and Census (2008), 'Population', Buenos Aires: INDEC (http://www.indec.mecon.ar/principal.asp?id_tema=2 – accessed September 2008).
- Kosice, Gyula. 2000. 'Homenaje a la democracia' (In honor of democracy). Interview by Federico Prack, *La Nación*, Buenos Aires 10 May 2000.
- Pena, Jose Maria, and Edward Shaw. 1992. Public sculpture. *Journal of Decorative and Propaganda Arts*. Vol. 18, Argentine Theme Issue, pp. 207-221.
- Pena, Jose Maria, and Jon R. Snyder. 1992. "Art-Nouveau" stained glass and ironwork. *Journal of Decorative and Propaganda Arts*. Vol. 18, Argentine Theme Issue, pp. 223-241.
- Romero, José Luis. 1976. *Latinoamérica: las Ciudades y las Ideas*. Siglo XXI, Mexico City.

FOUNTAINS OF MONTPELLIER, FRANCE. FROM PRIVATE AND UNSAFE TO PUBLIC AND SAFE WATER SUPPLY

Michel Bakalowicz

FROM RIVERS AND WELLS TO AQUEDUCT

Montpellier in Southern France is presently known as the city of a hundred fountains. However, for a long time there was no fountain within the city walls, only wells; and the population was supplied from small springs by water carriers. The history of Montpellier is an interesting example of the development of water supply networks and municipal sanitary policy.

The city of Montpellier was founded at the end of the 10th century, in the area between the antique Via Domitia and the Lez and Mosson Rivers. The Seigneurie of Montpellier was created in the 11th century. The medieval city was surrounded by a defensive wall, whose la Babotte and des Pins towers still remain. At the end of the 13th century, Montpellier was a famous

Fig. 1 The end of the aqueduct "Les Arceaux" at Le Peyrou Park, in Montpellier, France (Photo: Michel Bakalowicz, 2004).



stopover of the Saint James pilgrimage with charitable societies and hospitals for accommodating and caring for the pilgrims. As a consequence, a school of medicine was founded there in 1220 by the legate of Pope Honorius III, later declared an official university by Pope Nicolas IV in 1289. The population was subsequently decimated by several epidemics during the 14th century which killed a third of them.

The two permanent rivers, although their flows are highly variable, as with all Mediterranean rivers, attracted many activities, mills, washerwomen, tanning and leather works, particularly on the banks of the Merdanson Creek, a tributary of the Lez River, presently named "Verdanson". The original name means in the old regional language "open sewer". Consequently, Montpellier was supplied from the beginning with water from public and private shallow wells, not surface water. At that time there was not yet any fountain.

The quality of the water deteriorated causing epidemics. According to Aigrefeuille (1877), the first plan to build an aqueduct from the Saint Clement spring about ten kilometres from Montpellier was presented in 1267. Due to technical and financial difficulties, the consuls, the local government, abandoned the plan. In 1317, the king of France, Philippe V, urged the consuls to plan a water supply system. Land surveys were attempted, and then abandoned. In 1456, King Charles VII authorised the consuls to levy a special tax for ten years for building an aqueduct. The plan was delayed for two centuries during which time the population had to be supplied from two springs connected to fountains® Font Putanelle, built in 1447 by Jacques Coeur, the Superintendent of Finance of King Charles VII, and Font Pila St Gély built in 1465. The population had to buy their drinking water from "possandiers", local water hawkers.

The population grew considerably during the 15th and 16th centuries, and the few fountains outside the city walls which were not properly maintained could not supply enough water. In 1686, the city council drew up an estimate of the cost of building an aqueduct from the St. Clement spring to town. Dur-

ing the same time King Louis XIV decided to erect an equestrian statue of himself in recognition of the improvements in Montpellier. Because there was no square worthy of the King within the town walls, that presented an opportunity to expand the town. Between 1690 and 1692, a new gate was built on the western side opening onto the new Le Peyrou Royal Square where the statue of Louis XIV was erected, in a style reminiscent of Versailles and Paris, as usual in France. The plan for an aqueduct was once more abandoned, because the city council did not have the money for it.

FROM AQUEDUCT TO MODERN FOUNTAINS

In 1712, de Clapiès, an engineer at the Royal Faculty of Sciences of Montpellier, demonstrated that it was possible to build an aqueduct from the St. Clement spring to Montpellier. Despite the high estimated cost of the work, the city council put up the money for the construction (Nougaret, 2005). In 1751, Henri Pitot, seigneur de Launay (1695 – 1771), director of civil engineering in Languedoc since 1740, was officially put in charge of devising a plan for leading water from the St. Clement spring to Montpellier City in order to supply several public fountains that the population depended on heavily.

Pitot, who was primarily a mathematician, specialised in hydraulics, invented the well known Pitot tube, an airspeed indicator. He was considered an engineer and scientist of genius of the Age of Enlightenment. He modified and complemented de Clapiès' plan and submitted it in 1752 to the city council which accepted it (Archives Municipales, 1985). The aqueduct was opened in 1765. The structure was completed by the architect Jean-Antoine Giral in 1772 after Pitot's death. The aqueduct was connected to the water storage structure built underneath the Peyrou public park subsequently. The aqueduct raised on arches terminates at the Peyrou park and is considered one of the most beautiful constructions in France (Montens, 2001) being now a listed building (Fig. 1).



Fig. 2 (left) The fountain with the unicorns, La Canourgue Square in Montpellier, France (Photo: Michel Bakalowicz, 2008).

Fig. 3 (right) The three Graces Fountain, La Comédie Square in Montpellier, France (Photo: Michel Bakalowicz, 2008).



The total length of the aqueduct is 13,904 metres. It has a covered feeder canal and ends in an arched aqueduct, 880 metres long and up to 28 metres high. Before building the aqueduct, between 1743 and 1747, Pitot was the engineer in charge of reinforcing the base of the famous “Pont du Gard”, the Roman aqueduct which originally supplied the Roman city of Nîmes from the Fontaine d’Eure karst spring at Uzès. The main goal was not to preserve the antique aqueduct, but to build a bridge on the Gard River, next to the aqueduct, for the royal road from Paris and Lyon to Montpellier. Pitot’s design for the framework of the final part of the aqueduct, with large arches supporting small arches, was inspired by the Roman aqueduct; it was designed as stable as possible to ensure its watertightness. These arches, the so-called “Les Arceaux”, gave their name to this neighbourhood of Montpellier.

Three monumental fountains were then commissioned in 1770 to complement the water facilities. The works were sped up after a major fire in 1770. One fountain was built against a wall. Two others were intended to be erected in the centre of the town hall square and La Canourgue Square. The fountain with two unicorns (Fig. 2) was put up in 1777 in town hall square, and moved in 1865 to the La Canourgue Square. The second fountain is topped by the three Graces: Aglaea, Euphrosyne and Thalia, associated with the cult of Demeter and Persephone. It took 18 years before it was erected in 1794 in La Canourgue Square, from which it was finally moved to the Comédie (the opera house) square in 1865 being presently the most popular meeting point in Montpellier (Fig. 3). The original carving in Carrara marble is now at Fabre’s museum; it was replaced by a copy in 1989. The third fountain, initially named “Intendance Fountain”, has stood on Chabaneau Square since 1776 (Fig. 4).

The aqueduct ends in the temple of waters (Fig. 5), lined up with the equestrian statue and the royal gate. It towers above the arches linked with the reservoirs. The creation of public water supply, instead of water supply organised on individual, private initiative gave a new and important role to the City Council

and public services in general: it was the beginning of public utilities. Public water was then regarded as sacred, as illustrated by the “temple of waters”, at the end of the arches. The fountains supplied water for consumption, but not for fun in the form of water jets as in Versailles and other towns.

The St. Clement spring’s supply capacity soon ran out due to the increasing population (about 20,000 in early 18th century, 37,000 in 1837, 46,000 in 1851, 56,000 in 1882). In 1851, there were plans to extend the aqueduct to the Lez spring, near Prades-le-Lez, the main regional karst spring, the source of the Lez River. The river was used by millers who tried to prevent the withdrawal of its water, convinced that their livelihood would be jeopardised. The extension was completed in 1859. The entire history of water management in Montpellier and the surrounding region has been characterised by pressures put on the authorities to protect certain water uses. The total flow rate of the aqueduct was first doubled to 50 L/s, then increased to 125 L/s in 1882, and to 250 L/s in 1899, despite the protest of the millers. The last figure was ten times the initial flow rate calculated by Pitot.

Sanitary concerns also emerged due to the absence of a sewage network and the first bacterial analyses 1899 found that the water from the Lez spring was contaminated by a faecal matter, which is now a well-known feature concerning most karst springs. The supply network expanded rapidly with several terminals built in each district. Now that water is supplied to all settlements, the fountains are the symbol of life in a modern city. Besides ancient monumental fountains, modern, sometimes computerised ones now adorn Montpellier, the “city of a hundred fountains” (Fig. 6).

CURRENT AND FUTURE WATER SUPPLY

Domestic water consumption increased drastically during the 60s with the repatriation of a large number of people from Algeria. During the 70s stakeholders and decision makers debated with water scientists, often in the regional media, about the water supply

of Montpellier and its suburbs. While hydraulic engineers suggested the use of surface water from the Rhone River through a regional canal built for irrigating the Languedoc area, the so-called Bas-Rhône–Languedoc canal, Jacques Avias, a famous French hydrogeologist, professor at the university of Montpellier, recommended drawing water from the Lez spring because of the high storage capacity of the aquifer and its sufficiency as a resource. The total need was estimated to be around 1.3 m³/s while the mean annual discharge is 2 m³/s, with a storage capacity of several tens of millions of cubic metres.

Avias (1995) considered that groundwater should be preferred to surface water for supplying domestic needs; he suggested pumping more than the natural discharge into the natural karst conduit upstream from the spring during the low summer flow. He thought that possible, because the storage capacity was large enough and would be restored by the recharge during the rainy season in autumn. The project was accepted by the city council, and the new



Fig. 4 The Chabaneau Fountain, Chabaneau Square, in Montpellier, France. It represents the City giving drinking water to its children (Photo: Michel Bakalowicz, 2008).

Fig. 5. (right) The temple of waters at the end of the aqueduct, above the reservoirs, Le Peyrou square, in Montpellier, France (Photo: Michel Bakalowicz, 2008).



water works went into operation in 1980, pumping around 1.5 m³/s, of which 160 L/s was discharged into the Lez River in order to maintain its biodiversity in the river when the spring tends to dry up because of the pumping. Pitot's aqueduct was abandoned in 1983 for a new buried water pipe.

After 28 years it is obvious that the exploitation of the Lez spring aquifer is sustainable in quantity and quality thanks to the good understanding of its characteristics and functioning. It is now considered the standard of reference for active sustainable exploitation of karst aquifers (Bakalowicz, 2005). However, the debate about the water resource has continued in the two last years after the local authorities launched a regional plan for supplying the extra demand for water. Some scientists and engineers are not yet convinced that karst aquifers can supply the entire domestic water demand.

The water history of Montpellier is an interesting example which shows the slow advance of ideas concerning the development and management of water supply in a Mediterranean city, from private wells and rivers to a public water utility. Montpellier is now a world reference for the sustainable exploitation of its karst groundwater resource, protected from over-exploitation and pollution by strict regulations and controls.

ACKNOWLEDGEMENTS

I am particularly indebted to Professor Michel Desbordes who introduced me to the regional archives.

Fig. 6. The Nombre d'Or Fountain, a modern, computerised fountain, in Montpellier, France (Photo: Michel Bakalowicz, 2005).



SOURCES

Aigrefeuille C. 1877. Histoire de la ville de Montpellier depuis son origine jusqu'à notre temps. C. Coulet, Montpellier. Archives Municipales. 1985. Montpellier et ses fontaines (XVIII-XIX^{èmes} siècles). Ville de Montpellier. Booklet of the exhibition « Montpellier and its fountains ».

Avias J.V. 1995. Gestion active de l'exsurgence karstique de la source du Lez (Hérault, France) 1957-1994. Hydrogéologie. No 1, pp. 113-127.

Bakalowicz M. 2005. Karst groundwater: a challenge for new resources. Hydrogeology Journal. Vol. 13, no 1, pp.148-160.

Montens S. 2001. Les plus beaux ponts de France. Bonneton, Paris.

Nougaret J. 2005. Montpellier monumental. Tome I. MONUM-Editions du Patrimoine, Paris.



ADELAIDE'S FOUNTAINS: A CITYSCAPE OF CHANGE

Carol Fort

INTRODUCTION

A system of fountains marked the South Australian landscape long before European settlement began in 1836. Tjilbruke, a local Aboriginal creator-ancestor, had carried his dead nephew along what is now the Adelaide suburban coast to bury him at a special place about 100 kilometres to the south (near present-day Rapid Bay). Six times Tjilbruke interrupted his heart-breaking journey and at each resting place, his bitter tears drew freshwater springs cascading from the coastal rocks. Although these springs have recently been marked with decorative artwork, they were originally invisible to the British colonisers who brought their own art traditions with them.

Adelaide is now studded with fountains that gurgle and splash onto artwork that represents Indigenous, British and many other settling cultures, and also represents different times and purposes, demonstrating changed uses of public space in Adelaide's cityscape.

Fig. 1.1 Boy and Serpent a rare Coalbrookdale cast-iron fountain erected to celebrate the Jubilee of Adelaide's Botanic Garden in 1907. The fountain's tapering aspect leads the eye from the four massive decorative legs, past three diminishing spout dishes and up to the relatively small boy and serpent that give the statue its name. The rosemary hedge and chain that now surround the pre-existing basin indicate today's attitude to the danger of water in a public place (Photo: Carol Fort, 2008).

BOY AND SERPENT, ADELAIDE BOTANIC GARDEN

The Adelaide Botanic Garden is one of the oldest cultural-educational sites in European Adelaide and its fountains are among the city's earliest examples of the art form. The Garden's mid-nineteenth century origins can still be read in the rococo formality and symmetry as well as the engaging vistas that marked British and European garden design at the time. Piped water entered Adelaide for the first time in 1860 and the Garden's designers brought it into the garden landscape through the *Owen Fountain*, operational in November the next year.

Although not the oldest, the Garden's most noteworthy fountain is *Boy and Serpent* (Figs. 1.1 and 1.2). When the Garden's second director, Dr Richard Schomburgk, established his long-dreamed-of educational class ground in 1874, its centrepiece was an ornately symmetrical basin about six metres across housing water plants. A single jet fountain added movement to the scene and aerated the pond water. By the time

Fig. 1.2 *Boy and Serpent* in its landscape context, adding life and movement to a formal walk. A nineteenth-century glasshouse and the modern Royal Adelaide Hospital crowd the vista (Photo: Carol Fort, 2008).



of the Garden's Jubilee in 1907, the class ground was in the process of transferral to a more suitable location and its site was being renovated. Robert Barr Smith, a local landowner and philanthropist, donated £150 to purchase a more extensive fountain cast in iron by the famous Coalbrookdale Company in England. Although the garden has changed in the meantime, *Boy and Serpent* remains in place, a sedate signpost in the central gravel walk of a formal garden. As the photographs show, the boy and the serpent are rather inconspicuous above the ornate legs and the three spouting dishes of the fountain but its height-enhancing tapering line comes into its own when viewed down the walk. This indicates the garden planners intended the fountain as a landscaping tool, rather than as art appreciated from close proximity. A thick rosemary hedge now surrounds the basin and a chain impedes visitor access to it, reflecting changed attitudes to the danger of water in public spaces.

THE THREE RIVERS, VICTORIA SQUARE/TARNDANYANGGA

Adelaide's most visible and probably most visited fountain is the *Three Rivers* fountain in central Victoria Square (officially jointly named as above). Influential Adelaide planners have argued since the advent of reticulated water in 1860, that the city's predominant square should be decorated with a fountain but it took the visit of Queen Elizabeth II in February 1962 to bring the idea to fruition in a memorial to her visit. Even then, Adelaide City Council had a number of arguments to work through before Elizabeth's husband, the Duke of Edinburgh, finally switched on the fountain in 1968. What sort of fountain, what size, where precisely should it be and how much should it cost were the dominant questions. In September 1963, an irritated Alderman Sir Arthur Rymill (who personally favoured a big fountain comparable to the *Queen Victoria Fountain* outside Buckingham Palace in London) put the question bluntly to the Traffic Committee. 'We must decide', he asserted, 'if we are going to beautify the City or get a maximum traffic flow through the City'. 'Traffic or beautification', he demanded, 'which one'?



Fig. 2.1 Three Rivers, Victoria Square Adelaide. The planning committee asked for a fountain that would be 'a dominant feature within the city' and would 'contain statuary representative of the City and a water display of eye-pleasing and extensive proportions'. Here, Three Rivers is comfortable in its landscape, easily blending a nineteenth-century Post Office, modern office buildings, weekend traffic and the park-like arrangement of its public space (Photo: Carol Fort, 2008).

Fig. 2.2 A woman holding a swan represents the River Torrens (which flows through Adelaide) on the Three Rivers fountain (Photo: Carol Fort, 2008).



These questions still vex Adelaide's urban planners. As Councillor Esther Lipman remarked, Rymill's 'either, or' ignored pedestrians and their habit of meeting near fountains. Over the years, the fountain has been a meeting place for small groups and for large civic events, including political rallies. The fountain has also been a canvas for graffiti, coloured dye, detergent bubbles and other unwelcome behaviour and Adelaide City Council recently declared Victoria Square an alcohol-free zone in an effort to discourage public drunkenness and unauthorised camping. Finally, in February 1967, the Adelaide City Council fountain sub-committee reported its decision: the proposed fountain should be 'of such proportions as to enhance Victoria Square and be ... a dominant feature within the city'. 'It should', advised the sub-committee, 'contain statuary representative of the City and a water display of eye-pleasing and extensive proportions'. In other words, it should be large in both size and drama.

Fig. 2.3 An Indigenous man holding an ibis represents the River Murray (South Australia's only significant surface water) on the Three Rivers fountain. This man is one of South Australia's earliest expressions of Indigenous belonging in public art and a flag representing all Australia's Aboriginal peoples is hanging behind him. This photograph shows Adelaide's central north-south vista, looking south past the statue of Queen Victoria to the hills that delineate the Adelaide Plain (Photo: Carol Fort, 2008).



As figure 2.1 shows, the fountain is large and dramatic, easily seen by pedestrian and vehicular traffic from King William Street (Adelaide's main north to south thoroughfare and vista) and various side approaches. The water display, with its 34 arcing jets is certainly extensive and, in the main, eye-pleasing and the drama is enhanced by its programmatic design. Ancient fountains traditionally honour the gods or spirits of the rivers that feed them and the *Three Rivers'* artist, the sculptor John Dowie, developed his design around honouring the three rivers that would feed the fountain (Lock-Weir, 2001). The three major sections comprise stylised human figures holding native birds: an Indigenous man holding an ibis (Fig. 2.3), a woman holding a heron and another woman holding a swan (Fig. 2.2), representing the rivers Adelaide depended on: the Murray, the Onkaparinga and the Torrens respectively. Although Dowie insisted the fountain did not represent an Aboriginal Dreamtime story, there is no doubt that his prominent depiction of an Aboriginal man is one of the first expressions of Indigenous belonging in Adelaide's public art and reminds viewers of Adelaide's pre-European riverine environment.

THREE NEW FOUNTAINS ON NORTH TERRACE

Adelaide is laid out on a formal grid pattern whose main section comprises a square mile of urban development (with Victoria Square at its centre) bounded by four terraces. North Terrace, on the northern rim of the CBD, is both a street – leading to significant cultural, educational and governmental sites – and a destination, a public space in its own right. Fountains have traditionally highlighted the boulevard's cultural aspects and in North Terrace's most recent makeover, fountains are a significant feature of the redevelopment. However, the new fountains are very different in concept from the old.

Fig. 3.1 Bill's Fountain is a playful sparkle of light, air and water that leads pedestrian traffic from North Terrace's roadway to the entrance of the State Library of South Australia. The fountain's low profile and companion plantings allow for touching and for seeing, as the vista remains open above it. Note the rather oddly positioned square sign. It announces to residents jaded by water restrictions in their own gardens that the fountain uses reclaimed water. Note too, the metal baffles let into the lip of the trough designed to prevent skateboarding damage (Photo: Carol Fort, 2008).



In 2002, the Public Works Committee told a parliamentary inquiry 'the proposed water features will not be traditional fountains' and they are not. They differ from the older fountains in three substantial ways.

First, by the time these fountains were commissioned in 2005, Adelaide's water shortage was widely-acknowledged and residents were becoming used to water rationing and rationalisation. The new North Terrace fountains reflect this. Unlike the profligate flows of earlier Adelaide fountains, these are relatively low-flow and recycle water, showing their respect for water. Further, their designs and integrated plantings ensure them some impact as they reflect their surroundings even when rationing regimes turn the water off. Second, the new fountains operate on a different plane. They are not visible signposts in extensive city or boulevard vistas. They do not draw the eye upwards, away from human space, offering quasi-classical programs or complex cultural symbolism. They are physically low, touchable, companionable; in dialogue with walkers and sitters who notice first one then another, as they engage with the space. The fountains do not belong together but are not completely independent either. Rather, they add a simplifying layer of rhythm, fun and memory to a rich cultural landscape.

Fig. 3.2 The cool, slippery wet faces of the component granites of 14 Pieces are an object of wonder to a passing child drawn into their midst. Their low profile brings the nineteenth-century South Australian Museum building and its arid land display behind the wall into the 14 Pieces landscape, both directly and in the form of a reflection (Photo: Carol Fort, 2008).



Finally, the most entrancing difference: the water in these fountains stands for various facets of water itself. The sculpture carrying the fountains has no external programmed meaning; it simply supports the water while it expresses aspects of its own nature – of being water.

The most easterly, a seemingly deep pool and gentle waterfall deeply shaded by the massive Spotted Gum outside the Art Gallery of South Australia, represents water in a serene, contemplative, perhaps mysterious mood. About 70 metres to the west, at the entrance of the State Library of South Australia, a row of regular jets splashing into a black marble trough inscribed 'in memory of Bill Scammell and his effervescent wit and wisdom 1920-2001' represents the playful, bubbling, sparkling and even funny aspects of water (Fig. 3.1). Between the two, *14 Pieces* (Fig. 3.2 and 3.3) draws passers-by, inviting them to move among the 14 low, black and red granite pieces and to run their fingers through the sheets of water that continuously stream across the stone faces. A landscape of fun, especially for children, *14 Pieces* is a landscape of wonder too as the cool, sinuously-moving wetness unexpectedly reflects a kaleidoscope of sky and earthly surroundings.

Fig. 3.3 Looking west down North Terrace the low egg-shaped profile of 14 Pieces draws the eye into a deep and sumptuous vista. The installation's inspiration, said to be a combination of the old granite landscapes of South Australia's north and the museum's collection of fossilised dinosaur bones, is visible in this aspect, which also shows its attraction to birds as well as boys (Photo: Carol Fort, 2008).



CONCLUSION

All over the world, cities are examining their public spaces and the art that graces them. The few cityscape fountains discussed here offer an enticing window onto the ways Adelaide's public spaces have changed over time. Put briefly, in *Boy and Serpent* the water adds spatial perspective to a created garden and its classical design adds a touch of European civilisation and a dash of 'home' to a colonial outpost. It does not speak outside that paradigm. Garden designers intended visitors to observe and appreciate it from pre-determined perspectives. In *Three Rivers* the water it-

self has become part of the story as the figures on the fountain represent actual rivers but there is no way of understanding it without privileged information. Finally, in the three new North Terrace fountains the water is the message. The water tells about itself by being itself – wet, fun, mysterious, silky, boisterous and much else. There is no complex symbolism here, no story to hear before understanding. Consequently, unlike the earlier fountains, as the water tells about itself, it invites all viewers to hear what they want to hear and to belong if they wish.



SOURCES

Adelaide Botanic Garden *Adelaide Botanic Garden Conservation Study* (2006).

Adelaide City Council *Adelaide Park Lands and Squares Cultural Landscape Assessment Study* (2006).

Adelaide City Council Archives: Town Clerk's Special Files U069/66 and U069A 'Commemorative Fountain – Victoria Square.

Malone, Gavin 'Ways of Belonging: Reconciliation and Adelaide's Public Space Indigenous Markers' *Geographical Research* June 2007 45(2): 158-166.

Lock-Weir, Tracey 'John Dowie: A Life in the Round' (2001) Wakefield Press, Adelaide.

Parliament of South Australia 'Supplementary Evidence to the Public Works Committee' 11 July 2002.

PRECIOUS AND TREASURED WATER: THE ROLE OF FOUNTAINS AND WATER IN ISLAM AND TUNIS

Jarmo J. Hukka & Petri S. Juuti

BACKGROUND

Tunis (Arabic: تونس, Tūnis) is the name of the capital of the Tunisian Republic as well as the Tunis Governorate with a population of about 1,200,000. Informal estimates put the population of greater Tunis at four million. The old city of Tunis, the capital and largest city of Tunisia, is located on the northern coast of the African continent, between the western and eastern basins of the Mediterranean Sea. It was built on the shallow Lake of Tunis, an inlet of the Gulf of Tunis, and is linked by a canal to its port, Ḥalq al-Wādī, 10 km to the northeast.

Tunis was founded by the Libyans, who in the 9th century BC surrendered the site of Carthage to the Phoenicians from Tyre. During the Third Punic War between Carthage and Rome, Tunis and Carthage were destroyed (146 BC). The city blossomed under Roman rule (Fig. 1), but its importance dates chiefly from the Muslim conquest in the 7th century AD. It became the capital city under the Aghlabids (AD 800–909) and reached its greatest prosperity under the Ḥafṣid dynasty 1236–1574). The Holy Roman emperor Charles V took possession of it in 1535, and in 1539 the city passed into the hands of the Turks. It was retaken by the Spaniards, who held it from 1573 to 1574, but were forced to yield it to the Ottoman Empire, under which it remained until it became a French protectorate (1881–1956). Occupied by the Germans in 1942, and liberated by British and Allied troops in 1943, it became the national capital of Tunisia when independence was achieved in 1956.

Among the city's attractions are its thermal baths, dating from the time of Rome's Antonine emperors (who reigned in the 2nd century), the heights of Sīdī-Bū Saīd, the exoticism of its markets (suqs), and the mosque of Az-Zaytūnah (8th century), the oldest and most venerated monument in Tunis as well as several beautiful fountains. To the southeast of the city, in the valley of Wādī Milyān, lie the remains of one of the longest sections of the aqueduct built by the Romans to link Mount Zaghwān to Carthage.

Fig. 1 Remains of the Temple of the Water, built by the Romans (Photo: Petri Juuti, 2007).



FOUNTAINS AND WATER IN ISLAM

Islam is a monotheistic religion based upon the Qur'an, and a fountain is the place in the Mosque where worshippers can wash themselves before entering the Mosque. Wudu is the Islamic act of washing parts of the body using water. Muslims are required to perform wudu in preparation for ritual prayers and for handling and reading the Qur'an. Wudu is often translated as "partial ablution", as opposed to ghusl, "full ablution". The Qur'anic mandate for wudu is expressed in the sixth *ayat* of *sura* 5 (Al-Ma'ida):

"O you who believe! When you rise up to prayer, wash your faces and your hands as far as the elbows, wipe your heads and your feet to the ankles; and if you are under an obligation to perform a total ablution, then wash (yourselves), and if you are sick or on a journey, or one of you come from the privy, or you have touched the women, and you cannot find water, betake yourselves to pure earth and wipe your faces and your hands therewith, God does not desire to put on you any difficulty, but He wishes to purify you so that He may complete His favor on you, so that you may be grateful." (Wikipedia).

In Islam water is considered a holy thing, a gift from God. The harsh desert climate of Arabia, the Near East, and North Africa makes water a highly valuable resource. Islamic Law, the Shari'ah, goes into great detail on the subject of water to ensure the fair and equitable distribution of water within the community. The *Sharia* (literally: "the path leading to the watering place") is Islamic law based on the teachings of the Qur'an and the prophet Mohammed, which most Muslim groups adhere to. In Islam, Sharia is the expression of the divine will, and "constitutes a system of duties that are incumbent upon a Muslim by virtue of his religious belief". (Encyclopaedia Britannica Online)

Water is one of the three things that every human is entitled to: grass for cattle, water, and fire. Water should be freely available to all, and any Muslim who withholds unneeded water sins against Allah. No one

can refuse surplus water without sinning against Allah and against man. The hadiths say that among the three people Allah will ignore on the Day of Resurrection will be the man who, having water in excess of his needs, refuses to give it to a traveler. "We made from water every living thing" (Qur'an 21:30). Water is the primary element that existed even before the heavens and the earth did: "And it is He who created the heavens and the earth in six days, and his Throne was upon water" (Qur'an 11:7).

The water of rain, rivers, and fountains runs through the pages of the Qur'an to symbolize God's benevolence: "He sends down saving rain for them when they have lost all hope and spreads abroad His mercy" (Qur'an 25:48).

There are two fundamental precepts that guide the rights to water in the Shari'ah: *shafa*, the law of thirst, establishes the universal right for humans to quench their thirst and that of their animals; *shirb*, the right of irrigation, gives all users the right to water their crops.

From the numerous Quranic references to cooling rivers, fresh rain, and fountains of flavored drinking water in Paradise, we can deduce that water is the essence of the gardens of Paradise. It flows beneath and through them, bringing coolness and greenery, and quenching thirst. The believers will be rewarded for their piety. The water in Paradise is never stagnant; it flows, rushes, unlike the festering waters of Hell. The Qur'an also equates the waters of Paradise with moral uprightness: In the garden there is no idle talk; there is a gushing fountain (Al-Ghashiyah 88:11-12; www.islamonline.net).

The many specific statements about the topography of Paradise in the Qur'an led to many attempts to map Paradise. Throughout history, Muslim rulers from Moorish Spain to Persia sought to reproduce the image of Paradise in the design of their palace gardens, creating elaborate water features, pools, and fountains. The gardens of the Alhambra in Spanish Granada, the Bagh-é-Tarikhi in Iran's Kashan, and the gardens of the imperial palaces in Morocco's Mar-

Fig. 2 The gate built in 1848 divides the medina from the new town. In the front of the gate is a fountain which is a very popular place for taking photographs. It is really difficult to get a photo without getting anyone in the picture (Photo: Petri Juuti, 2007).



rakesh all testify to this desire to emulate Qur'anic Paradise on earth. All are designed around water features and fountains that have been subtly woven into the layout of the beautiful parks, hence combining water and the beauty of the natural landscape to fill the human soul with faith, joy, and happiness. (www.islamonline.net)

THE MEDINA OF TUNIS

Since 1979 the medina of Tunis has been a UNESCO World Heritage Site. It has at least 700 historical monuments, such as palaces, mosques, mausoleums, madrasas and fountains dating from the Almohad and the Hafsid periods. The medina of Tunis is at the very centre of the city. It is a dense agglomeration of alleys and covered passages.

The gate, Bab el Bahr, the so-called Sea gate, known also by the name Porte de France, which divides the medina from the new town, is a tourist attraction in itself. The gate was built in 1848. In front of the gate is a beautiful small fountain, which is a very popular place for taking photographs (Fig. 2). It is almost impossible to take a photo without getting someone in the picture. The gate was part of city wall, and it used to stand near the shore of Lake Tunis. Lake Tunis was, however, filled up by the French, and a new city was built on the site (Tomkinson, 2006).

The fountain was designed by one of the municipality's engineers, Mr. Jallel Abd Razzek, in 1994. The Tunisians do not consider it a real fountain, since the design differs from the traditional – the water of this "fountain" flows freely in an open canal underneath the ground (Amel Soudani 2008).

NEW TUNIS - THE AVENUE AND CLOCK TOWER FOUNTAIN

When people in Tunis refer to "The Avenue", they always mean the Avenue Habib Bourguiba. The main street of almost every Tunisian city is named after this famous president (president 1957–87, born 1903, died 2000). The clock, perched high atop a square tower, along the main avenue of the city of Tunis, borrows the motifs of the metallic lace covering it from the arabesques of Tunisian architecture, "nakch hadida", or from wood carvings. During the dark hours, iridescent from the hundreds of lamps, it glows with a lavish transparent light (Becher, 2003). Close to the clock there is a fountain, with a pool and jets of water shooting water colored by many lights as high as the top of the clock tower (Fig. 3). The water fountain is a popular place to have a moment of rest in the hectic city centre.

Fig. 3 The clock tower fountain is the landmark of the Avenue. It is in the middle of a circular pool boasting several fountains (Photo: Petri Juuti, 2007).



In August 2000, the President of the Republic selected one of the projects proposed to conserve the central area, and ordered it to be finished by the end of July 2001. That was the starting point of total redevelopment, aimed at restoring the city centre and the activities carried on there which agitated local residents. The people of Tunis expressed special concern for the existing fig trees. The Washingtonia palms were uprooted from private gardens without hesitation, and people even walked on the flower beds, but the more than hundred-year-old fig trees had to be left untouched. The widening of both vehicular traffic lanes and the central pedestrian area required transplanting numerous trees. (Becher, 2003)

The restoration was essential and was supervised with an expert hand by the municipal team, the Mayor and engineers. Tunisian companies proved their skills: only one foreign company was chosen to transplant the fig trees. The work involved the entire Avenue, from Independence Square in front of the French Embassy to the clock roundabout at Place du 7 Novembre. Work went on from December 2000 until July 2001, with the least possible disruption for users, although, obviously, the dust, noise, demolition and the state of the road during those months was inconvenient for everybody, especially the residents. (Becher, 2003)

The restoration work made the Avenue the heart of Tunis once again, and the clock tower fountain is the landmark of the whole Avenue. It was inaugurated by the President of the Republic, Zine el Abidine Ben Ali, on 29th August 2001. The clock was set in motion for the first time. It is in the middle of a circular pool boasting several fountains. Fountain designers from Spain were responsible for installing them. A screen of water allows images of light, films, slogans and reports to be projected onto a liquid backdrop for important occasions. In September 2001 a huge audience was thus able to follow some of the competitions of the Mediterranean Games on the innovative screen. (Becher, 2003)

A city is a living organism, constantly transforming itself, deteriorating or flourishing. By spreading out towards the east and north, the new districts of El Menzah and the Lac were usurping Bar Bhar's traditional place. Anarchic traffic, outdated boutiques, facades and fronts lacking any harmony and disfigured by cables and power lines – utility does not always worry about beauty – were threatening to turn this "promenade" into a mere trunk road. (Becher, 2003)

Between the Cathedral and the French Embassy sits the statue of Ibn Khaldoun. From his pedestal, he as a sociologist ahead of his time, reminds us of his famous aphorisms about the primacy of urban culture. The sculpture marks the Avenue's boundary and faces the clock tower. Facing Carthage, the statue seems to be contemplating the new creation. (Becher, 2003)

CONCLUDING REMARKS

The harsh desert climate of Arabia, the Near East, and North Africa makes water a scarce and highly valuable resource. Water plays a vital role in Islam, and water fountains are used not only for refreshment and joy, but also as soothing elements at resting places in the middle of the hectic urban life. In Tunis the water "curtain" of the clock tower fountain is also an innovative way of delivering purposeful messages to passers-by. The clock tower fountain is the focal point of the Avenue as well as a popular meeting place.



SOURCES

«Tunis.» Encyclopædia Britannica. 2008. Encyclopædia Britannica Online. Retrieved on 18 Nov. 2008 <<http://www.britannica.com/EBchecked/topic/609220/Tunis>>.

Fatma Ben Becher: TUNIS – The History of an Avenue

(Documentation: Claude Canceil & Hafedh Boujmil), Editions Nirvana 2003, 118 p.

«Shari'ah». *Encyclopaedia Britannica Online*. Retrieved on 2007-05-02.

Soudani, A. 2008. Oral communication. 10.12.2008.

Tomkinson Michael (2006, 1st ed.1985), Tunisia. UK, Michael Tomkinson Publishing.

www.islamonline.net, Visited 10.11.2008

Wikipedia. Wudu. <http://en.wikipedia.org/wiki/Wudu>. Visited 10.12.2008



**PART IV: EXPANDING
TO ENJOYMENT OF
MODERN TIMES**

Fig. IV.0 The fountain of knowledge at the campus of University of Nairobi, Kenya, dating from the 1960s (Photo: Tapio Katko, 2008).

FOUNTAINS OF HAMBURG: FROM GRAND GESTURE TO POOR CONSCIENCE

Hans-Werner Krüger

The advantageous location of Hamburg for trade has defined its history from the beginning of the 7th century. The town situated on the Elbe River and its tributary Alster, that connect it to the hinterland, has struggled throughout the centuries to establish stable conditions for commerce and independence, starting with a forged document supposedly signed by emperor Friedrich "Barbarossa" in 1189 granting customs exemption and free trade status. In 1867 Hamburg gave up its status as a state against the guarantee of a duty free harbor. Hamburg is also one of the two founding cities of the Hanseatic League, an attribute which still appears in the current name Freie und Hansestadt Hamburg (Free and Hanseatic City of H.).

The abundance of water in a flat region, with small hills inside and outside the medieval city surrounded by mighty ramparts, did not make it necessary to build a large-scale system of water supply with public wells and fountains. Due to the above conditions, people had no desire to put up fountains to worship or esteem for a necessary good since they had sufficient water to meet their daily needs.

Fig.1 Hygieia Fountain in the courtyard of the town hall, Hamburg, Germany. Hygieia conquers the dragon, the severest cholera epidemic in the second half of the 19th century (Photo: Hans-Werner Krüger, 2008).



PUBLIC WELLS AND FOUNTAINS

Three private water delivery systems using wooden pipelines to draw water from natural wells were established by water associations starting in the 14th century, followed later by the systems of three private corporations which took their water from the Alster basin been dammed up for water mills. Private supply as a whole covered only about 10 per cent of the inhabitants at the middle of the 19th century.

Public wells and fountains within the old city, therefore, played an important role for the poor majority. Yet, fountains provided only part of the people's water. The Alster River and the channels dug to ship various articles from the Elbe to the numerous storehouses were also the "natural" sources of drinking water.

Over the centuries, about 110 wells and fountains have been built within the town. Their use and preference depended on natural conditions and taste of the water, the social environment and their official status. Some were free for anyone to use, some were accessible to the general public but at a fee while others were reserved for water merchants who paid a fixed tariff for a bucket of water to the administration. Water was transported by little (hand)carts, especially in the higher regions of the town where groundwater from wells or through pipelines was not available.

In earlier centuries only two fountains had a distinct character. One with a huge, richly decorated well house stood on the Neumarkt (New Market), another, called the English fountain, on the Gänsemarkt (Geese Market). They no longer exist. Of the three still existing historical market places only one, the Hopfenmarkt (Hamburg had a strong beer brewing tradition and therefore needed masses of hops), is adorned with a small fountain from 1878 displaying a woman from the neighboring agricultural area, Vierlande, that has traditionally delivered vegetables and flowers to the city.

A major rupture in Hamburg's history, the appearance of the whole town, and the sense of social and political commitment was caused by the Great Fire of May 1842. Within three days a third of the old town, which still existed within the medieval walls, was destroyed by flames and the attempts to limit the spreading of the fire with explosions. The fundamental reconstruction and new wide streets intended to form a rather modern, well-lit and healthy city instead of the former cramped spaces proceeded along with the construction of a publicly owned modern water supply and waste water system for all inhabitants according to English engineering design and experiences.

Although the reconstruction was strongly influenced by gifted architects and engineers, it was obviously not deemed necessary or possible to erect new fountains as non-functional representative elements of a developing and self-conscious city. Their time came a bit later. Three remarkable fountains remain from a period at the end of the 19th century characterized by quick economic expansion under the newly constituted German "Kaiserreich", as a symbol of widely shared national ambition and local pride about Hamburg's quickly growing harbor and industry.

To celebrate the successful combination of economics and politics, the ruling senate, a pre-democratic corporate institution dominated by merchants, ship owners and industrialists, decided to place a statue of Mercury, the god of commerce and thieves, in the courtyard of the town hall. It is a square flanked on two sides by the Stock Exchange which miraculously survived the Great Fire of 1842; on the other corner stands the town hall, built between 1886 and 1897 in a mixture of the Italian and north German renaissance styles.

HYGIEIA FOUNTAIN REMINDING OF CHOLERA

Then fate intervened in human plans, and Mercury had to give way to Hygieia, daughter of the Greek god of medicine, Asklepios, herself a symbol of health and hygiene. She was chosen to symbolize the value of health and safe water supply after the severest cholera epidemic in Europe during the second half of the 19th century. In August and September 1892, altogether 16,850 of the 640,000 inhabitants of Hamburg were infected with cholera and 13,500 died. Paradoxically, the disease was able to spread so quickly due to the relatively modern drinking water system, which extracted water from the Elbe seven kilometers upstream from the old city, but was nevertheless polluted especially by the faeces of the emigration camp in the harbor.

The reason for the fast spreading was the lack of water filtration as proven by the fact that only a few persons were hit by cholera in the neighboring city of Altona downstream of Hamburg. The Altona waterworks had treated Elbe water with sand filtration since 1858, whereas Hamburg did not modify its system taken into use in 1848 that used unfiltered river water, although Lindley had often during the continuous expansion of the public waterworks proposed the introduction of similar filtration in Hamburg. The quarrel between the different factions of the local government (formerly the Honorable Counsel, today the Senate) and the public – the vendors of house filters strongly opposed central filtration – delayed the decision to provide the necessary filtration for eighteen years. During that period the deputation for financial affairs pretended to be the appropriate expert group for solving water quality questions.

Hygieia puts her foot on the dragon symbolizing cholera (Fig.1). On four sides of the lower water bowl human figures demonstrate the different practical advantages of water (Fig. 2). This fountain, created by the Munich sculptor Josef von Kramer in 1895/96, has a special technical feature. Several rooms of the town hall are cooled by the fountain water. Today an open air café by the Hygieia fountain gives the courtyard a lively touch and makes it a favorite place for tour-



ists pleased to see the impressive statue after having crossed the massive entrance hall of the town hall.

MONUMENTAL STUHLMANN FOUNTAIN

Altona's water supply is linked also to another fountain. The founder of the Altona Gas- and Waterworks, Günther Ludwig Stuhlmann (1797 -1872), gave his home town a grant of 18,000 marks (six or seven times that in today's euros) to build a monumental public fountain. Only 25 years after Stuhlmann's death the town held a contest which was won by the sculptor Paul Türpe from Berlin. In 1900 the 7.5-m tall sculpture, embedded in a granite basin measuring 20 x 10 m, was inaugurated on the "Kaiserplatz" (Emperor's Place) between the town hall and the new railway station, the most prominent then.

The sculpture of two centaurs struggling with each other over a big fish caught in a net (Fig. 3) symbolizes the long rivalry between Altona and Hamburg, especially concerning which was the biggest fish harbor in Germany. Two tritons (Fig. 4) are spitting water in the direction of the centaurs, maybe as a comment by the animated sea.

This fountain, by far the biggest in Hamburg, has a very complicated internal support structure of iron bars which carries the main figures. Their copper shell is only 2 cm thick. This led to massive corrosion and instability, and therefore it was decided to renovate the whole fountain thoroughly for its hundredth anniversary. The town did not want to finance the project and sought sponsors – a very familiar practice in the last decades. In the end, Europe's biggest copper smelting plant repaired the shell on their own grounds, and Hamburg Waterworks installed the pumps and pipes at the new site.

Hamburg is famous for radically altering its cityscape and getting rid of old building stock with little or no regard for historical and architectural contexts, which is why the fountain stands presently in its third location. When the big railway station was replaced with a faceless warehouse, the fountain was moved in 1979 to a depression in front of the new faceless railway station (Fig. 5) where its monumental shape and function as the divider of the former "Kaiserplatz" lost all meaning. And the place itself has lost its former size and splendour. Now the Stuhlmann fountain is hidden in a little park outside the place. There exists a somewhat strange contrast between the dramatic gestures of the main figures, the originally intended

Fig.3 Stuhlmann Fountain, Hamburg-Altona, Germany. The two centaurs, symbolizing the rivaling towns Hamburg and Altona, are struggling over a big fish (Photo: Hans-Werner Krüger, 2008).



Fig.2 (left) Hygieia Fountain, Hamburg. The figures around the basin show different uses of water (Photo: Hans-Werner Krüger, 2008).



Fig.4 (left) Stuhlmann Fountain, Hamburg-Altona: Two tritons, one at each side of the basin, are spitting water at the centaurs (Photo: Hans-Werner Krüger, 2008).



Fig. 5 (right) Stuhlmann Fountain, Hamburg-Altona, 1979 in his second site in a depression (Photo: Hamburg Waterworks, 1980).

Fig. 6 Hammonia Fountain, Hamburg, Germany. Situated in the middle of the Hansaplatz, the fountain is one of the most impressive fountains built in the time of Historicism (Photo: Hans-Werner Krüger, 2008).



space relations, and the peaceful surroundings which are used by mothers with their children, pensioners and young people enjoying the greenery. At least the water is flowing as in the early days.

HAMMONIA –HANSA FOUNTAIN: CONTRADICTIONARY POLICIES

The Hammonia fountain, sometimes called the Hansa fountain is an example of how historical background can fade away and the status and integration of a fountain as part of urban life may change. It is situated in the St. George quarter, three minutes from the central railway station, and constitutes the center of the Hansaplatz (Hansa Place), a square of 60 x 60 meters which some people consider the most beautiful public place.

Until the 1860s, St. George was a little suburban village outside the old city rampart. The area that was to become the Hansaplatz was formerly a meadow used to graze pigs and later for storage of wood by carpenters who built several houses there for their families and other inhabitants.

This medieval island in a quarter which a journal in 1878 called “the headquarters of the well-off and the solid middle class with a conservative touch” (Geschichtswerkstatt St. Georg (ed.) 2003, 4) stirred up the financial interest of the municipal owner. An official document stated that it was just the right time “to realize a capital value of millions” (of marks). In 1873 the senate decided that the carpenters, their families and the other users had to withdraw from the area against a rather small financial compensation. The beneficiary was the “Hanseatische Baugesellschaft” (H. Building Society) founded some years earlier which paid 1.2 million marks for the 50,000 square meter area and several houses, a sum which many people considered astonishingly small. The company undertook to erect a huge fountain on the Hansaplatz and to care for the whole infrastructure. The name of the place possibly refers to the company whereas the fountain was called the “speculation and corruption fountain” by locals for many decades to come.

Fig. 7 Hammonia Fountain, Hamburg. The statues of two emperors, a count and a bishop are an odd historical combination (Photo: Hans-Werner Krüger, 2008).



The architect of the fountain, Engelbert Peiffer, later became one of the directors of the building society and in that function refused to complete the fountain as promised with memorial tablets for the artisans because of his “experiences with socialism” since the official opening in 1888. The building of the typical residential houses in renaissance style around the place was completed. The north and east sides of the place were totally destroyed during the Second World War.

The Hammonia fountain as it is normally called (the other name is Hansa Brunnen) – Hammonia is the Latinized name of Hamburg – is 17.2 meters tall and made of Belgian granite; the figurative decoration and the female statue on top with the victorious golden trident are of sandstone (Fig. 6). It used to be shiny but is today dark grey. The four statues above the lion’s heads, among them the Roman emperor Constantin I, Charles the Great and Ansgar, the first bishop of Hamburg, do not make historical sense (Fig. 7). The heraldic emblems represent the Hanseatic towns Hamburg, Lübeck and Bremen and the German Reich formed in 1871. The latter must have been added to avoid any suspicion about Hamburgian separatism.

After the war – the interstices on two sides caused by bombing in the Second World War were left vacant until the 70s and 80s except for some provisional buildings – the mixture of local domestic life and various shops disappeared. The Hansaplatz became partly a parking place; in the 80s growing prostitution, drug addiction and the homeless began to dominate the scene. An attempt to turn the fountain into one of flowing water lasted only a few years. For the common man the fountain had lost most of its former significance, and the media pictured the place as a security problem.

This view was also held by a senator of justice who lived there which culminated in the installation of five video cameras for comprehensive monitoring in 2006. This was opposed by locals as superfluous and further stigmatization. The peak of the contradictory policies of the conservative senate which pretended “to make the place attractive for locals and visitors”

was the installation of a yellow plate directly in front of Hammonia prohibiting the bearing of weapons (Fig. 8), followed by the cutting of three big trees to create a better field of (super)vision. This practice obviously did not affect the typical users from the lower social stratum. As a reaction to the state's rigidity, several inhabitants formed a group with the motto "culture instead of cameras" (see www.hansaplatz.de) with the intention of reintroducing to the place a market, musical events including bands made up of people from the numerous countries living there, grill evenings and an open air cinema. Hammonia in her stony pride may recover some hope from such activities which can bring back some normality to this still remarkable place.

In November 2009 the city started a somewhat strange initiative to make the Hansa Place more suitable for public use in the meaning of modern city marketing by covering the whole place and parts of the neighbouring streets with grey bricks of concrete. The work took one and a half years and left costs of 2.4 million Euros. The idea to make the place inviting for people besides of organized events is already refuted by the absence of any sitting places (Fig. 9). At least the Hammonia fountain got a make up and a technical revision so that it can flow again..



Fig.8 Hammonia Fountain, Hamburg. A plate in front of the fountain prohibits carrying weapons on the Hansaplatz (Photo: Hans-Werner Krüger, 2008).



Fig. 9 Hammonia Fountain in November 2011 (Photo: Hans-Werner Krüger).



SOURCES

- Moeck-Schlömer C. 1998 Wasser für Hamburg: Die Geschichte der Hamburger Feldbrunnen und Wasserkünste vom 15. bis zum 19. Jahrhundert. Verein für Hamburgische Geschichte
- Meng A. 1992. Die Geschichte der Hamburger Wasserversorgung. Medien Verlag Schubert
- Evans R. 1990 Tod in Hamburg: Stadt, Gesellschaft und Politik in den Cholera-Jahren 1830 – 1910. Rowohlt (English original: Death in Hamburg: Society and Politics in the Cholera-Years 1830 – 1910. Oxford University Press 1987)
- Hipp H. 1989 Freie und Hansestadt Hamburg: Geschichte, Kultur und Stadtbaukunst an Alster und Elbe. Dumont
- Stadtteilarchiv Ottensen e.V., Stiftung Denkmalpflege Hamburg 2000 (eds.) Der Stuhlmannbrunnen: Sinnbild und Wahrzeichen im Herzen Hamburgs
- Geschichtswerkstatt St. Georg (ed.) 2003 125 Jahre Hansabrunnen. Geschichtswerkstatt
- Ausstellungswerkstatt St. Georg, Museum für Kunst und Gewerbe (eds.) 1979 St. Georg – Vorstadt und Vorurteil?

HOCHSTRAHLBRUNNEN – STORIES OF WATER, POWER, AND URBANISM

THE FONTAINE LUMINEUSE ON SCHWARZENBERGPLATZ (1946–56 STALINPLATZ), VIENNA

Staffan Lodenius

Since ancient times Vindobona/Vienna has been a city with advanced water management. Its location in the heart of Europe has made it a focal point of political power throughout the centuries. Vienna has also played an important role in the history of urbanism and modern urban planning.

Figs. 1–2 The main jet, der Hochstrahl, leaves the Red Army soldier behind a curtain of water. The Soviet occupation authorities ordered the lowering of the height of the jet, but the Austrians insisted on keeping it high (Photos: Staffan Lodenius, Oct. 2007).



AN AXIS OF HISTORY

From the southernmost "corner" of *Ringstrasse*, where *Kärtner Ring* changes to *Schubert Ring*, with your back towards the city centre, you can see a sequence of local and national landmarks that form a rather undefined architectural space: the *Schwarzenbergplatz*. The visible symbols consist of the equestrian statue of Prince Karl Philipp Schwarzenberg ("winner" of the Battle of Nations at Leipzig in 1813) representing the monarchy's military power, the fountain *Hochstrahlbrunnen* (an achievement of the urban modernization of the late 19th century), and in the background the *Belvedere* Palace (an aristocratic summer residence where the second republic was proclaimed in May 1955). There are also many other symbols, invisible or hidden, along that same axis.

AFTER THE WALL

The starting point is situated on the former *glacis* – the empty slope outside *the Ringmauer* (city wall). The wall which for centuries protected the city against the Ottoman threat could not withstand Napoleon's bombardment in 1809 leading to the declaration of *Pax Europaea* at the Congress of Vienna. The walls were left standing as a symbol of the Empire's power over the people and to serve as a protection against the revolting lower classes of the suburbs. In 1857 Emperor Franz Joseph I ordered the destruction of the wall. The resulting urban void was divided into plots, offered for sale and exploited in the next decades. That can be considered one of the first and most successful "Public-Private Partnership" developments in urban history – at least from the Empire's point of view, which from the profits built the Opera, the House of Parliament, the *Burg Theater*, the National museums, etc. The Municipality of Vienna, on the other hand, had a hard time coming up with the necessary infrastructure investments. Anyhow, Vienna changed from a quasi-medieval town to a modern capital.

Besides the monumental buildings, the urban structure in the *glacis* zone stayed undefined for decades, but in 1892 an international architectural competition

was held for the surroundings of *Karlsplatz–Schwarzenbergplatz*. The jury must have been in an ambivalent situation: the leading Viennese architect Otto Wagner presented an *Hausmann-* (i.e. Paris-) influenced entry, while a proposal in obvious *Sitte-* (i.e. Vienna-) spirit was submitted by the famous German urbanist Josef Stübben. The jury decided to divide the first prize.

UNDER THE PAVEMENT

You have to look under your feet for one of the main challenges of the competition. In the early days you would have entered *Schwarzenbergplatz* via a bridge over the River Vienna. But as a part of large water management projects the river was canalized and hidden underground. Together with the main sewers, the canals form a large labyrinth, maybe best known from the film *The Third Man*. In the divided Vienna after WWII, when the international, British and Soviet sectors met at the (former) *Raphael Donner Denkmal* on the square, the canal system was a twilight zone for agents and wanderers representing various powers and interests. Earlier, the so-called *Zwingbrunn* right under the square was used as a main hiding place and headquarters by homeless and unemployed *Strotters* – Viennese vagabonds – until in 1934 the *Kanalbrigade* was founded and law and order was introduced to the underworld. An interesting story within the story is an early example of social or investigative journalism, when Max Winter and Emil Kläger, disguised as *Strotters*, frequently visited the canals and from 1902 onwards published reports in the *Arbeiter-Zeitung* under the heading *Im unterirdischen Wien* –leading the way for George Orwell and Günther Wallraff decades later.

UP IN THE AIR

Above ground is the newly renovated part of *Schwarzenbergplatz* with a traffic volume of 60 000 vehicles a day and several crossing tram lines. It is the result of a competition held in 1998 which was won by the Spanish architect Alfredo Arribas with an entry named VIENNA LIMELIGHT. The name seems to refer – besides the urban setting – to Harry Lime of *The Third Man*

and the lights of the *Hochstrahlbrunnen*. The main idea was to clear the surface of greenery and street furniture and to create a magically lit night townscape with e.g. kinetic red lines aimed at the fountain and synchronized with the passing trams. Yet, the spectator is now faced with the imposing *Hochstrahlbrunnen* shooting up jets of water of different heights around a circular basin 40 m in diameter. No huge sculptures or monuments – just water and stone, and in the night, lights and colours.

The originator of the fountain project was the contractor of the High spring water pipe line, Anton Gabrielli. The site was not obvious – alternative sites included at least the squares in front of the *Votivkirche* and the *Rathaus*.

The fountain was inaugurated by Emperor Franz Joseph I on 24.10.1873 as one of the last events of the Vienna World Exhibition; he might also have celebrated his 25 years on the throne (he had still 43 years left!). With a little help from Eduard Suess, the “father” of the pipeline, the water power was successfully released at last on the third attempt, and the jet rose to a height of 40-50 m.

The original arrangement from 1873 included 365 small fountains for the days in a year, four central spouts for the seasons, and one high central fountain for the year. Later on, the fountain was complemented with 6 jets between the edge of the pond and the central island representing the days of the week, and 12 high fountains and 24 low ones on the central island representing the hours of the day and months of the year. There are also another 30 jets representing the days of the month.

The first light installation was switched on in Midsummer 1906. The source of inspiration was probably the first *fontaine lumineuse* at the Paris World Exhibition of 1889. Three colours were used: red, blue, and green; when the light fountain was reopened on 30.4.1955, three more colours – yellow, violet, and white – produced 144 different combinations. The light show has made *Hochstrahlbrunnen* a magnet for urban tourism for over a century.

DOWN FROM THE MOUNTAINS

The Roman *castrum* of Vindobona already got its fresh water via a 30 km long underground aqueduct from *Wienerwald*.

In 1739 a sewer system for the whole city was completed – the first one in Europe – but the pollution of the ground water by dwellings outside the walls caused a cholera epidemic that raged in the years 1830–31 claiming two thousand lives. The *Kaiser-Ferdinands-Wasserleitung* built in 1835–41 replaced the polluted courtyard wells, but its capacity was insufficient. In 1864 the decision was taken to build a high springs conduit from the district of the *Rax*, *Schneeberg* and *Schneealpe* mountains. The planning was headed by the remarkable palaeontologist and geologist Eduard Suess (1831–1914), and after four years of construction the first 89 km long *Hochquellenwasserleitung* from *Kaiserbrunn* to Vienna was completed. The alpine water flowed into a reservoir on the south hill, near the Belvedere Palace, and all municipal districts could be supplied exclusively with spring water. In 1888 more than 90% of the 900 000 inhabitants enjoyed the spring water consuming a volume equivalent to 40% of today's supply. The water runs without a single pump – instead, the streaming water was also used to generate power. Later two more high springs conduits have been constructed: the second one, 180 km long in 1900–1910, and the third one, 21 km long as late as in the 1980s.

The increasing use of fresh water naturally increased the amount of sewer water, and from 1895 onwards 5000 men worked on the canalization of the River Vienna and the main sewers (total length 2300 km) leading to the Simmering purification plant. Suess and his main collaborator Karl Junker were responsible for the works. Along with the regulation of the Vienna River and the Danube Canal, the *Stadtbahn* transportation system was also built between 1894 and 1901. All together it was an immense urban civil engineering project with the municipality as main the project manager – at that time private enterprises were mostly in charge of pioneer infrastructure developments.

Eduard Suess gained world-wide recognition as a scientist (craters have been named after him both on the Moon and on Mars), and thanks to his book *Anlitz der Erde* (The Face of the Earth), he is also considered one of the earliest practitioners of ecology. As a *Gemeinderat* he also occupied an important position in Viennese administration. A statue of Suess by Franz Seifert was erected in 1926 at *Schwarzenbergplatz* (*Prinz-Eugen-Strasse*), but for ethno-political reasons it was soon removed by the Nazis. It was brought back to the square only in 1969.

BEHIND THE WATER CURTAIN

Behind *Hochstrahlbrunnen* stands the Monument to the Red Army (*Denkmal zu Ehren der Soldaten der Sowjetarmee*). It was erected – as the first building project of the second republic – by the Russians to commemorate the 18 000 soldiers who died during the liberation of Vienna from the Nazis. After considering *Prater* and other alternative sites, Dimitri Schepilov, Commander of the Soviet forces, chose this slightly provocative place in front of the *Haus der Industrie*, the headquarters of the Allied forces, the *Haus der Wiener Kaufmannschaft*, the centre for the local business world, and the Embassy of France – remembering that General Schwarzenberg had allied with the Czar against Napoleon.

In February 1945 a small architectural competition for the monument was won by the architect and major S.G. Jakovlev. The soldier was sculptured by the Armenian Mikhail Intesarian (the design proposal was modelled of bread on a bottle), the monument was constructed by Mikhail Scheinfeld, a Jewish Ukrainian engineer, and the greenery was designed by the Croatian landscape architect Albert Esch. The inscriptions on the monument are by the poet Sergei Mikhalkov. This “powerful” architectural ensemble is thus the product of a truly multicultural team.

Atop a 20 m column of marble from *Engelsberg* stands a bronze Soviet soldier, a *Red Guard*, 12 m tall and weighing 15 tons, holding a golden shield, a Soviet flag, and a *Kalashnikov*. According to the inscription,

the monument ‘honours the soldiers of the Soviet army, pleased with the release of Austria from fascism’. The inscription was translated into German only in the late 70’s – to put an end to the talk about *sovietization*.

The monument was unveiled on 19 August 1945 with speeches by State Chancellor Karl Renner, among others, representing the puppet government. *Hochstrahlbrunnen* was repaired as a part of the monument construction; Austrians and war prisoners were used as the work force. Soon thereafter a diplomatic cat-and-mouse game began: the Soviet authorities demanded that the jet be lowered so that it would not block the sight of the red soldier – the Austrians insisted on a high rising jet (Figs.1-2). For how long or with what intensity or consequences did this struggle of willpower continue is unclear.

Several nicknames were given to the monument: *Russendenkmal: Denkmal des unbekanntten Plünderers, Erbsendenkmal, Erbsenprinz*¹. In spite of these invectives, the popularity ranking of the foreign forces was, according to a tourist guide from the time of occupation², quite clear: less disfavoured were the British and Soviet troops, most unpopular the American and French ones. Anyhow, the monument represented the power of the winner and the aesthetics of Stalin – and Hitler. The second republic demilitarized the square immediately: the soldiers’ corpses were reburied in *Zentralfriedhof* (familiar from the first and last scenes in *The Third Man*), the T-34 tank was driven down from its podium and handed over to the War Museum, and the name Stalin disappeared from the city map. But under the terms of the State Treaty of 1955, the Austrians continue to pay for the Red Army Monument’s upkeep.

BY THE FOUNTAIN, ON THE STREETS



The Viennese are said not to be especially fond of *Schwarzenbergplatz*. It is seen as an indefinite urban space beginning at *Ringstrasse*, disappearing half-way through the wide *Lothringerstrasse* streetscape, and fading away on both sides of *Hochstrahlbrunnen* – though a similar description could be given of *Karlsplatz* or *Heldenplatz*, too. The fountain itself is politically innocent, it has only weak connotations to political power, but has nevertheless in the last decades become important for the less-bourgeois citizens. Austria's first McDonald's was opened there in 1977, the yearly, sometimes violent *Opernballdemos* rallies have taken place there since 1987, the first "permanent breakfast" was laid here in 1996, and in March 2008 the demonstrators for a free Tibet gathered there.

Permanent breakfast(Fig. 3)? The first one, the "Mother of breakfasts" (*die Urfrühstück*), was arranged on 1.5.1996, at 10.00 AM, at *Hochstrahlbrunnen*, by a group of artists around Friedemann Derschmidt. The idea behind "the breakfastization of the public space and place" was to determine whether the urban stage is public, pseudo-public or private in practice – thus it is a spiritual relative to the *Reclaim-the-streets* movement. A breakfast is enjoyed by a host and four invited guests – who are obliged to arrange the next public breakfasts – plus accidental passers-by; the event is also documented. From Vienna breakfasting has snowballed across the world³.

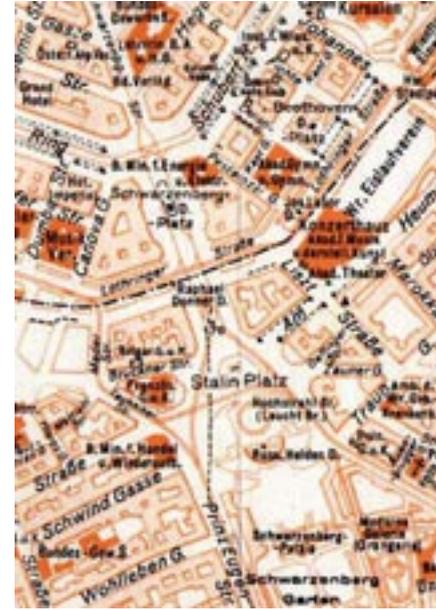
Fig. 3 The first permanent breakfast was arranged on 1st of May 1996 (Drawing by the author based on a photo on the Web).

BACK TO THE FUTURE, FORWARD TO THE PAST

Yet, one very important phase of Viennese urbanism is missing from the surroundings of *Hochstrahlbrunnen*, i.e. *Die Rote Wien* (Red Vienna) of the social democratic first republic of 1918–33. Maybe that is reason enough to redefine it as a public space?(Fig. 4) Then, May Day would once again be a very special day for the square and its fountain.

On a sunny afternoon a square and a fountain can provide inhabitants and visitors great pleasure. But they also have forgotten stories to tell. So please, look and listen, seek and find!

Fig. 4 The site of Hochstrahlbrunnen at Schwarzenbergplatz. Extract from a map in a tourist guide from 1951.



SOURCES

Hommerberg, Sigge 1951: *Om Ni reser till Österrike*, Allhem, Malmö.

For this article the author has used numerous publications on general and local history, city and tourist guides, articles in journals, magazines, and newspapers as well as the Wikipedia and other Web pages, which may introduce some inaccuracy.

LITERATURE

Marschik, Matthias & Spitaler, Georg 2005: *Das Wiener Russendenkmal, Architektur, Geschichte, Konflikte*, Turia + Kant, Wien.

Reinhold, Bernadette 1998: *Schwarzenbergplatz. Seine städtebauliche und architektonische Entwicklung*. Diplomarbeit, Universität Wien, or: Reinhold, Bernadette, 2001: *Platzgeschichte als Kulturgeschichte. Der Wiener Schwarzenbergplatz*, Österreichische Zeitschrift für Geschichtswissenschaften 12/2001/1.

Zeniti, Djamel 2007: *Vienna – When Harry met Holly*. In *City + Cinema, essays on the specificity of location in film*. DATUTOP 29, Tampere University of Technology, Vammala.

Notes

1 Stalin donated 1000 tons of peas to the starving inhabitants on 1.5.1945. An American corporal cadet retells (2002) a story of his grandmother: "They [the Russians] brought peas, tons of peas with worms in them. The people had to throw the peas into boiling water to kill the worms and often the whole family was sitting around the table taking out dead worms from the peas. After this procedure finally they were able to eat them." www.usfava.com/H_Prigl33.htm

2 Hommerberg 1951, 216.

3 see <http://permanentbreakfast.ritesinstitute.org/>

THE MERMAID OF HELSINKI, FINLAND

Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko



Fig. 1 Havis Amanda fountain is a natural meeting point at the lively market place of Helsinki (Photo: Ari Hynynen, 2008).

The most famous water fountain in Finland is undoubtedly the Havis Amanda, with a well-proportioned female figure as its centre piece. During its – or her – century-long life, the fountain has become a beloved monument cherished by all Finns (Fig. 1). The fountain is located in the busy central market place of Helsinki at the eastern end of the Esplanade Park, on the waterfront. The statue of ‘Amanda’ is in the Art Nouveau Style and only slightly larger than life size.

It stands on a pedestal in the middle of the fountain basin encircled by a red granite rim on which four sea lions lie sprouting water from their open mouths. The popularity and recognition gained by the fountain are based mainly on its status in Finnish art and cultural history, not so much on its architectural role in the cityscape of Helsinki. Its contribution to hydrology has also been meagre.

The decision to award the commission to sculpt the fountain was strongly influenced by the political situation in Finland at the turn of the 19th century. At that time, Finland was part of the Russian Empire – an autonomous Grand Duchy. However, during the ‘years of oppression’ in 1899–1905 and 1909–1917, the Russian government resorted to aggressive policies to weaken the autonomy of Finland, for example, in the area of legislation. These policies were widely opposed in Finland. As an expression of that struggle, Finnish artists concentrated on national and folkloristic themes in their work. In Finnish art history the period is called the ‘Golden Age’, and the masterpieces of that era won Finnish art worldwide fame.

The city fathers of Helsinki also felt the need to identify their city with urban Europe. They decided to build a cultural link to continental Europe by asking our most renowned sculptor, Ville Vallgren, who lived in Paris, to create a water fountain in Helsinki. Yet, Vallgren was not a self-evident choice since many of his realistic female figures springing from Finnish national mythology were controversial due to their non-conformist contribution to the mainstream artistic style in Finland, which could be called ‘academic idealism’. Paradoxically, the international fame of Vallgren was based completely on his sensual, and sometimes erotic, female figures.

But the artists and art lovers of Finland appreciated his talent. For example, the esteemed painter, Albert Edelfelt, used all his influence to get Vallgren the commission. At the time, public statues were commissioned rarely in Finland providing a livelihood for just one monument sculptor, Walter Runeberg, the sculptor of Finnish statesmen. Later on, his position was inherited by Emil Wikström. Due to Edelfelt’s campaign, the fountain was finally commissioned from Vallgren. The contract signed in 1906 presupposed that ‘the main figure shall represent Helsinki rising from the sea’.

The public reception of Havis Amanda in 1908 is hard to understand without at least an inkling of the lively personality of Vallgren. He was born in 1855 in Porvoo, Finland, and was inspired by sculpture during his architectural studies. In 1877 he moved to Paris to study under the guidance of famous artists. In France he made a remarkable career as a sculptor, living in creative bohemian quarters while participating in great European art exhibitions as well as smaller ones in Finland.

In Paris, Vallgren and his wife led a social and artistically productive life. Vallgren was an excellent cook and published his own cook book titled “Food, drink and happy gentlemen” (authors’ transl.). He loved good wines, and could not understand the prohibition on alcohol in Finland at the time. After his subsequent return to Finland, he propagated publicly against the law, and stood openly and warmly for sensual life, cherishing female beauty as well. He never represented woman as a dangerous ‘femme fatale’, which was typical of his contemporary symbolistic artists. Vallgren saw woman as his goddess. His later sculptures were sometimes purely erotic.

In the 1880s Ville Vallgren and other Nordic artists living in Paris founded the legendary brotherhood of Jesus Syrach, which used meet in rue Jacob’s wine bar on Saturday evenings. The brotherhood was not an elitistic clique, but a remarkably open society. Despite his vivid social life, Vallgren worked every day between the hours 8–12 am and 2–6 pm, which explains the large volume of his artistic production.

During his period in Paris, Vallgren continuously made initiatives to have his statues erected in Finland, but was unsuccessful for a long time. As an expression of his indignation, he and his first wife took French citizenship in 1902. However, in 1913 Vallgren returned suddenly and unexpectedly to Finland to escape the drug abuse and violent behaviour of his second wife. In Finland he remarried. (Ahtola-Moorhouse & Green, 2003)

Fig. 2 Later interpretations of Havis Amanda have highlighted also the role of the four sea lions (Photo: Ari Hynynen, 2008).



THE PUBLIC UNVEILING AND RECEPTION OF HAVIS AMANDA

The fountain of Havis Amanda was unveiled on September 20th, 1908 (Mononen & Nenonen, 2008). No ceremonies were held, since the unveiling took place at night. The city fathers of Helsinki probably thought that the fountain might spark off a debate, so they tried to proceed quietly and unnoticed. Yet, all their efforts could not prevent the debate which was more heated and provocative than anyone could anticipate.

The feminist movement was the first to voice its opinion. According to its leaders, the female figure of the fountain was obscene and immoral, a 'French bitch' that made men's minds wander off. The feminists were hurt especially by the fact that public funds were used to offend decency. Their opinions reflected the contemporary ideals of woman as a mother and an educator. In those days feminists stood for empowering women in politics and society in general. Sexual emancipation of women was not yet on the feminist agenda. (Jalava, 2000).

Feminists considered themselves as representatives of the wider public. They disputed the right of an elitist male clique to make decisions on art purchases in the name of all taxpayers. In their opposing argumentation, highly educated men used all their academic and rhetoric skills to beat the feminist lay women by stating that 'the bronze girl of Vallgren was like casting pearls before swine'.

Working class newspapers also joined the debate. They wrote that the fountain was typical bourgeois waste of money. The 80,000 marks spent on vanity should have been spent on social needs, and maybe to rescue some young women from poverty or even from prison. The needs and appropriations of the cultural and social sectors were set against each other, as in today's political debates before elections.

Finnish nationalists also presented their critique. According to them, the female and animal figures of the fountain were alien to Finnish national character. It was slightly paradoxical, that in France Vallgren's



art was praised specifically for its Nordic originality. In Finland, the Swedish-speaking academic cosmopolitans were aware of this and argued against the nationalists. They considered Vallgren a fine representative of European culture, and they cited foreign newspapers to point out the esteem Vallgren enjoyed abroad.

Although the critique against Havis Amanda was strong, it had no real consequences. This can be explained by the unwillingness of the national and working class movements to join the feminists, thus undermining the power of the opposing front. To put an end to the useless debate, *Argus*, a cultural magazine, published twelve comments regarding Amanda, written by notable Finnish artists and art specialists. The comments were without exception favourable. In their conclusion the editors stated that a work of art should be valued by aesthetic and artistic, not moralistic, standards.

Vallgren was nevertheless deeply hurt by the opposition voiced during the debate and sent an open letter to be published in Finnish newspapers. He wrote that this kind of art-disparaging debate would have been impossible in genuinely civilised countries. Moreover, he would have been paid much better for the statue in Paris. In his mind, he never enjoyed the esteem in Finland that he deserved. It is unlikely that he would have moved back to Finland without the crisis caused by his second wife.

HAVIS AMANDA TODAY

It is interesting that in the early 20th century the debate revolved only around the female figure. Later interpretations have highlighted the sea lions, seeing them as sexually excited males around the mermaid (Fig. 2). Such interpretations are not necessarily far fetched, as we know that Vallgren was over 50 years old when he sculpted the statue while both of his models were 19 year old Parisian girls. (Jalava, 2000)

Today attitudes towards Amanda are totally relaxed. The sweet girl in the market place appears fresh and innocent. Everybody loves 'Manta' – as they call her

Fig. 3 Today attitudes towards Amanda are totally relaxed. The sweet girl in the market place appears fresh and innocent (Photo: Ari Hynynen, 2008).

in Finland – and in 1999 the fountain was voted the most beautiful artwork in Helsinki. (Fig. 3)

Once a year the fountain becomes the centre of national celebration as students of technology perform their traditional capping of Havis Amanda ceremony on the eve of May 1st. ‘Vappu’ is the wild spring carnival of the Nordic countries celebrated especially by students and workers. The capping ceremony started as early as in the 1920s – when Ville Vallgren was still alive – and includes also the scrubbing down of ‘Manta’. Against this background, it is only natural that the diving club of the city’s engineering students makes its yearly diving trip to Amanda’s pool.

But it is not only students that gain visibility for their celebration through Amanda (Fig. 1). The strong and vivid (and sometimes crazy) world of ice hockey also visits Manta when it is time for a great party. When ‘Kärpät’, a hockey team from Oulu, won the Finnish championship in 2008, they dressed Manta in their team shirt. HIFK, the hockey team from Helsinki made the same in Spring 2011, let alone the celebrations after the World Championship in Ice Hockey won by Finland later that spring.

The century-long history of the fountain reflects quite well the changes in public opinion as art is concerned as well as the general attitude towards public exposure of nakedness and sexuality. Maybe ‘Manta’, for her part, has played a role in making Finns more relaxed and international in their outlook.



SOURCES

- Ahtola-Moorhouse, Leena & Selma Green, eds. (2003). Ville Vallgren 1855-1940. Ateneumin taidemuseo, Helsinki.
- Jalava, Marja (2000). Rietas naisenkuva vai helmi sioille? Ville Vallgrenin Havis Amanda –suihkulähteestä vuonna 1908 käyty keskustelu. Esitelmä Historiallinen Yhdistys ry:n seminaarissa “Skandaali! – Kulttuurikiistat aikakautensa ilmentäjinä” 12.10.2000. Historiallisia papereita 9, Historiallinen yhdistys ry, Helsinki.
- Mononen, Teija & Kati Nenonen (2008). Havis Amanda Mon Amour 100 years. Helsinki City Art Museum.

SAMMY MARKS FOUNTAIN, PRETORIA

Johannes Haarhoff

The city of Pretoria, administrative capital of South Africa, was founded as the capital of the Transvaal Republic in the 1850s due to its well fortified position close to an exceptionally strong artesian water source, which serves the city to this day. After gold was discovered three decades later in Johannesburg, less than 100 km to the south, the city rapidly became the economic powerhouse of the country, while political power remained in Pretoria. The gold of Johannesburg caused a large number of investors, entrepreneurs and fortune-seekers, many of whom lived in or frequented Pretoria, to seek the goodwill of the conservative political rulers, who often frowned on the new, permissive mining establishment on its southern doorstep. Matters took a turn for the worse with the outbreak of the South African War (1899–1902) between the Transvaal Republic and Britain. The origin of the Sammy Marks fountain dates back to this turbulent time shortly before and after the war.

Today, the Sammy Marks Fountain can be found in a green, restful corner of the National Zoological Gardens, located very near the centre of Pretoria (Fig. 1). It is a fairly large structure, about 12m tall, in the centre of a small pond with water spouting from different positions – from the entwined dolphins at the top as well as from a ring of spouts closer to ground level. The principal features are the four figures at the four corners representing Commerce, Science, Art and Literature with a ring above their heads showing the twelve signs of the zodiac. Presently it is simply an element of decoration amidst the animals, providing a place of rest and contemplation next to the main pedestrian thoroughfare through the gardens. How did this large structure find its way to its present restful environment?

Fig. 1 The Marks fountain in its present position in the Pretoria Zoological Gardens. The main pedestrian thoroughfare in the foreground passes close to the fountain, while the fountain is flanked on the left and in the back by part of the bird collection of the National Zoological Gardens. The water features of the fountain were not in use when the photograph was taken (Photo: Johannes Haarhoff, March 2008).





Fig. 2 The Marks fountain in its earlier commanding position on Church Square in the centre of Pretoria between 1906 and 1910. The picture was taken during a military parade, date unknown. The building on the left is the Raadzaal (Council Chamber) of the old Transvaal Republic, built during the presidency of Paul Kruger.

ORIGIN OF SAMMY MARKS FOUNTAIN

Sammy Marks (1843-1920) was an entrepreneur who entered South Africa in 1868 following the discovery of diamonds in Kimberley a few years earlier. After the subsequent discovery of gold in Johannesburg in 1886, Marks was one of the many who moved to Transvaal to seek his fortune in the then Transvaal Republic. He soon befriended President Paul Kruger and, during the 1890's, donated a statue of Kruger to the City. He commissioned the statue to be made in Europe and the construction of a pedestal for the statue on Church Square in the centre of the City. In October 1899, however, the outbreak of war between Britain and the Transvaal Republic interrupted the erection of the statue. By the end of the war in May 1902, Pretoria had fallen under British rule, which would not allow the erection of the Kruger statue and had already demolished the half-completed pedestal. (The story of the eventual erection of the Kruger statue after keeping it in a warehouse for years in Lourenco Marques in Mozambique is another fascinating tale not pursued here.) Marks, now having to forge a relationship with the new regime, ordered a fountain to be manufactured and presented it to the City in 1905. It was erected where the Kruger statue would have been to serve its original purpose as a water supply point for the citizens of Pretoria as well as for its ornamental value. The water was fed from a large artesian spring a few kilometres away through a series of canals and pipelines. From the fountain, the water drained through a newly constructed system of stormwater pipes to the nearby Apies River. The water to the fountain was turned on the 19th of April, 1906. (Figs. 2, 3 and 4)

RELOCATION OF THE FOUNTAIN

The continuous drainage of fountain water to the Apies River was a wasteful practice in a city which is not naturally endowed with plentiful water – a fact that quickly dawned on the city fathers. Only four years later, the city called for tenders to have the fountain removed from Church Square and re-erect-

Fig. 3 The Marks Fountain on Church Square, with the photograph taken in a northwesterly direction from the top of the Raadzaal (Photo: Council Chamber).

ed in the Transvaal Zoological Gardens as they were then called. There was a clear understanding that the fountain would be a gift from the municipality to the Zoological Gardens, evident from the fact that the tender for the removal of the fountain also included re-erection at the new site.

The dismantling started towards the end of 1910, and by February 1911 the fountain was in its new position. A moot point in this transaction, however, was the water supply to the fountain. The city, understandably, was keen to reduce the overall water consumption, while the Zoological Gardens insisted on retaining the water features. An agreement was made in principle that the fountain would be connected to the city supply and that the water should be free, but that the water features would only be turned on during Wednesday afternoon, Saturday afternoon and on Sundays.

By 1935, for reasons unknown, the water features of the fountain were again running continuously. A new agreement was reached to limit the water consumption by turning off the features every day between 17h00 and 08h00. It was also suggested, as a further water-saving measure, to have the number of spouts reduced and the leaking basin repaired. The city engineer, clearly tired of the recurring fountain problems, suggested complete demolition or the use of a small recirculation pump, but neither was acceptable to the Zoological Gardens. Instead, they counterproposed exactly the same water-saving measures that were contemplated in 1910! These were apparently accepted, as the archives remain silent on any further developments.





REHABILITATION OF THE FOUNTAIN

The fountain was refurbished in 1970 and again extensively renovated in 1989 and today serves the same purpose as planned when the fountain was removed in 1910. One of the difficulties during restoration was to determine the original colours of the fountain. This led to the discovery that the Marks fountain is one of three similar fountains in the world.

The fountains were all cast in Glasgow, Scotland by Walter MacFarlane & Co, architectural, sanitary and artistic founders, Saracen Foundry. The first of these fountains was presented to Warrington, England, in 1900 in memory of Peter Walker, founder of the Walker's Brewery. This fountain, erected in front of the Town Hall, was demolished in 1942 and donated by the town as scrap metal to the war effort. A miniature replica of the fountain now exists in a silver collection in the Warrington Town Hall. The second fountain similar to the Marks fountain today stands in Alexandra Park, in the Dennistown area of Glasgow, but no details about its origin are available.

ACKNOWLEDGMENT

The sources were unreservedly made available by Mr Anton Jansen from his private archive dealing with the building heritage of Pretoria.



SOURCES

Beeld Newspaper. Reports July 6 1989; November 24 1989; March 26 1990.

City Engineer Pretoria. Report dated June 21 1935.

Correspondence between the Municipality of Pretoria and the Pretoria Zoological Gardens. March 23 1910; May 30 1910; June 25 1910; August 10 1910; October 13 1910; December 14 1910; February 1911; February 28 1928; January 25 1935; July 29 1935.

Correspondence between the Municipality of Pretoria and the Warrington Borough Council. June 12 1987; July 15 1987.

Correspondence between the Pretoria Restoration Bank and the Warrington Borough Council. July 10 1989; July 26 1989; August 11 1989.

Jansen, Anton. Letter to Beeld Newspaper January 16 2003.

Juuti, Petri. Photograph used in Figure 4, taken during August 2007.

National Cultural History Museum (Pretoria) Photographic Collection. Photographs HKF5658 (Figure 2), HKF5722 (Figure 3) and HKF5689 (Figure 4).

Figs. 4 (left) The Marks Fountain on Church Square, date unknown, with the Raadzaal in the back on the left.

FOUNTAINS IN STOCKHOLM, WHERE THE LAKE MEETS THE SEA

Kenneth M. Persson

A SHORT HISTORY OF THE WATER SUPPLY OF STOCKHOLM

Public standposts have existed in Stockholm, Sweden since the city's founding in the mid-13th century. At the time, the sea water level was almost 3.5 m higher than now. The land rise continues at a rate of approx. 0.4 mm/year in Stockholm. Since the oldest part of the City, the Old Town, lay that much lower than nowadays, the waters of the Baltic Sea surrounded the city and drinking water had to be collected from wells dug in the water-rich boulder ridge Stockholmsåsen that stretches from Öregrundsgrepen north of Stockholm more than 50 km down to the southern part of Södertörn – a peninsula south of Stockholm. The boulder ridge traverses the city.

Boulder ridges are generally rich in water which is why the old inhabitants of Stockholm could easily dig wells down to the watertable. Stockholm used to have at least 25 public wells – the oldest one gave its name to a lane in the Old Town (The Well Lane or "Brunnsgränden") first recorded in 1450 while another gave its name to a hill just south of the Old Town (The Well Hill or "Brunnsbacken") on record since 1475. To some extent, water had been distributed under pressure ever since ancient Grecian times, and pressurised water was led to some monasteries and cloisters all over Europe in mediaeval times. In Sweden, the Brigittine cloister of Vadsten had pressurised water already in the 15th century which was fed to all cells through lead pipes.

Demand for pressurised water increased significantly after the Reformation. During the second half of the 16th century, skilled technicians started travelling around Europe offering to establish water supplies to royal palaces and cities. They called themselves water artisans and could supply houses and cities with pressurised water. With the help of drilled wooden pipes, water could be supplied by suction or lifted from a source and transported under pressure to a fountain or a standpost in a house or a public place. The royal palaces of Europe had their own systems. The Royal Palace of Stockholm was also involved in this technical development. The Three Crowns Palace used to be supplied by special water carriers that carried water in buckets from wells to the palace, but an artisan presented a solution to the king in late 1590, whereby a water wheel placed in the outflow of the lake Mälaren would operate a pump in a well and lift water through a wooden pump to a wooden pipe that could feed the palace with gravity flow. If the outflow from Lake Mälaren happened to be too small due to a storm, strong tide or some other unusual circumstance, the well pump would be operated by a horse gin.

Serious attempts to get the pumped system operate were made during the late 16th century, but several technical problems were encountered. The well pumps had leather seals, which absorbed water and disintegrated over time. Also, the wooden pipes were not watertight, and in winter the pumps and pipes froze and burst. Only in the beginning of the 17th century was the system finally operating properly. Some artefacts from the Palace's old water supply are exhibited at the Museum of the Royal Palace in Stockholm.

In the middle of the 17th century, the Royal Palace was also fed with water from another pump sys-

tem located close to Järntorget. The cabbage garden of the Royal Palace was irrigated with water from a lake with the unpleasant name "The Swamp" (Träsket) located at a higher elevation than the Royal Palace some 1000 metres north of it. Water was fed through drilled wooden pipes down to the cabbage garden which was modernised in 1694 into a Royal Garden and equipped with a fountain in the style of Versailles. That was the first recorded fountain in Stockholm. Later, the Royal Garden was made public, and the area is now called Kungsträdgården (Royal Garden). A contemporary engraving presents a view of the garden in 1697 (Fig. 1).

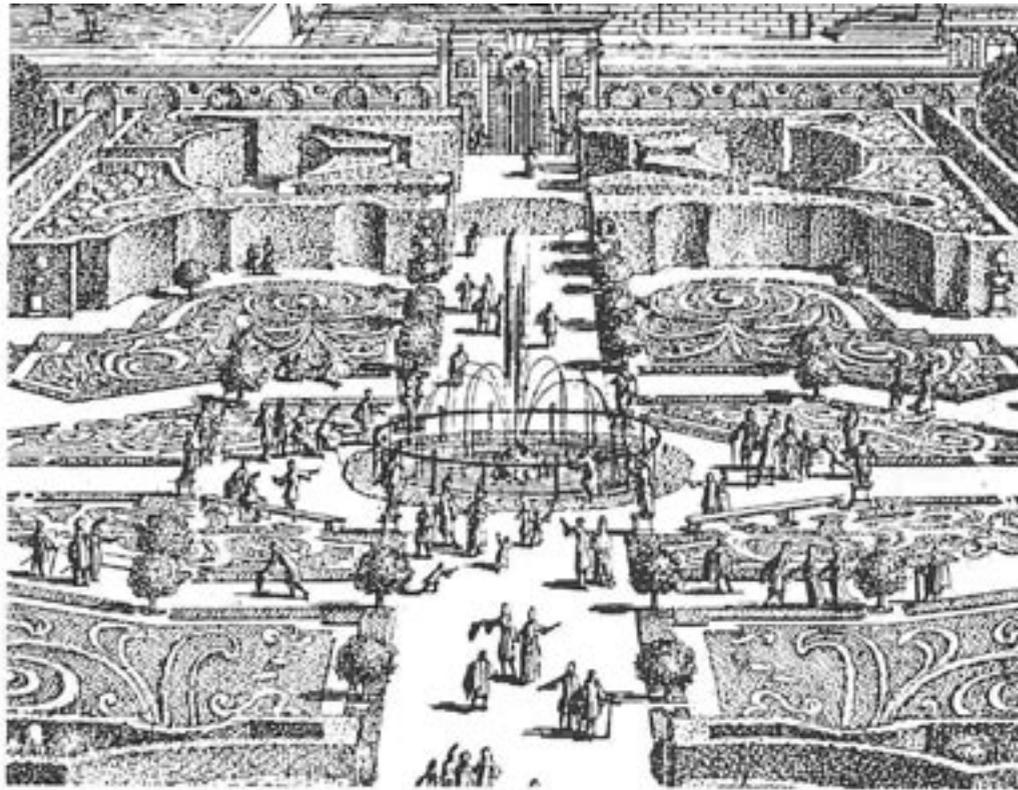


Fig. 1 The Royal Garden with fountains. Engraving by Erik Dahlberg: *Suecia Antiqua et Hodierna*. Published originally in 1716.

The first dedicated public fountains were built during the 18th century. Their wooden pumps had been improved significantly by introducing copper or iron fittings and valves. The City Architect Johan Eberhard Carlberg (1683-1773) managed, as one of his many duties, the wells and water sources of the city for fire fighting purposes. He also had to maintain them and make sure that they were in working order. He was trained as an architect and fortification officer. Born in Gothenburg, he worked there for 10 years as city architect before being transferred to the Capital in 1727.

In 1761 he recorded 20 well pumps used for water lifting, evenly distributed across the city (2 at the Royal Mint; 2 on the bridge at Norrmalmstorg; 2 at the Royal Stables; 2 at the Stora Kungsholmsbron; 1 behind the Corps de Garde at Norrmalmstorg; 1 at Rosenbad; 2 at the old Kungsholmsbron; 2 at Holländaregatan; 2 at Norrtull; 1 at Lake Träsket; and 3 at the new marketplace Hornstorget). Another 11 pumps were operated publicly, and wells without pumps were also maintained in the city. Since Carlberg was a trained architect, he felt strongly that wells and pump houses should look beautiful, that is, "have an appealing exterior". Two of his wells are still found in Stockholm: The stone well of Stortorget and the masonry and wood German well at the intersection of Svartmangatan and Själagårdsgatan.

Yet, the majority of the fountains were not built until the city was fully piped for water between 1859-1861. The piped network was inaugurated by King Karl XV on the 27th of April 1861. The water pressure in the cast iron pipes was so strong that when a fire hose was connected to a fire hydrant at the corner of Götgatan and Bondegatan, his Majesty and the other guests of honour at the inauguration could enjoy watching the water jet spouting up as high as the adjacent three storey house.

MOLIN'S FOUNTAIN

Fountains were, however, rare. They were considered to waste water. The first Swedish water supply textbook written by J.Gabriel Richert in 1867 noted that public fountains were a source of great pride for a city, but were costly to erect, and even more expensive to supply with sufficient amounts of water. A small fountain needed 30-40 cubic feet of water per minute. Larger fountains, like those in Place de la Concorde in Paris or Trafalgar Square in London, were supplied 120-130 cubic feet each. Therefore, they had to be connected directly to the mains and were regarded as luxuries which could only be allowed in capitals or very wealthy towns.

The fountains could not be operated "every day, but only on some occasions when general consumption could be reduced" to conserve water. Fountains designed to be monuments belong to the domain of fine arts entrusted to architects and artists. A water engineer should, however, ensure that the water outlets of a fountain are made larger than normal, since the water meets air resistance when it leaves the pipe. If the effective pressure in the outlet is h , the resistance from air reduces the lifting height in the fountain to $h' = h - 0.01 \times h^2$ if the water flows through a circular hole in a thin wall. But the mouths of pipes are generally cylindrical or conical in order to make the water jet more beautiful. A cylindrical mouth gives only $2/3 h'$ lift height compared to a thin wall outlet. And a conical mouth gives $0.72-0.9 h'$ compared to a thin wall outlet. In order to produce flow-through in a fountain, it is generally necessary to supply it directly from the waterworks through its own mains supply.

Fig. 2 Molin's Fountain in the city life (Photo: Kenneth Persson, 2008).



Despite the presented criticism, a number of fountains were erected in Stockholm during the latter part of the 19th century. By far the most famous is Molin's Fountain. It is a brass fountain standing in the middle of the old cabbage garden, Kungsträdgården, in Stockholm (Fig. 2). It was designed by Johan Peter Molin (1814-1873) but was not unveiled until the 25th of September 1873, immediately after the death of the artist. A grand exhibition of Art and Industry was held in Kungsträdgården in 1866. Molin had made a fountain sculpture in gypsum for that exhibition which was greeted with enthusiasm by the visitors. A money raising campaign was started after the exhibition "to support the casting of Molin's Fountain in metal". Molin was born in Gothenburg and trained as a sculptor and moulder. From 1855 on he was a profes-

sor of sculpture at the Academy of Arts in Stockholm. He studied in the 1840's in Copenhagen under Herman V. Bissen and lived and worked subsequently for eight years in Rome. For many years, he earned his living as a baker, but in 1853 he was elected teacher at the Academy of Arts and was appointed professor in 1855. In addition to the famous fountain, Molin also designed and made several sculptures recognised by Swedes, among them the Bältesspännarna statue that stands in Göteborg by Kungsportsavenyn and the statue of Karl XII facing towards the east in Kungsträdgården not far from Molin's Fountain. He also held exhibitions in London, Paris and other European cities.

Fig. 3 Molin's Fountain, detail. The nine daughters of the waves (Photo: Kenneth Persson, 2008).



The artist himself explained that the fountain was inspired by the position of Stockholm between Lake Mälaren and the Baltic Sea. Right at the top sits a bowl full of water representing Lake Mälaren. Under the bowl lies a large fountain basin symbolising the Baltic Sea. The freshwater sprite Näckens plays his harp for the Norse god of the sea, Ägir, his wife Ran, and their nine daughters of the waves: Kolga, Hrönn, Himingläva, Unn, Duva, Blodughadda, Bylgja, Båra and Hefring (Fig. 3). Molin wanted to depict the meeting between the master of the lake and the god of the sea.

Since the gypsum fountain was criticised for being too exclusive, Molin included six swans in the final version. From the mouths of the six swans, the public could — and still can — collect drinking water (Fig. 4). For the inauguration in 1873, willows were planted around the fountain. The Latin name for the willows is *Salix elegantissima* while their Swedish name is *fontänpil* (fountain willow) due to their habitat by Molin's Fountain. Numerous lovers, friends, tourists and singers have met at Molin's Fountain since 1873 to drink water from the mouth of a swan before going out on the town.

Fig. 4 Molin's Fountain, detail. Mouth of the swan offering high quality drinking water to the public (Photo: Kenneth Persson, 2008).





THE FOUNTAIN OF SERGEL'S SQUARE

The most pictured fountain of Stockholm, and the one possibly most integrated into the social life of Stockholmers, is probably the fountain located immediately east of Sergel's Square (Sergels torg) in the very core of the City (Fig. 5). The area is bounded in the west by Drottninggatan, in the north by Klarabergsgatan and the southernmost of the five high-rises of Hötorgsskraporna, in the south by the Cultural House of Stockholm, and in the east by a large roundabout, where Hamngatan, Sveavägen and Klarabergsgatan meet. After a number of suggestions and sketches presented during 1930-1955, the shape and concept of Sergel's Square became increasingly acceptable to the various stakeholders during the 1950s. In 1957 the suggested design for Sergel's Square depicted a sunk, partly covered public square in front of the metro station entrance with a roundabout on street level above it. A house standing on pillars was built on the side of Drottninggatan which severely restricted the space available for walking. The city planning office completed the final details in 1959-1960, and the square was built between 1961 and 1967. Due to the very hectic development of Stockholm in the 1960s, this grand square was never formally inaugurated when it was finally opened to the public in 1967.

The chief architect for Sergel's Square was David Helldén (1905-1990). The idea for a fountain was born in 1959 when Helldén visited his friend Piet Hein (1905-1996), a Danish artist, philosopher and mathematician. Helldén was not satisfied with the central section of the Sergel's Square which consisted of arcs of circles with eight different radii. He wanted to have a curve of a continuously varying shape. Hein found the solution – the super ellipse. Hein also called the curve "a Swedish super". The super ellipse is thus a shape developed more or less specifically for the Sergel's Square project. Some kind of statue or monument had to be placed in the middle of the fountain, since no opening could be had between the upper and lower levels.

Fig. 5 The fountain of Sergel's Square shaped like a super ellipse and the sculpture "Kristallvertikalaccenten" in the middle (Photo: Kenneth Persson, 2008).

The final design of the centre of Sergel's Square with its fully glazed building at the lower level is strongly inspired by the underground pedestrian area, the Opernpassage, in Vienna. Helldén could present the entire concept and design of the basin with light intakes to the lower level, a fully glazed central building also shaped as a super ellipse, the grand open flight of stairs towards Drottninggatan, and the well-known characteristic triangular pattern on the ground cover in 1959-1960. The sculpture for the centre of the fountain was, however, not ready at that time. Not until 1974 was work on it started. It is called Kristallvertikalaccent (Crystal vertical accent) and is a pillar of glass and steel designed by the artist Karl Edvin Öhrström (1906-1994). It is 37 metres high, illuminated from the inside, and was supposed to be immersed in water flowing over its exterior. That, however, proved impossible mainly due to the wind blowing water droplets over the cars driving in the roundabout.

Stockholmers frequently come to the fountain to celebrate something – which often involves taking a bath in it. The big fountain is highly suitable for such activities. Since it is located in a roundabout in the middle of the City, it is common that friends drive around the bathers in the fountain blowing their horns. After an international football match, end of school ceremony, or any other appropriate event, numerous persons invade the fountain to enjoy life, water and public attention.

A super ellipse, or Lamé curve, is a curve expressed by the equation:

$$(x/a)^n + (y/b)^n = 1$$

Where a is the largest distance from the centre of the ellipse to its contour, and b the shortest, and n is a positive exponent. When $n=2$, the equation describes an ellipse. An equation with $n>2$ produces a curve in between an ellipse and a rectangle, with rounded corners and convex sides. The super ellipse of the fountain in Sergel's Square has $n = 5/2$ and $a/b = 6/5$.

STOCKHOLM CITY CONFERENCE CENTRE FOUNTAIN – MODIN'S FOUNTAIN

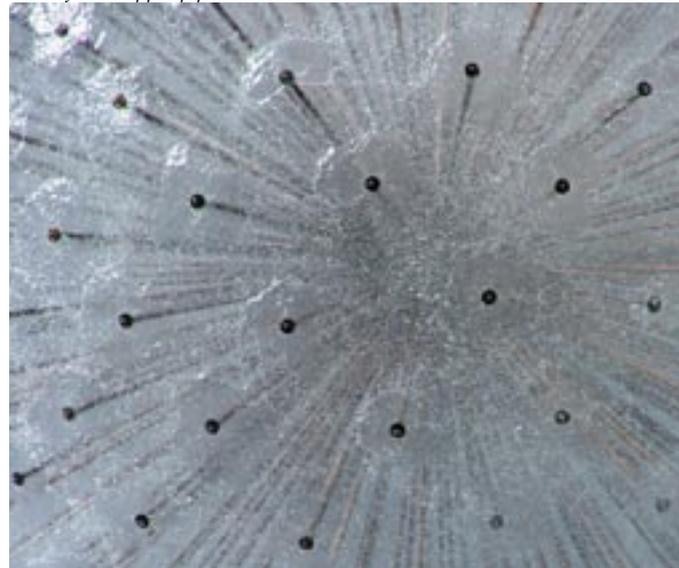
In the middle of the school yard of Norra Latin, at Norra Bantorget, where the Stockholm International Water Symposium is used to take place, stands a fountain made of 350 copper pipes with a total height of 3.5 metres (Fig. 6). The pipes are connected to form a dandelion seed head. Around the seedhead, nine water spouts rise – like nine bushes. From below, spotlights illuminate the head which is regarded as either striking or kitschy depending on whom you ask (Fig. 7). It was commissioned by the conference organiser, the City Conference Centre, and a number of Swedish civic groups to commemorate the centenary of the Swedish Trade Union Confederation (LO) in 1998.

The idea for a fountain came from the Managing Director of the City Conference Centre, Ms Anita Modin, who had seen a similar design on a tour of China and found it beautiful. She decided to donate such a fountain to LO. It was manufactured by the Swedish fountain firm Anleka AB with help from the Canadian PEM Fountain Co. Thanks to the family name of the MD, the fountain sometimes is called Modin's Fountain, not to be confused with Molin's Fountain (see above). It holds roughly 20 m³ of water which has to be exchanged at least once a month. In summertime, evaporation can be significant and is increased by the addition of detergents that make the fountain foam – a source of fun for some youngsters every summer. The chief operator of the fountain, Mr Lars Centerstam, tells in confidence that adding a small amount of antifoam agent to the water of the fountain breaks the foam within 2 minutes. – You should see their surprised faces, he says with a little grin.



Fig. 6 The fountain of the Stockholm City Conference Centre. In the middle the dandelion seed head, surrounded by nine bushes of water (Photo: Kenneth Persson, 2008).

Fig. 7 The fountain of the Stockholm City Conference Centre. Details showing some of 350 copper pipes (Photo: Kenneth Persson, 2008).



“ROCKY FOUNTAINS” OF KEÇİÖREN, TURKEY

Tapio S. Katko



Fig. 1 The waterfall opposite the municipality building (Photo: Mehmet Pinarevli, 2004).

INTRODUCTION

Ankara, the capital of Turkey and the Province of Ankara, is the second largest city in Turkey after İstanbul. In 2007 the city's population of some 3.9 million lived in eight administrative districts. The city has a mean elevation of 850 meters. Like many ancient cities, Ankara has been called by various names over the years: Ankuwash by the Hittites before 1200 BC, Ancyra by the Galatians and Romans, and Ánkyra in the classical, Hellenistic, and Byzantine periods.

Ankara is an important commercial and industrial city thanks to its central location in Anatolia. It is also the center of Turkish Government housing all foreign embassies. Being a major crossroads of trade at the hub of Turkey's highway and railway networks has made it the marketing center for the surrounding agricultural area. Ankara is located upon a steep and rocky hill rising some 150 meters above the plain. The city is one of the driest places in Turkey surrounded by a barren steppe with various Hittite, Phrygian, Hellenistic, Roman, Byzantine, and Ottoman archaeological sites. It has a dry continental climate with cold, snowy winters and hot, dry summers. Rainfall occurs mostly during the spring and autumn seasons.

This chapter presents the recently constructed water fountains or waterfalls of Keçiören near Ankara. In fact Keçiören is a crowded urban district in the northern part of the city of Ankara. It has an area of some 59 km², and in 2000 its population amounted to 625,000. The Çubuk River runs through the middle of the district.

In Turkish, "Keçiören" means a type of felt footwear that used to be produced in the area. Until the 1950s the area outside the city was green and pleasant, but in recent years it has been turned into a large working-class housing district of Ankara and a stronghold of Turkish nationalism. The Prime Minister's Ankara residence is also in the district. The current administration has made efforts to decorate that area dominated by concrete buildings, for instance, by con-

structing a huge artificial waterfall – the subject of this presentation – as well as many other pools and fountains.

The idea for this chapter was born during a short visit to Keçiören by the author in March 2006. Mehmet Pinarevli, a local architect/urban planner, kindly contributed to the realization of the idea through his comments. This chapter does not aim to evaluate the feasibility of introducing water fountains of the type in Keçiören elsewhere, but rather presents the case as an interesting example of the diverse forms given to water fountains in various conditions. The impressions and views presented are solely those of the author.

SETTLEMENTS AND TRANSFORMATION OF KEÇİÖREN

The district of Keçiören has been a residential area of Ankara for years, which has been affected by migration and a rapid increase in population due to illegally constructed and unplanned housing settlements. The residents belong mostly to the lower income groups. According to Pinarevli (2005), the social status of the district has been reflected in the local government elections. It gave rise to politically-motivated urban and architectural transformation. Pinarevli (2005) discovered that the transformation was based on a new ideology presented to the local residents as well as other parts of Turkey. In that context visual elements were emphasized all around the district. (Pinarevli 2005)

According to Betts (2004), Keçiören Mayor Turgut Altınok "has managed to create a paradise on the Anatolian plateau, a mecca not only for eager residents but also for tourists from around the country as well as overseas". As the mayor noted, "Keçiören has become the most livable part of Ankara". In addition to attractive housing, the city has constructed sports centers and waterfalls; in 2004 there were also plans to create a large water park. According to Betts (2004), the Estergon Turkish Culture Center is arguably one of the most spectacular new buildings in Turkey. For instance, the central hall has a large water fountain

that is an exact replica of the fountain at Topkapi in Istanbul (Betts, 2004).

In the Keçiören district, Pinarevli (2005) identifies two dominant arrangements. The first one is in the area around the Municipality Building, called the entrance zone of the district. The other one is realized by the application of the new housing policy of the municipality, particularly by regulating the facades of apartment blocks. (Pinarevli, 2005)

The ideological/cultural transformation of the district started with some urban arrangements around the municipality. According to Pinarevli (2005), all of the arrangements in the area were based on this ideology. For instance, an open exhibition area was designed in front of the municipality building. Another monument is a crescent, related to the idea of making Islam the dominant religion all around the world. Moreover, there is a monument for the martyrs who died in the war against terrorism. An artificial lake, the landscape around that lake, and a fountain were

Fig. 2 Wide curtain of the waterfall (Photo: Tapio Katko, 2008).



also designed according to the same concept. This obviously makes the area more of a monumental zone than an urban park or a recreational area. In any case, such a transformation obviously has its political, ideological and/or religious dimensions whose overall importance and impact are too difficult for an outsider to assess.

“ROCKY FOUNTAINS” WATERFALLS

A series of manmade, spectacular waterfalls have been constructed in the entrance zone of the Municipality Building (Betts, 2004). The waterfalls have been fashioned on a rough bedrock wall excavated in a former rock quarry, with water flowing over it in several streams down to a series of pools. The width of the waterfalls is at least a block, or several hun-



Fig. 3 (below) Central part of the waterfall viewed from across the main street (Photo: Tapio Katko, 2008).

Fig. 4a,b The curtain of the waterfall on the northwestern side (Photos: Tapio Katko, 2008).



dreds of meters, and their height some 27 meters. The fountains are situated next to the main street. There are several buildings on top of the wall and the fountains. The author chose the name “Rocky fountains” (an alteration of the Rocky Mountains in Colorado, US) in this context owing to its structural features although the term is not necessarily commonly used in Keçiören.

Fig 1. shows the waterfall or “rocky fountain” on the opposite side of the municipality building. On the upper part of the wall is a cylindrical section with paintings depicting Turks in the Ottoman period. Nearest above the fountain is a cafeteria, the seal of Keçiören, etc. Figures 2 to 4 show the series of waterfalls along the main street on the northwestern side.

DISCUSSION AND REMARKS

Many outsiders probably find the “rocky fountains” an interesting development and an ingenious way of using flowing water as an element of urban landscape and design. The informal discussions held in March 2006, and the article by Betts (2004), indicate that the prices of houses in the area rose after the construction of the waterfalls around 2000. According to the same sources, the municipal politicians and leaders are very proud of their achievements as also pointed out by Pinarevli (2005).

Yet, local researchers have also presented critical views of the “rocky fountains”. In addition to the ideologically driven approach, Pinarevli (2005) also doubts whether the ornamental water elements are feasible under the climatic conditions of Ankara. He points out that, in addition to the problem of freezing in cold periods, the location of the waterfall – claimed to be the biggest artificial waterfall in the world – may be a risk to traffic safety. The street next to the fountains is one of the major traffic arteries of the district (Fig. 3), and it is feared that the waterfall may distract the attention of drivers too much. These views may well be justified and argued for. On the other hand, water fountains are prevalent even in the Nordic countries which have longer and colder winter periods. The risk to traffic safety cannot be ignored, though.

The role of waterfalls as an element of political, ideological and cultural transformation is hard to assess by an outsider. Whatever its role has been, is, or will be, this case nevertheless shows that such connections obviously exist. But, perhaps, the residents of the district of Keçiören are the best judges of the overall long-term feasibility of the “rocky fountains”.



SOURCES

Betts H. 2004. Ankara’s hidden jewel: Keçiören. Feature. Turkish Daily News. Sept 27, 2004.

Pinarevli M. 2005. A study on the urban/architectural transformations in Keçiören after 1990s. Middle East Technical University, Graduate School of Natural and Applied Sciences. Thesis. 126 p. <http://etd.lib.metu.edu.tr/upload/12606704/index.pdf>

Web pages:

<http://en.wikipedia.org/wiki/Ke%C3%A7i%C3%B6ren> Visited 6 Aug, 2008.

<http://en.wikipedia.org/wiki/Ankara> Visited 6 Aug, 2008.

FROM TEMPERANCE TO THIRST QUENCHING: DRINKING FOUNTAINS IN WASHINGTON, D.C.

Sanna-Leena Rautanen & Päivi Spoon

The first settlers of Washington, D.C. depended on the Potomac and Anacostia Rivers, as well as the multiple springs in the area, for drinking water. As early as 1808, the residents in the 600 block of Pennsylvania Avenue, NW, were allowed to pipe water from a city spring to their neighborhood. These pipes conveyed water to the neighborhoods, not to individual properties. It took another century to extend water service to private premises. (DCWASA, 2003)

COGSWELL FOUNTAINS FOR SALOONS

It may have been the same Pennsylvania Avenue spring that in 1880 was tapped for a “Cogswell Fountain.” Dr. Henry D. Cogswell, a San Francisco real estate tycoon, prohibitionist and dentist – further described as a temperance crusader and an eccentric philanthropist – believed that the availability of clean drinking water from public fountains would steer the common man away from the evils of “distilled liquors.” Cogswell provided statues of himself to cities based on the number of saloons: his target was one fountain per 100 saloons. To make his point, these fountains were topped with a life-sized statue of himself holding a glass of water in one hand and a copy of the Temperance Pledge in the other.

The only Cogswell fountain that has survived can be found in downtown Washington, D.C. (Fig. 1). Cogswell designed each fountain himself and each is unique. Atop the D.C. fountain is a water crane; in the center are two entwined dolphins. The four sides



Fig. 1 Cogswell Temperance Fountain in Washington D.C., originating from 1880, sculpture by Henry D. Cogswell (Photo: Sanna-Leena Rautanen, 2008).

of the fountain display Temperance, Faith, Hope, and Charity. The fountain is currently capped but is retained as a monument.

Cogswell also donated one fountain to the town of Rockville, north of Washington D.C., in honor of his cousin William Cogswell in 1883. It was made of zinc, not bronze or granite like the seven fountains he had installed in San Francisco. But the anti-alcohol message didn't go over well in Rockville: the residents had voted against the town "going dry." One night somebody removed Cogswell's figure and threw it into a nearby lake. Soon after the constabulary had reinstated it, it disappeared again. It took some time before reappearing in 1908, when it was discovered leaning against a downtown building with a sign around his

neck that said "I've come back for old home week." Stored for safekeeping, the statue was sent to a scrap drive during World War II. The fountain has been topped with a stone urn since then.

Cogswell may not have eliminated alcohol consumption in the District of Columbia nor elsewhere in the United States. However, his provision of drinking fountains – perhaps together with the hot humid weather – may have started the trend of providing drinking fountains in all public places in America. (Fig. 2) It is only in America that one can find a drinking fountain outside every public restroom.

Fig. 2 Combined drinking fountain at 10th and D streets N.W., for man, horse and dog January 8, 1910 (Photo: District of Columbia Water and Sewer Authority).



UNIVERSAL ACCESS TO MUNDANE FOUNTAINS

Today's building and plumbing codes require drinking fountains in the same manner they require lavatories and water closets in public places; that is, based on type of facility and estimated occupancy and use. For both indoor and outdoor facilities for the general public, one drinking fountain must be installed for each 1,000 people in places such as sports facilities, amusement parks, skating rinks, pools, parks and warehouses. For businesses, light industrial facilities, institutional facilities and schools, the requirement is to have one fountain per 100 people. (Figs. 3 a,b,c).

Drinking fountains are not required in hotels and residential development. In fact, hotels and restaurants may even remove existing drinking fountains from a building as to promote the sales of beverages. This may prove Cogswell's argument that provision of water fountains promotes temperance.

As drinking fountains proliferated, they became mundane. Required by the building codes, drinking fountains of today display the indistinctive appearance of industrialized mass production (ASME, ICC). Design improvements in later years have involved making drinking fountains accessible to children and persons with disabilities. Therefore, two fountains are often placed side by side, with one located lower to allow access for children and those in wheel chairs. Drinking fountains have become very standardized and have lost the artistic and unique qualities of yesteryears.

Figs. 3a,b,c A composite of drinking fountains in Washington D.C. (Photos: Sanna-Leena Rautanen, 2008).



DRINKING FOUNTAINS PERSEVERE

A renaissance for drinking fountains is envisioned with the sustainability movement. After a decade of soaring sales of bottled water, public opinion is turning toward an appreciation of tap water and drinking fountains. Editorials and blogs promote safety and cost-efficiency of tap water and encourage consumers to reconsider buying bottled water for over a dollar when the same amount of water from the tap costs less than one cent. Most of the water bottle cost is

related to producing, transporting and retailing the bottles. Furthermore, the light-weight plastic bottles help degrade environmental quality, either ending up in landfills, recycling centers, or in woods, streams, rivers, etc.

Interestingly, over the past centuries, the justification and need for drinking fountains has gone from one for every 100 saloons to one for every 100 people. What might be the justification for drinking fountains a century from now?

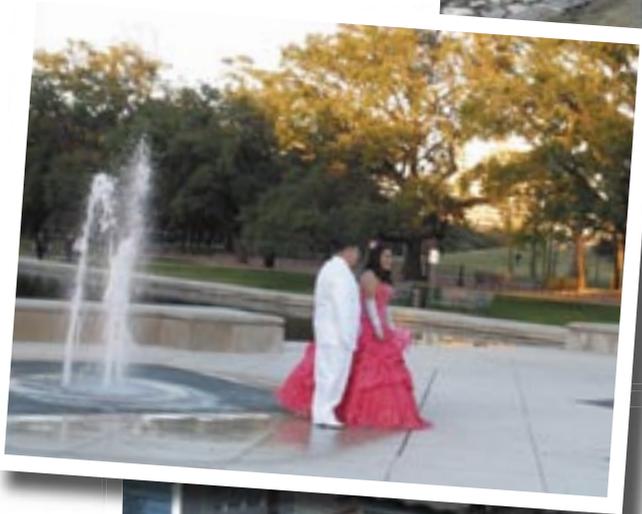


SOURCES

ASME (The American Society of Mechanical Engineers). A112.

DCWASA 2003. District of Columbia Water and Sewer Authority, Annual Report for Fiscal Year 2003.

ICC (International Code of Construction). Section 410.





PART V: COMPARATIVE ANALYSIS OF THE OMNIPRESENT WATER FOUNTAINS

Ari J. Hynynen, Petri S. Juuti and Tapio S. Katko

Fig. V.O Fountain in the Koivuniemi Park of Vaasa, Finland completed in 1988: an example of increasing interest in water as a source of enjoyment and element of environmental art also in smaller cities and townships. Design by Kurt Meyer, construction by the City Technical Department (Photo: Vesa-Matti Honkanen, 2008).

COMPARATIVE ANALYSIS OF THE OMNIPRESENT WATER FOUNTAINS

Ari J. Hynynen, Petri S. Juuti and Tapio S. Katko

*“Nothing in the world is as soft and yielding
as the water from a fountain. Yet for dissolving
the hard and inflexible, nothing can surpass the
fountain”*

Lao-Tze, Ancient Chinese Philosopher

FRAMEWORK FOR THE ANALYSIS

Water, H₂O, is much more than molecules stuck together. Water is life and comes into touch with everybody several times each day – in one form or another. We drink water and eat the water contained in our food and, in most cases, flush our human wastes with water. But that is not the end of it: our senses, one could even say our souls, enjoy the presence of water and its sound. Water fountains stand as an almost living symbol of all of the above.

Although water fountains can be seen as part of urban infrastructures, expressions of political power, or joyful attractions, the relation between a human being and flowing water has its existential dimen-

sion as well. That subtle play is probably best manifested in traditional Japanese poetry. The vast *tanka* and *haiku* poetry tradition illustrates how motion and the sound of crystal clear water lead one’s mind into meditative equanimity, which allows an encounter with the inner self. “Like the little stream / Making its way / Through the mossy crevices / I, too, quietly / Turn clear and transparent.” (Ryokan, 1996)

The aim of this book has been to provide a diverse and representative picture of water fountains that exist mainly in the public spaces of cities. In this part V we try to analyze the various reasons for introducing water fountains and to understand how they may

vary in time, space and location. As the examples of the previous chapters show, a large variety of fountains have been erected over time. They have had and do have different purposes, the importance of which may have changed over time.

The idea for this book was born in response to the observation that despite the prominent position that water fountains of various types occupy in many cities and their public places, hardly any related compilations have been written. Naturally, the authors regard highly the several interesting publications they have been able to find on water fountains in cities like Rome (TISR, 2004).

The Games of the XXIX Olympiad were under way in China in August 2008 as the first chapters of this book were being edited. The PESICTEE framework (Political, Economic, Social, Institutional, Cultural, Technological, Environmental and Esthetic categories) that we use in this study is analogous to the five *interlocking Olympic rings* as shown in Fig. 5.1. Just as the *rings* represent the five continents, our chapters and categories represent water fountains worldwide. In addition to the Olympic motto of *Citius, Altius, Fortius* - "Faster, Higher, Stronger" proposed by Pierre de Coubertin, a more informal but well known motto,

also introduced by De Coubertin, is "The most important thing is not to win but to take part!"¹. The latter is also relevant for our study – we should not discuss which fountain is better based on which criteria but rather point out their applicability and variety over time in various conditions. Furthermore, the interlocking rings also remind us that the criteria used in this analysis are interlinked and may often cover several of the themes – or areas of the rings.

In this study we have identified altogether 40 major reasons for building water fountains in the cityscape into various categories of the PESICTEE framework. In the following we will discuss these categories and individual reasons by referring to our 16 city cases and other findings including additional illustrations. Yet, an individual criterion – such as sanitation – can fall under several categories due to its relationship to one or more criteria. Interestingly enough, the cities that have hosted the Olympic Games have built special fountains at least in Seoul in 1988; in Sidney, Australia in 2000²; in Athens in 2004; and in Beijing in 2008. The Fountain of Rings in the Centennial Olympic Park built in 1996 is one of the most photographed landmarks in Atlanta, Georgia.³



Fig. 5.1 Analogy between the rings representing the five continents and the PESICTEE framework of Political; Economic; Social, Institutional, Cultural; Technological; Environmental and Esthetic dimensions used in this study.

POLITICAL REASONS

Although a fast reader or an occasional passer-by may regard water fountains merely as technical or sculptural structures, they may also have direct or indirect political implications at various levels. The case of Vienna (Part IV) shows how water fountains influenced *international politics* and even military issues in post-war Europe. The National World War II Memorial (Fig. 5.2) in Washington, DC honors the 16 million who served during WWII and those who supported the war effort at home.⁴

In Rome (Part II), Buenos Aires (Part III), and Pretoria (Part IV) fountains were also used to display political power, and they were and are connected to *national politics*. Finding a fountain in front of a parliament is not uncommon as shown, for instance, by Fig. 5.3a from Victoria, Canada or the statue of Athena in front of the Austrian Parliament Building in Vienna, Austria. They may also reflect international politics and power like the monumental Tiglatchen fountain in Addis Ababa, Ethiopia (Fig. 5.3b) dating back to the earlier political regime.

Fig. 5.2 World War II Memorial in Washington, DC, USA (Photo: Tapio Katko, 2006).



The case of Keriöcen, Turkey exemplifies the *local politics* aspect. Since fountains (Part IV) are often located in the central parts of cities, they may also become witnesses to local, national and even international political demonstrations. Sometimes fountains are kept dry and water supply is only turned on for national or other special other events, particularly in the case of drought such as Barcelona (Part III).

Fig. 5.3a Parliament House Fountain of Victoria, British Columbia (Photo: Petri Juuti, 2008) and b) Tigratchen fountain in Addis Ababa, Ethiopia (Photo: Tapio Katko, 2008).



ECONOMIC REASONS

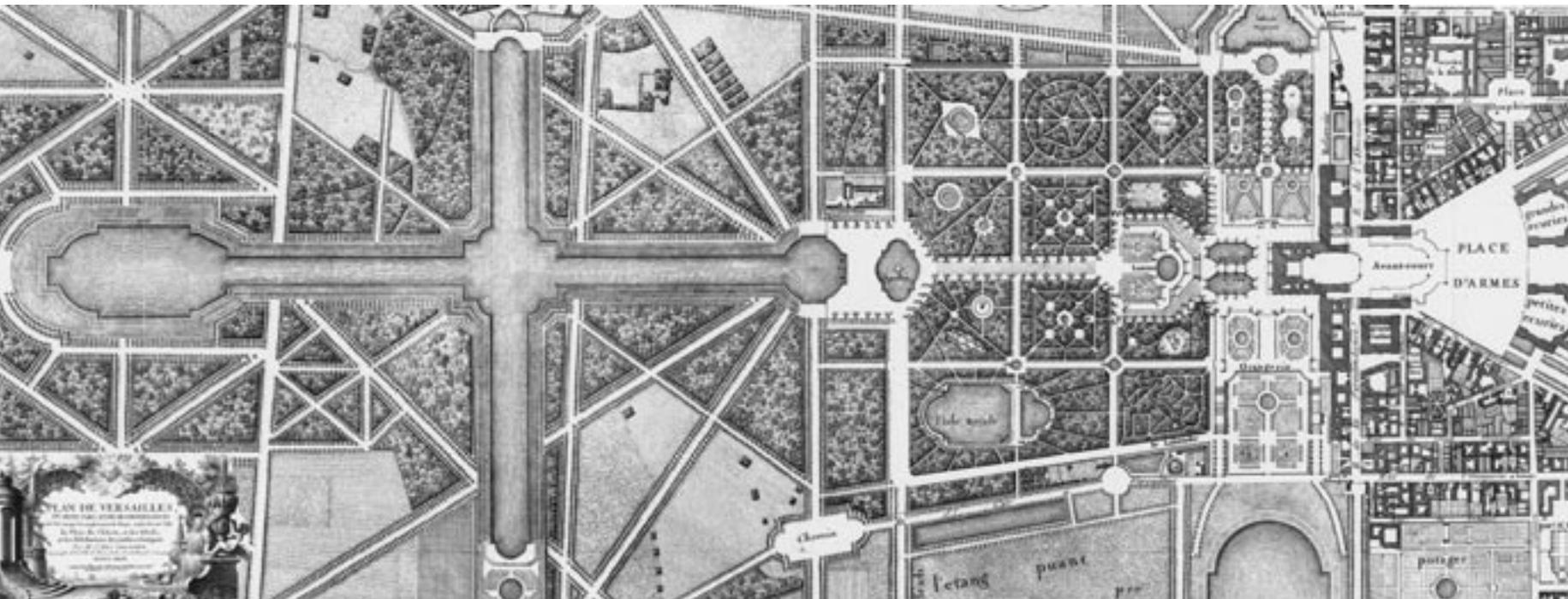
In the early days of the modern public water systems in the 19th and even 20th centuries, water from fountains was also put to practical and partly for economic and productive uses, such as drinking *water for animals*, as in Tampere (Hynynen et al., 2011b). The historic fountain in Victoria, Canada (Fig. 5.4), originally erected near the turn of the 20th century, has three levels for various water users. The fountain provided water for the parched travellers and their thirsty horses, but also to smaller animals such as dogs and pigs. In 1950 the fountain was removed to the city workyards until it was restored in connection with the refurbishment of nine heritage buildings to create the Market Square.⁵

The case of Paris (Otte & Lipponen, 2011) exemplifies the connection to *merchants* and commercial activities, while Versailles (close to Paris) and somewhat later Peterhof (close to St. Petersburg) display *wealth* (Vinnari, 2011).



Fig. 5.4 Historic fountain of the Market Square in Victoria, BC, Canada (Photo: Petri Juuti, 2008).

Fig. 5.5 Plan of the Chateau of Versailles and the gardens dating from 1746, by the Abbé Delagrive, geographer of the city of Paris.⁶





The fountains in the gardens of Versailles (Fig. 5.5) in France, dating from the time of Louis XIV (1638 – 1715), have in many ways been forerunners of fountains. Situated to the west of the palace, the gardens cover some 800 hectares of land, much of which is landscaped in the classic French Garden style. The gardens are now one of the most visited sites in France, with more than six million visitors per annum. In addition to the lawns, blooming flowers, and sculptural masterworks, there are fountains throughout the garden. On weekends, from late spring to early autumn, the museum sponsors the *Grandes Eaux* – spectacles during which the fountains in the gardens are in full and open to the public. In 1979 the gardens along with the chateau were inscribed on the UNESCO World Heritage List.

Following the completion of the formal gardens at Versailles (1668) the Cascade and French Classical garden became popular throughout Europe⁷. Another very famous area of fountains and gardens is Tivoli Villa d'Este near Rome, also included in the UNESCO world heritage list. This masterpiece Italian-style garden with some 500 fountains, made it an early much-copied model for the development of European gardens. The villa and its wondrous gardens were built from 1570 AD by Cardinal Ippolito d'Este (1509-72), and expanded later.⁸ The Hundred Fountains in Tivoli (Fig 5.6) is just one example of this magnificent area.

Fig. 5.6 Hundred fountains of Tivoli Villa d'Este, Italy (Photo: Tapio Katko, 2009).

In the United Kingdom the preeminent water gardens are at Chatsworth in Derbyshire, where the best and grandest examples of gravity fed fountains can be seen⁹. In addition to inclusion in the display-of-wealth category, cases like this could be placed under *luxury* use.

More recent examples of displays of wealth are fountains located next to casinos like those in Figures 5.7.





Fig. 5.7 Fountains on casino premises in a) Monaco (Photo: Jemi Katko, 2005); b) Budapest, Hungary (Photo: Tapio Katko 2006); and c) Desert Casino, Southern Arizona (Photo: Alexander Otte, 2008).

SOCIAL REASONS

Fountains have often been erected to honor a particular *historic event* such as in the cases of Buenos Aires (Part III), or Vienna and Hamburg (Part IV). The Buxton Memorial Fountain in London, UK, commemorates the emancipation of slaves in the British Empire in 1834.¹⁰ The Memorial fountain in Victoria, BC, Canada (Fig. 5.8) was connected with the Confederation Garden Court, a project of the Capital Improvement District Commission and the Government of the Province of British Columbia in commemoration of Canada's centennial year of 1967.

Fig. 5.8 Memorial Fountain in Victoria, BC, Canada (Photo: Petri Juuti, 2008).



Figure 5.9 shows an older fountain in Golden Sands on Bulgaria's Black Sea Coast of the memorial type. The fountain stands in the natural park of Golden Sands, preserving the biodiversity of the region, and offering opportunities for ecotourism. The park has five tourist routes that lead to old fountains, pleasant places for rest and marvelous natural sights. Obviously the fountain was earlier used for drinking by people and animals. The cultural heritage of the park includes monuments from Ancient and Medieval times.¹¹

As indicated, for instance, by the cases of Adelaide, Barcelona, Buenos Aires, Rome and Helsinki, water fountains are often important *social meeting places*. Moreover, they are frequently also major *tourist attractions* in many cities. In Rome stands the famous Fountain of Treve where, according to Hirst (1996), people used to throw coins worth more than 100,000 lira per week, obviously wishing for good luck.

The water fountain in Trafalgar Square in London, UK (Fig. 5.10) is a well known destination of sight-seeing tours and resembles the Canaletes Fountain in Plaza Catalunya in Barcelona. Over the years, Trafalgar Square has accumulated additional statues and other works of art. The original Trafalgar Square Fountain that was first erected in 1845 was remoulded in 1939, and is actually a set of two fountains. The Trafalgar Square Fountain features mermen and mermaids along side dolphins, all sculpted in bronze. As pointed out on the city web page: "...this is a popular tourist attraction. Best of all - it's free!"¹² Since its construction, Trafalgar Square has been a venue for political demonstrations. Fig. 5.11 presents tourist attracting examples from Bad Segeberg, Germany and Prague, Czech Republic.

Fig. 5.9 Historic and memorial water fountain in Golden Sands, Bulgaria (Photo: Petri Juuti, 2007).



Fig. 5.10 Trafalgar Square fountain in London, UK, one of the major attractions of the city (Photos: Tapio Katko, 2006).





The City of Aix en Provence in Southern France was earlier supplied by many springs. In the second half of the 19th century, the Verdon canal and the Zola dam started supplying abundant water through the basins of fountains. Nowadays, some forty public fountains testify to the styles and needs of a town which has integrated them in its art of living. A special illustrative map on water fountains (Fig. 5.12) in the center area is displayed on the Web site of the city. Figure 5.13 shows a selection of these magnificent fountains.



Fig. 5.11 Fountains in a) Bad Segeberg, Schleswig-Holstein, Germany, viewed by a young European "Interrail" traveller; and b) Prague, Czech Republic (Photos: Rebekka Katko, 2008).



Fig. 5.12 A map showing the location of two dozen water fountains in the old part of the City of Aix en Provence, southern France. The "fontaines" marked in blue are fountains in the city.¹³

Fig. 5.13 (right and next pages) Examples of water fountains in Aix en Provence, southern France: a) Hot water fountain, b) city hall fountain, c) Chapeliers fountain, d) Sanglier fountain, e) Gilly fountain, f) Rontaine fountain (Photos: Tapio Katko, 2009).



a



f





Fig. 5.14 Carriedo Fountain at Plaza Santa Cruz, Manila, Philippines (Photo: Rory Villaluna, 2008).

An example of prestige seeking in South East Asia comes from the Philippines. According to Laya, (2008)¹⁴ the historian Nick Joaquin noted that in the Philippines the Spanish introduced dams and wells as well as the idea that *“no casa was grande that didn’t have its own fountain and no first-rate pueblo that didn’t have a sufficiency of public pozos.”* In 1878 the municipal waterworks was established for Manila by Governor *Domingo Moriones*, funded by the legendary Carriedo Legacy. A *“public-spirited citizen,”* *Don Francisco Car-*

riedo y Peredo was a Basque from Santander who during his life conferred immense benefits on the Philippines, having migrated there early in the 18th century. After various incidents the original Carriedo fountain (Fig. 5.14) now stands at Plaza Santa Cruz.

Singapore water works is obviously using the fountain in Figure 5.15 as a public relations tool – something other water utilities might also consider.



Fig. 5.15 Public relations promotion by Singapore water works (Photos: Pentti Rantala, 2008).



INSTITUTIONAL REASONS

As shown by the case of Vienna, fountains (Part IV) may be able to tell various types of *hidden or forgotten stories* related to social, political and institutional issues. The cases of Helsinki (Part IV) as well as Fort Collins (Grigg, 2011) and Nairobi (Nyangeri, 2011) explained the use of fountains at and in connection with *universities*. On the campus of the University of Nairobi, Kenya (Fig. IV.0) the water fountain is especially a symbol of knowledge, while at Colorado State University, the water plaza is a symbol of the long tradition of water resources education and research. At University of Arizona, Tucson (Fig. 5.16a) one fountain symbolises education, another prohibits entry into the fountain (Fig. 5.16b), while the third one inside the building (Fig. 5.16c) consists of water trickling down two chains. The fountain at the University of Victoria, Canada (Fig. 5.17) was erected to honor the contribution of the President Howard E. Pitch. At University of Johannesburg a fountain (Fig. 5.18a) shoots up jets of water during graduation ceremonies and similar ceremonies, while the other ones display scientific terms (Fig. 5.18b, c).



Fig. 5.16a,b,c Fountains on the University of Arizona, Tucson campus (Photos: Tapio Katko, 2008).

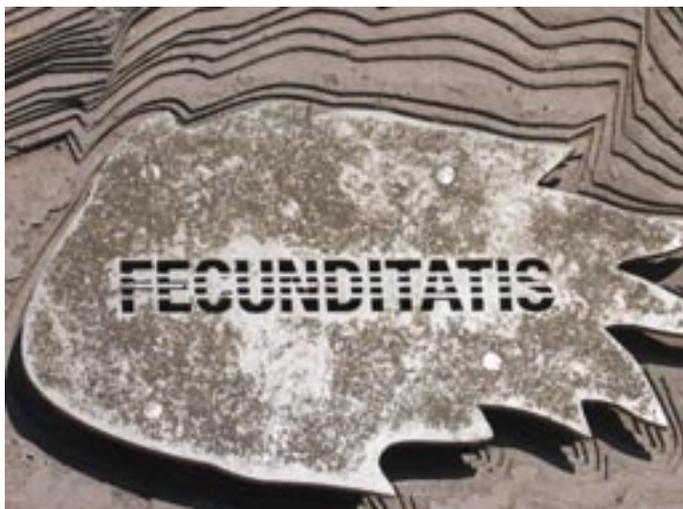




Fig. 5.17 Fountains on the campus of University of Victoria, British Columbia, Canada (Photo: Petri Juuti, 2008).



Fig. 5.18 Campus fountains of University of Johannesburg, South Africa: a) Fountain in use during graduation ceremonies and the like (UOJ); and words displayed on nozzles at the bottom of the basin bearing the words b) fecunditatis (fertility) and c) ingenii (cleverly) (Photos: Tapio Katko, 2008).



CULTURAL REASONS

Fountains may also convey various types of *cultural heritage* through a design and theme that reflect local conditions and traditions, such as the one dedicated to aboriginal people in Victoria, Canada (Fig. 5.19). Fountains can also reflect the *industrial heritage* of a city as in the case of Tampere (Hynynen et al. 2011b), the traditional industrial center of the country. In earlier times fountains projected an *image* of wealth or something related that may later have become a symbol of a city or region, as in the case of Peterhof (Vinnari, 2011). Several cases (e.g. Rome in Part II, Montpellier in Part III, Hamburg and Keriöcen in Part IV) show that, especially earlier, water fountains were *monuments* reflecting the city or other culturally, politically or socially oriented phenomena in a local or national context.

The well-known Mannekin Pis in Brussels, Belgium (Ertsen, 2011) is a fountain that has several mythical explanations. Many monumental fountains such as those in Rome draw from antique *mythology*. Figure 5.20 shows other examples with antique themes from Vienna, Montpellier and Berlin.



Fig. 5.19 Fountain dedicated to the aboriginal people in Victoria, BC, Canada (Photo: Petri Juuti, 2008).



Fig. 5.20 Examples of fountains with antique features: a) (far left) detail of the Donnerbrunnen fountain in Vienna built in 1739 (Photo: Harri Mattila, 2008); b) Zeuss fountain in Montpellier, France; and c) (right) Neptune fountain in Berlin, Germany (Photos: Tapio Katko, 2009).





The historical Neptune Fountain is one of Berlin's most famous fountains, completed in 1888. The fountain was originally located at Palace Square in front of Berlin's City Palace, but both were heavily damaged in World War II. Between 1965 and 1969, East-Berlin's central district underwent complete reconstruction and the fountain was restored and relocated next to the TV Tower, the City Hall and St. Mary's Church.¹⁵

Other examples of fountains based on antique myths and themes are shown in Figure 5.21. The Great Mother or Mother of the Gods, Cibeles, has been a symbol of Madrid since 1782. Along with Cibeles, Neptuno (Fig. 5.21b) is one of the most majestic and beautiful fountains in the city. Both gods have occupied their prominent posts in the hierarchy of Greek mythology and also compete during today's football tournaments: the fans of Atlético de Madrid celebrate their team's victories in the plaza where the Sea god abides, while those of Real Madrid rejoice at the Cybeles.¹⁶ The Fountain of Apollo (Fig. 5.21c) was designed and sculpted between 1780 and 1803.

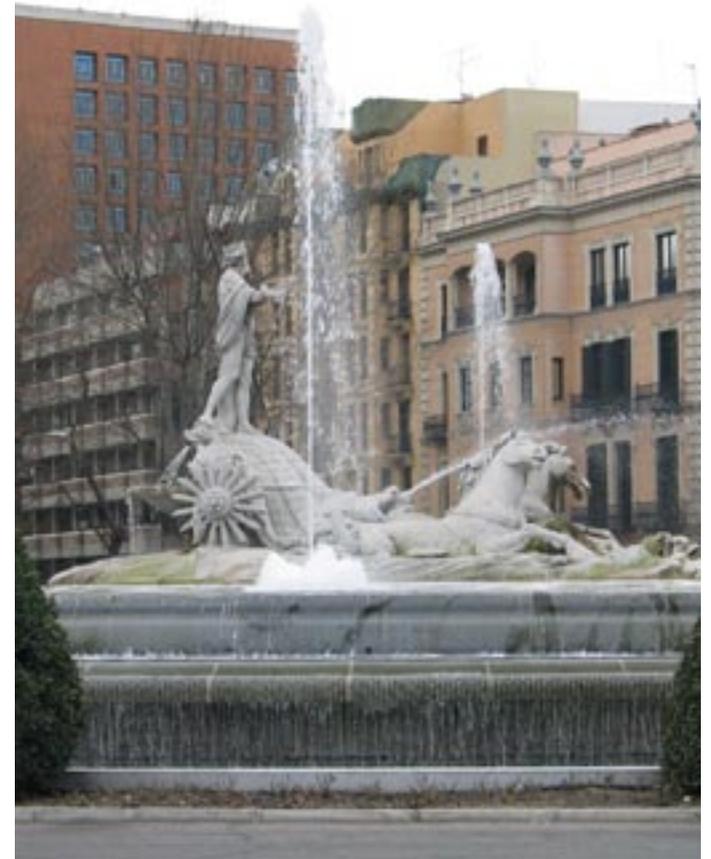


Fig. 5.21 Examples of fountains with antique features in Madrid, Spain: a) (left) Cibeles Fountain, b) Neptun fountain, c) Fountain of Apollo or the Four Seasons (Photos: Tapio Katko, 2005).

The representation of *nudes* in sculpture has sometimes (Buenos Aires, Helsinki) given rise to public debates on what is appropriate and decent at the time in question. In certain cases fountains have been linked to a *person* as illustrated by the cases from Adelaide (Part III) and Vienna (Part IV). Fountains may have also engendered *poetry* as in Boston (Rawson, 2011). There, the fountain was strongly connected with the notion of *purity*.



Fig. 5.22 Fountain in a) Vatican, Rome (Photo: Leo Heller, 2008); and b) the city of Salvador, Bahia, Brazil (Photo: Esteban Castro, 2007).



Water and fountains play an important role in many religions. In the Christian tradition, fountains have many spiritual and symbolic meanings related particularly to rebirth. For instance, Psalm 36:9 states: "For with you is the fountain of life; in your light do we see light." Figure 5.22a shows a fountain in Vatican, Rome while Figure 5.22b portrays a fountain in front of a catholic church in Salvador, the capital of the Northeastern Brazilian state of Bahia, on the northeast coast of Brazil.

In Islam, the place in a Mosque where worshippers can wash before Prayer¹⁷ is called a fountain. In Hinduism fountains are also valued. Figure 5.23 shows an important religious feature of Chinese culture – a dragon and water fountain combination more than 100 meters long, made of mosaic and located along a pedestrian street on the Sentosa Island of Singapore.

Fig. 5.23 Dragon water fountain of mosaic on Sentosa Island of Singapore (Photos: Simo Isoaho, 2008).



Fountains often have *symbolic* meanings or otherwise become the symbol of a city or location. The Jet d'eau (Water Fountain) on Lake Geneva, Switzerland (Fig. 5.24) is a well-known city symbol. The City of Geneva decided to install the Jet d'eau in 1891, and since 1930 it has been permanently lit. Half a cubic meter of water per second is pumped to a height of 140 meters.¹⁸





Fig. 5.24 Jet d'eau (Water Fountain) in Geneva, Switzerland –well-known symbol of the city (Photos: Nick Ourusoff, 2008).

Other examples of high rising jet-type fountains are found, for instance, in the City of Jeddah, Saudi Arabia. Some sources say the King Fahd Fountain is the highest one in the world, the maximum height reached by the water being 312m (1023ft). Another example is the Port Fountain or Karachi Port Trust Fountain rising to height of 205 meters (620 feet) when operating at full force.¹⁹ The Fountain at Point State Park in Pittsburgh is known for its high jets of water, computer-controlled water height, changes in illumination at night, and its building materials. It stands anchored at the confluence of three rivers.²⁰

The Buckingham Fountain, officially known as the 'Clarence Buckingham Memorial Fountain' (Fig. 5.25), is still the landmark fountain for Chicago, US. It was commissioned in 1927 by Kate Buckingham. She had frequently visited Europe, admired the huge public fountains, and wanted to bring some of Europe's monumentality to Chicago. In fact, the design of the fountain is based on the 'Bassin de Latome' at the Versailles Palace. The Buckingham Fountain is 85m/280ft in diameter, and it features 134 jets up to 46m/150ft high. The fountain's water display is best seen at dusk when it is animated with a computerized choreography of color spotlights. In summer 2008 it was to undergo another upgrade of its light show as a candidate for hosting the 2016 Olympic Games.^{21,22} Another example of a high rising water jet fountain can be found in the Lima Metropolitan Area in Peru.

Fig. 5.25 Clarence Buckingham Memorial Fountain in Chicago, US (Photo: Harold Platt, 2008).



Sometimes fountains may be designed to celebrate a specific feature of *local culture* such as tea drinking in Egypt (Fig. 5.26), or a fountain may be constructed using local construction, such as bricks in Tunisia (Fig. 5.27).

In Kuopio, eastern Finland, the “Veljmies” (brother) statue surrounded by fountain is a well-known symbol of the city (Fig. 5.28). The fountain completed in 1959, is located in the market square area next to the covered market. Later on, the fountain has also become a place of student celebration on the 1st of May.^{23, 24} The name of the fountain is in the local dialect and reflects the well-known and humorous mentality of people of the region.



Fig. 5.26 “Teapot” design of a water fountain in Hurghada, Egypt (Photo: Petri Juuti, 2007).

Fig. 5.27 A cascade-type fountain constructed of bricks in Tsoser, Tunisia (Photo: Petri Juuti, 2008).



Fig. 5.28 The “Veljmies” water fountain in Kuopio, Finland next to the covered market (Photo: Tapio Katko, 2008).



TECHNOLOGICAL REASONS

Modern pumping technology together with computerized change of flow and lighting has made it possible to create the fascinating fountains shown later in Figures 5.43. Traditionally, one of the functions of fountains has been to produce a *cooling* effect, especially in warm climates or seasons. This was pointed out in the case of Hamburg and noted especially in southern European cities like Madrid and Bari (Fig. 5.29). One can feel the cooling effect in many places on a warm and shiny day, even in a four-seasons climate such as in Finland.

Especially in the early days, water fountains were constructed and used for *drinking* purposes as indicated by the cases on Hamburg, Stockholm and Rome and Figure 5.30a. Figure 5.30b, for its part, shows a present-day drinking fountain in Barcelona along La Rambla, the iconic street, and the 1.2 kilometer-long tree-lined pedestrian mall in central Barcelona popular among tourists and locals alike.²⁵ But as shown by the case of Barcelona (Part III), drought may limit their use. In addition to people, the water could also be used by animals. Fig. 5.30c shows the Fuente de las Sirenas (Fountain of the Sirens) in Antigua, Guatemala. It was designed in 1739 by Miguel Porras and supplied piped water to important buildings and dwellings early on and to humble dwellings into the 21st century.

Examples of water fountains designed particularly for drinking purposes dating to the late 1800s or early 1900s used in several European cities and counties are presented in Fig. 5.31; Fig. 5.32 shows other types of drinking water fountains from Austria and Spain. If the water is not potable, it is important to make it known as shown in Fig. 5.33.

Among the traditional and earliest uses of fountains were *fire fighting*, especially if high-pressure pumped water was not yet available, like in Tampere (Hynynen et al., 2011b), and *storage of water* like in Buenos Aires (Part III). Fountains have also served as places for doing the *washing* like in Buenos Aires.



Fig. 5.29 "Visible" cooling effects of fountains in a) Madrid, Spain (Photo: Tapio Katko, 2005); and b) Bari, Italy (Photo: Jemi Katko, 2005).





Fig. 5.30 a) Drinking water fountain for people depicted in a ceramic painting in El Rocío, Huelva, Spain (Photo: Leo Heller, 2007); b) a drinking fountain in Barcelona, Spain (Photo: Tapio Katko, 2006); and a fountain supplying water also to buildings in Antigua, Guatemala (Photo: Jemi Katko, 2009).





Fig. 5.31 Drinking water for people in a) Porto, Portugal and b) Prague, Czech Republic (Photos: Leo Heller, 2007); and c) Pieve Fosciana, Italy (Photo: Vivika Monto, 2008).





Fig. 5.32 Drinking water for people in a) Puchberg, Austria and b) Vienna, Austria (Photos: Harri Mattila, 2008); and c) Zaragoza, Spain (Photo: Leo Heller, 2007).

Fig. 5.33 Non-potable water warning on a fountain in Madrid, Spain and next to the National Coreographic Center in Montpellier, France (Photos: Tapio Katko, 2005, 2008).



ENVIRONMENTAL REASONS

Water fountains are also erected to symbolize *health, sanitation and the sea* as well as to adorn the *living environments of native birds and parks* in general. Native birds are found in Adelaide and the parks in Budapest, among others. Pigeons are often permanent residents of city water fountains as shown in Fig. 5.34.

New York's Central Park in Manhattan is a large public, urban park (843 acres, 3.41 km²) and the most visited city park in the United States. It is famous from many movies and television shows.²⁶ The so-called Bethesda Terrace overlooks the lake in the park, while the Bethesda Fountain (Fig. 5.35) is the central feature on the lower level of the terrace. The pool is centered by a fountain sculpture designed by Emma Stebbins in 1868 and unveiled in 1873. In fact, Stebbins was the first woman to receive a public commission for a major art work in New York City. The bronze, eight-foot statue depicts a female winged angel touching down upon the top of the fountain, where water spouts and cascades into an upper basin and into the surrounding pool.²⁷

The sanitation theme is illustrated indirectly by the Manneken Pis in Brussels (Ertsen, 2011), and perhaps paradoxically by this capital of the European Union which, in spite of various EU environmental directives, is one of the latecomers in water pollution control. The sea is the theme, for instance in the case of Helsinki (Part IV). Figure V.0 also symbolizes the landrise on the western coast of Finland, a phenomenon caused by the ice age that still continues at a slow rate.



Fig. 5.34 Pigeons atop Place St. Roch Fountain in Montpellier, France (Photo: Tapio Katko, 2008).

Fig. 5.35 Bethesda Fountain in New York Central Park (Photo: Rebekka Katko, 2006).



ESTHETIC REASONS

Most of us probably agree that esthetics in relation to fountains are invaluable while we may differ on what they are in individual cases. Sigiriya, the garden city and palace complex on top of a granite rock that rises sharply 200 meters above the flat central plains of Sri Lanka, was built by the Sinhalese King Kasyapa in 477–495 AD. The garden at the base of the rock is called the water garden. This ancient garden con-

sists of ponds, canals, water fountains, parks, foot paths, etc., and is considered the oldest one of its kind in Asia of historical and *esthetic value*. The fountain garden is a narrow precinct within the water garden. It has four symmetrically placed fountains (Fig. 5.36a) made of circular limestone plates with symmetrical perforations. Water is supplied to these fountains under gravity by underground ducts (drains) from two nearby ponds (Fig. 5.36b) that store rain water. Sigiriya is also the location of Arthur C. Clark's novel "The Fountains of Paradise".

Fig. 5.36a,b Fountain Garden at Sigiriya, Sri Lanka (Photos: S.B. Weerakoon, 2006-07).







Fig. 5.37 Part of the Gaudi Dragon Fountain in Guell Park, Barcelona, Spain (Photo: Tapio Katko, 2006).

Interesting examples from the *arts and architecture* point of view are the fountains designed by Antoni Gaudi in Barcelona. Gaudi, born in 1852, received his degree in architecture in 1878 and from the very beginning produced designs that were different from those of his contemporaries. Gaudi's work was greatly influenced by natural shapes as manifested in his use of curved construction stones, twisted iron sculptures, and organic-like forms which are features of Gaudi's Barcelona architecture.²⁸

The colored tiled dragon fountain (Fig. 5.37) designed by Gaudi and commissioned by Eusebi Güell, who wanted to create a stylish park for Barcelona's aristocracy, is located at the entrance to the Guell Park.²⁹ It is connected to a series of water flow systems in the park.

A well-known and esthetically pleasing fountain (Fig. 5.38a) stands next to the Peninsula Manila Hotel in Manila, the Philippines. This exclusive hotel in the Makati business and commercial district of Manila is one of the finest and obviously most expensive ones in the city. The fountains in front of the Sheraton Hotel in Addis Ababa, Ethiopia (Fig. 5.38b) and the Riviera Hotel (Fig. 5.38c) in the City of Vereeniging, South Africa, founded as an industrial coal mining town in 1892, as well as the Top View Restaurant (Fig. 5.38d) in Addis Ababa, Ethiopia are in the same class. Fig. 5.38e shows a detail of the fountain in front of the Raffles Hotel, named after Sir Thomas Stamford Bingley Raffles (1781–1826), the founder of the City of Singapore.³⁰

Fig. 5.38 Fountains in front of hotels: a) Manila Peninsula Hotel in Manila, the Philippines (Photo: Rory Villaluna, 2008); b) Sheraton Hotel in Addis Ababa, Ethiopia; c) Hotel Riviera in Vereeniging, South Africa; d) Top View Restaurant in Addis Ababa, Ethiopia (Photos: Tapio Katko, 2008); and e) (next spread) a detail of the fountain in front of the Raffles Hotel, Singapore (Photo: Simo Isoaho, 2008).



b





e

Ouro Preto (Black Gold) is one of the best conserved historic cities in Brazil. It was founded at the end of the 17th century as the result of a gold rush. The city has many beautiful buildings dating back to the 18th century. Due to its unique Baroque architecture called Barroco Mineiro, Ouro Preto has been included on the World Heritage List of UNESCO. With the exhaustion of the gold mines in the 19th century, the city's influence declined but many churches, bridges and fountains (Fig. 5.39) remain as testimony to its past prosperity and the exceptional talent of the Baroque sculptor Aleijadinho.³¹



Fig. 5.39 Baroque fountain in the historic town of Ouro Preto, Brazil (Photo: Esteban Castro, 2007).

Friedensreich Regentag Dunkelbunt Hundertwasser (1928–2000) was an Austrian painter, architect and sculptor, arguably the best-known contemporary Austrian artist at the end of the 20th century. Hundertwasser's original, unruly, sometimes shocking artistic vision was expressed, for instance, in pictorial art, environmentalism, philosophy, and design of facades, postage stamps, flags, and clothing. The common themes in his work are a rejection of the straight line, use of bright colors, organic forms, a reconciliation of humans with nature, and a strong individualism. He remains "sui generis", although his architectural work is comparable to the Spanish Antoni Gaudí in its biomorphic forms and use of tile.³² Fig. 5.40 shows a fountain by the Hundertwasser House in Vienna.

In Adelaide, Australia (Part III), the three new North Terrace fountains represent *water as itself* without too much symbolism. If we take a more detailed look at other fountains, we may notice the same phenomenon. For instance, in Cape town, South Africa, the original Dolphin Pool (Fig. 5.41) designed by Lady Anne Barnard in the late 1790s was reconstructed in 1982. In the past, the dolphin and mythical sea monsters were popular maritime symbols that often appeared on maps and other objects.



Fig. 5.41 Play of water in the dolphin pool fountain at the Castle of Good Hope, Cape Town, South Africa (Photo: Petri Juuti, 2007).



Fig. 5.40 A fountain designed by Dunkelbunt Hundertwasser in front of the Hundertwasser House in Vienna, Austria (Photo: Rebekka Katko, 2008).



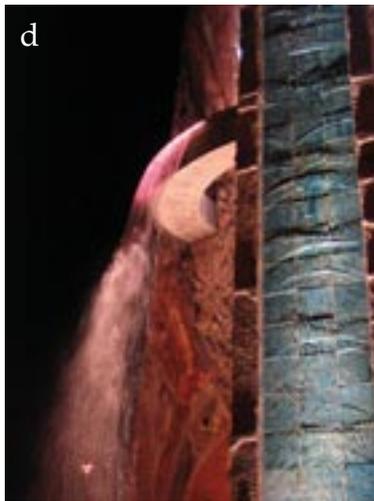
Fig. 5.42 Fountain in the Plaza del Ayuntamiento (City Council Square), Valencia, Spain (Photo: Esteban Castro, 2006).

In Valencia, Spain, the fountain in front of the Plaza del Ayuntamiento (Fig. 5.42), next to the Town Hall, makes the surrounding monumental buildings appear even more attractive than they are. The fountain is surrounded by beds of many types, sizes, colors and shapes of flowers.³³

Decoration, which plays a major role in arts and architecture, was highlighted by, for instance, the cases of Budapest, Buenos Aires, Hamburg, Keriöcen, and Rome. Often, the fountains in the cityscape are made to appear more spectacular by installing different kinds of changing lights and colors as shown in Figure 5.43. Sometimes the water can be colored (Fig. 5.44).



Fig. 5.43 Examples of lit fountains in a) Milano, Italy (Photo: Rebekka Katko, 2007); b) Treve Fountain in Rome, Italy (Photo: Jemi Katko; 2005); c) center of Ankara, Turkey (Photo: Tapio Katko, 2006); d) and e) center of Pueblo, Colorado, US (Board of Water Works of Pueblo, 2008); f) Quezaltenango, Guatemala (Photo: Jemi Katko, 2009); g) center of Vientiane, Laos (Photo: Jyrki Luukkanen, 2008); and h) Huaraz, Peru (Photo: Jemi Katko, 2009).



f







Fig 5.44 Fountain squirting blue water in Montpellier, France, during an international water congress in September 2008 (Photo: Tapio Katko)



Fountains where the height of the jets can be changed by varying water pressure can be made to operate in time with musical performances, often combined with lighting effects. Such “musical” fountains are found, for instance, in Cordoba, Argentina; in Yerevan, Armenia; in Svilengrad, Bulgaria; at the Aberdeen Centre in Richmond, British Columbia, Canada; in Phnom Penh, Cambodia; in Marianske Lazne, Czech Republic; in Anqing City, Anhui Province, China; in Westlake, Hangzhou, China; in Tsuen Wan Plaza, Hong Kong, China; at Wynn Casino, Macau, China; in Xian, China; in Protaras, Cyprus; in Villa Rothschild, the cote d’Azur of France; in Park Phoenix, Nice, France; in the “Planten un Blumen” Park in Hamburg, Germany; in Mysore Brindavan Gardens, Karnataka, India; in Citizen’s Park of Calcutta, West Bengal, India; in Mellat Park, Tehran, Iran; in Fukuoka, Japan; in Sunshine City, Ikebukuro, Japan; in Dae Cheon, Daechung dam, Daejeon, Yeosu, and Jickji parks in Korea; in “Circuito Mágico del Agua” in Lima, Perú; in Bucharest, Romania; in Tsaritsino Park, Moscow, Russia; in Sentosa, Singapore; in Ulsan City, Korea; in Font Magica Fountain in Barcelona, Spain; as well as in Grand Haven, Michigan; in Gaylord Opryland Hotel in Nashville, Tennessee and Fountain Show at Night in Bellagio, Las Vegas, Nevada, USA. There must be many other musical fountains of that kind also in other cities of the world.

Fig. 5.45 Children enjoying the McCormick fountain in Chicago, IL, US: a) Kids and parents, b) image squirting water (Photos: Harold Platt, 2008).



Sometimes special *dances and music* are performed in connection with fountain shows as in the case of the Krizik Fountain in Prague, Czech Republic, and the Red Sea Mall Fountain in Jeddah, Saudi Arabia. Fountains have also been unforgettably eulogized in such songs as “Fountain of Sorrow” by Jackson Browne, “The Fountain of Salmacis” by Genesis, and “Three Coins in the Fountain” by Frank Sinatra. Not to forget the hymn “There is a fountain” penned by William Cowper in the 18th century, and later made well-known by many Southern Gospel artists.



Fig. 5.46 Children enjoying fountains with changing flows and jets: a) (above) Arvada, Colorado, US (Photo: Dave Hendricks 2008); b) Seattle, WA, US (Photo: Ari Hymynen, 2008); c) (next p.) Children's farm in Victoria, BC, Canada (Photo: Petri Juuti, 2008); and d) adults showering in Aix en Provence, France (Photo: Tapio Katko, 2008).





The majority of people probably *enjoy* fountains and their surroundings, but young children make the most out of them. The McCormick Fountain (Fig. 5.45) in Chicago, US, is composed of two large rectangular columns facing each other. Water runs down all sides of the columns and creates a pool about one inch deep in between. Parents can sit on the walls on each side of the fountain while their children play. LED images of faces are also displayed on the columns which after 3 or 4 minutes pucker their lips and squirt water for about a minute. Then the image of another Chicago Art Institute student appears. ³⁴ Fig. 5.46 shows other examples on enjoying of fountains in US, Canada and France.





In addition to children, adults can also enjoy fountains like the one as part of a swimming pool in Cairns, Australia where swimming in the ocean is too dangerous (Fig 5.47).

Other examples of fountains with changing flows and of particular interest to children are the Swann Memorial Fountain³⁵ in the center of Logan Square in Philadelphia, Pennsylvania, US as well as the fountains in Santa Clara and Los Gatos, California, US; Toronto, Ontario, Canada; and Nottingham City in the

East Midlands, Preston City and the central square of Liverpool in Lancashire, UK. They are starting to appear also in growing Asian cities, such as Seoul, Korea.

Fig. 5.47 Water fountain in the swimming pool in Cairns, Australia with warning sign of crocodiles in the ocean (Photos: Anna Kaksonen, 2008).



The changing flows of fountains in Zagreb, Croatia, and Varna, Bulgaria are shown in Figure 5.48. An example from New Delhi, India is given in Figure 5.49 and two examples including local features from Myanmar in Figure 5.50.



Fig. 5.48 Fountains with controllable flow in a) (below) Zagreb, Croatia (Photo: Rebekka Katko, 2008) and b) (right) Varna, Bulgaria (Photo: Jemi Katko, 2005).



Fig. 5.49 Water fountain close to the main railway station in New Delhi, India (Photo: Anna Kaksonen, 2006).



Fig. 5.50 Two water fountains in Kandawgyi Park in Yangon, Myanmar: a) jet in front of a traditional royal river boat serving today as a restaurant, and b) a garden fountain (Photos: Mikko Lainejoki, 2004).





The marriage of water flows, i.e. hydraulics, with arts produces *hydraulic art* where water is made to flow in artistic ways. Figure 5.51 shows hydraulic art in Vienna, Austria while Figure 5.52 depicts examples of the art in Brasov, Romania and Krakow, Poland. Hydraulic art can also be used to embellish water and wastewater treatment plants.

Water flows can also be made to form letters and writing as in Canal City, Fukuoka, Japan, or next to the European Commission in Brussels, Belgium. Such a “writing fountain” was on display at the 2008 Geneva Motor Show 2008. The Princess Diana Memorial Fountain, Hyde Park, London, UK is an example of a hydraulic flow and channel system.

In 1964 a large water filtration facility was completed on Chicago’s lakefront – the biggest of its kind at the time. It was based on careful planning with attractive buildings and landscaped grounds with thousands of bushes, plants and trees. A public park – with five large circular fountains shooting jets of water and illuminated at night by colored lights – sits on top of the filtered water reservoir. (Armstrong 1976, 241-242) The introduction of fountains to wastewater treatment facilities as in Gothenburg, Sweden, represents perhaps the highest level of innovation (Fig. 5.53a). A rather similar curtain water flow from Seattle, US, is shown in Figure 5.53b as well as water dropping on stone in airport, Japan (Fig. 5.53c).



Fig 5.51 Hydraulic art in Vienna, Austria (Photos: Harri Mattila, 2008).



Fig. 5.52 Hydraulic art of fountains in Brasov, Romania (Photo: Jemi Katko, 2005), and Krakow, Poland (Photo: Rebekka Katko, 2008).





a



b

Fig. 5.53 Hydraulic art based on curtain-type gravity flow of water: a) the GRYABB wastewater treatment plant in Gothenburg, Sweden (Photo: Tapio Katko, 2007); b) Seattle, WA, USA (Photo: Ari Hynynen, 2008); and c) other type of hydraulic dropping on stones in Nankoku airport, Japan (Photo: Anna Kaksonen, 2008).



c



Fig. 5.54 Fountain on the entrance of art museum in Auckland, New Zealand (Photo: Kati Hinkkanen, 2008).

OTHER FEATURES

Fountains which have been common in public spaces have gradually found their way on the buildings (Fig. 5.54) and inside public and even *private buildings* as shown by Figures 5.55, 5.56 and 5.57.



Fig. 5.55 Prof. Dave Hendricks at the entrance hall with fountain at Board of Water Works of Pueblo, Colorado, US (Photo: Tapio Katko, 2008).



Fig. 5.56 Fountains a) Charles de Gaulle Airport, Paris, France and b) at the central railway station in Stockholm, Sweden (Photos: Tapio Katko, 2007; 2008).





Fig. 5.57 Fountains a) in front of a shopping center in Dar Es Salaam, Tanzania (Photo: Tapio Katko, 2008); b) inside a shopping centre in Berlin, Germany (Photo: Rebekka Katko, 2008); c) in a hotel lobby in Stockholm, Sweden; and d) in a hotel corridor in Montpellier, France (Photos: Tapio Katko, 2008).





An example of a fountain incorporating *sculpture* is found in Millesgården Park on the island of Lidingö, south of Stockholm, Sweden (Fig. 5.58). The park was donated by Carl and Olga Milles to the Carl and Olga Milles Lidingöhem Foundation in 1936. Millesgården was first opened to the general public in the late 1930s. The spacious lower terrace with monumental replicas of free-standing and fountain sculpture from Sweden and the USA was built in 1950.³⁶ Some examples of fountain sculpture with a fish theme are shown in fig. 5.59.

Fig. 5.58 Fountain sculpture in Millesgården Park, Stockholm, Sweden (Photos: Tapio Katko, 2008).



The Merlion – an imaginary creature with the head of a lion and the body of a fish – adorns some fountains in Singapore (Fig. 5.60). Due to the influence of overseas Singaporeans, Singapore investors, and friends of the country, variations of the Merlion statue are also found in Japan and China.

Figure 5.61 presents a stone sculpture with water flowing constantly over nearly its entire surface, and Figure 5.62 a fountain incorporating a child and a lizard in Kandy, Sri Lanka.



Fig 5.60 (right) Fountain of the Merlion, a cross between a lion and a fish, in Singapore (Photo: Anna Kaksonen, 2005).

Fig. 5.59 Examples of fountain sculpture with a fish theme: a) (above) Butchart Gardens in Victoria, BC, Canada (Photo: Petri Juuti, 2008); b) Joensuu, Finland (Photo: Tapio Katko, 2006); c) Tallinn, Estonia (Photo: Petri Juuti, 2007); and d) the dolphin pool fountain in the Castle of Good Hope, Cape Town, South Africa (Photo: Petri Juuti, 2007).





Fig. 5.61 Fountain featuring a sculpture with water flowing over its surface in Plaza de Marche aux Fleurs, Aix-en-Provence, France (Photo: Tapio Katko, 2008).

Fig. 5.62 Fountain with a child and lizard in Kandy, Sri Lanka (Photo: S.B. Weerakoon, 2008).

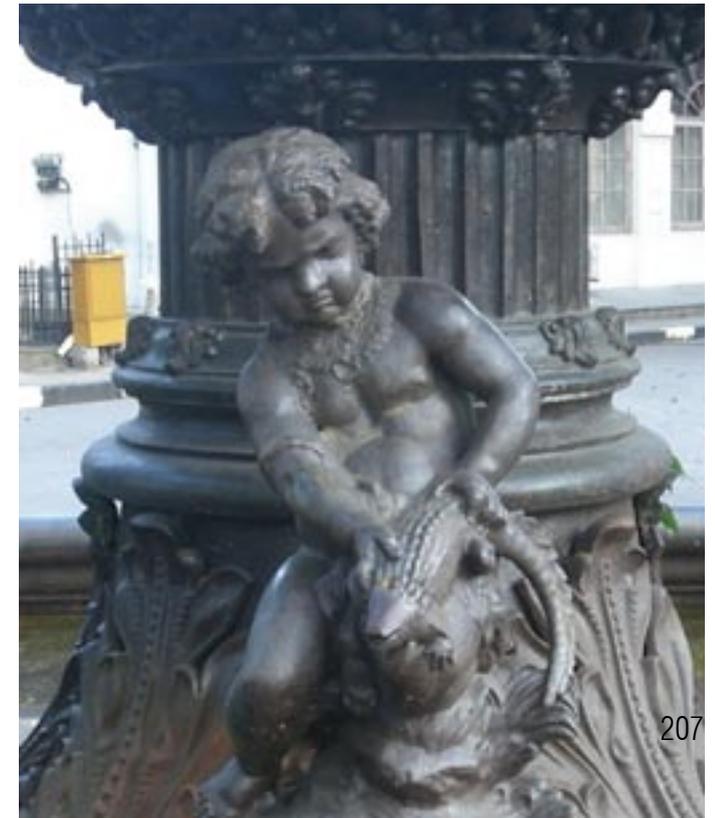






Fig. 5.63 Examples of fountain sculpture: a) (left) Akaa, Finland (Photo: Harri Mattila, 2008); b) a park in Saarijärvi, Finland (Photo: Harri Mattila, 2008); c) Ljubljana, Slovakia (Photo: Eija Vinnari, 2006); and d) Palanga, Lithuania (Photo: Pekka Pietilä, 2007).

Figure 5.63a shows a water fountain whose theme is derived from Kalevala, the national epic of Finland. Plans to erect the sculpture in a park in Helsinki existed already in 1891, but they came to fruition only in 1994 in what is today the City of Akaa, south of Tampere.³⁷ It also includes sculptural examples from Finland, Slovakia and Lithuania. The last one called Jurate & Kastytis is located in Palanga, a holiday resort on the Baltic Sea. It tells the love story of the sea goddess Jurate and the fisherman Kastytis³⁸.

Water fountains may also be very high and take the form of wide waterfalls as in Keçiören, Turkey (Part IV) and the City of Yuxi, China (Fig. 5.64).



Fig. 5.64 Horizontal, waterfall-type fountain as symbol of Yuxi city, China (Photo: Zheng Xiao Yun, 2008).

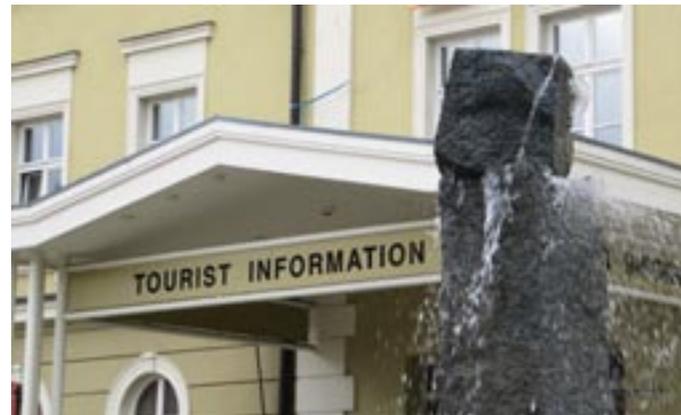
Finally water fountains may act as tourist guides such as the case in Füssen, in southern Germany (Fig. 5.65) guiding visitors to the “flow of travelling” while also providing enjoyment for the local people.

On the whole, the water fountains within the PESICT-EE framework exemplify the variety and diversity that fountains may bring to the built environment. People seem to value them, for instance, for their history, practical uses, beauty, symbolism, light effects and waterfalls as well as for the artistic experiences and relaxation they provide.

While the editors have been able to see personally only a small fraction of the fountains presented, they have become convinced of their positive roles and impacts in various urban settings and cityscapes. People just love such “oases of enjoyment”. This is not to undermine the fact that still today a large portion of the people in the global village lack access to safe water and basic sanitation.



Fig. 5.65 Series of seven stone pillars with rotating heads due to water flow and pressure, in front of the Tourist information in Füssen, Germany (Photos: Tapio Katko, 2011).



SOURCES

- Armstrong E.L. 1976. History of public works in the United States 1776-1976. American Public Works Association.
- Ertsen M. 2011. Manneken Pis: Oldest Citizen of Brussels and First Global Villager. . pp. 42-45. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.
- Herrington S. 2009. On landscapes. Thinking in action. Routledge, Taylor & Francis Group.
- Hirst B. R. 1996. Fountains. A dissertation submitted to the faculty of the school of architecture, Kingston University, in candidacy for the higher national diploma in landscape studies. <http://www.gardening-uk.com/waterlands/fountains/index.html> Visited 8.8.2008 .Katko
- Grigg N.S. 2011. Colorado State University's Water Plaza. pp. 51-55.. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.
- Hynynen A., Juuti P. & Katko T.S. (eds) 2011a. Water fountains in the cityscape. Public Works Historical Society. Essay Book Series no. 30.
- Hynynen A., Juuti P. & Katko T. 2011b. Fountain - Harbinger of New Era, Case Tampere. In: pp. 63-70. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011).
- Madonna M. L. 2003. Villa d'Este. A pictorial itinerary. De Luca Editori D'Arte. 62 p.
- Nyangeri E.N. 2011. The Fountain of Knowledge in Nairobi. pp. 58-62. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.
- Otte A. & Lipponen A. 2011. Nulla Fons sin Sacra: Fountains and Water for Paris. pp. 24-33. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.
- Rawson M. 2011. Gendered Waters: Boston's Frog Pond Fountain. pp. 46-50. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.
- Ryokan. 1996. Dewdrops on a Lotus Leaf: Zen Poems of Ryokan, translated by John Stevens. Shambala, Boston.
- TISR (Tourist Information Service of Rome) 2004. Rome, the culture of water. Fountains, baths, aqueducts, nymphaeums. 65 p.
- Vinnari E.M. 2011. Peterhof: Water Fountains as Devices of Royal Impression Management. pp. 34-38. In: Hynynen A., Juuti P. & Katko T.S. (eds) 2011a.

Notes

- 1 http://en.wikipedia.org/wiki/Olympic_symbols
- 2 http://www.travel-australia.org/sydney/olympic_park_fountain.html
- 3 <http://www.centennialpark.com/events/fountain.html>
- 4 http://www.tourist4life.com/washingtondc/memorials/WashDC05_38_b8.jpg. 9.10.2008.
- 5 <http://www.waymarking.com/waymarks/WM248A>
- 6 http://en.wikipedia.org/wiki/Gardens_of_Versailles
- 7 Hirst 1996.
- 8 Madonna 2003; http://www.romanhomes.com/your_roman_vacation/quarters/tivoli-villa-deste.htm
- 9 Hirst 1996.
- 10 http://www.powerset.com/explore/semhtml/Buxton_Memorial_Fountain
- 11 <http://www.bgglobe.net/index.php?l=1&c=4&s=17>
- 12 <http://www.destination360.com/europe/uk/trafalgar-square.php>
- 13 <http://www.aixenprovencetourism.com/uk/aix-fontaines.htm>
- 14 Laya J. The Carriedo Legacy and the Twin Fountains. Traveler on foot. A travel journal. Old Manila. March 4, 2008. March 4, 2008. <http://traveleronfoot.wordpress.com/2008/03/04/the-carriedo-legacy-and-the-twin-fountains/>
- 15 <http://www.waymarking.com/waymarks/WM449Y>
- 16 http://www.softdoc.es/madrid_guide/maps/madrid-prado-cortes.html
- 17 <http://en.wikipedia.org/wiki/Fountain>
- 18 <http://www.ville-ge.ch/en/decouvrir/en-bref/jet.htm> 20.8.2008
- 19 http://en.wikipedia.org/wiki/Port_Fountain. 21.08.08
- 20 http://www.clpgh.org/exhibit/neighborhoods/point/point_n78.html
- 21 <http://www.aviewoncities.com/chicago/buckinghamfountain.htm>
- 22 Harold Platt. 19 Aug, 2008. Personal communication, Chicago.
- 23 <http://fi.wikipedia.org/wiki/Veljmies-patsas> 21.8.08
- 24 <http://kuvakuopio.taidemuseo.kuopio.fi/julkinen-taide/veljmies>
- 25 http://en.wikipedia.org/wiki/La_Rambla_Barcelona
- 26 http://en.wikipedia.org/wiki/Central_Park 21.08.08
- 27 http://en.wikipedia.org/wiki/Bethesda_Fountain 21.08.08
- 28 <http://www.barcelona-tourist-guide.com/en/gaudi/barcelona-gaudi.html> 26.8.08
- 29 <http://www.barcelona-tourist-guide.com/en/gaudi/park-guell.html> 26.8.08
- 30 http://en.wikipedia.org/wiki/Thomas_Stamford_Raffles
- 31 <http://whc.unesco.org/en/list/124> 26.8.08
- 32 http://en.wikipedia.org/wiki/Friedensreich_Hundertwasser 26.8.08
- 33 <http://www.hickerphoto.com/fountain-picture-valencia-spain-13603-pictures.htm> 26.8.08
- 34 Harold Platt. 19 Aug, 2008. Personal communication, Chicago.
- 35 http://en.wikipedia.org/wiki/Swann_Memorial_Fountain
- 36 <http://www.millesgarden.se/index.aspx?pageID=96> 21.8.08
- 37 Harri Mattila. Personal information. 20 Aug, 2008. Akaa.
- 38 Violeta Kauneliene. Personal information. 11 Oct, 2008.

Fig. VI.0 Lit fountain in Tumbalong Park, Sidney, Australia (Photo: Leena Julin, 2009)



PART VI: EPILOGUE – FLOWING WATERS

Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko

EPILOGUE – FLOWING WATERS

Ari J. Hynynen, Petri S. Juuti & Tapio S. Katko

Over the long run, water fountains have undergone various changes in terms of their primary use and design as illustrated by the cases in parts II to IV and the examples of the comparative analysis of Part V. The earliest fountains depended on the natural gravitational flow of water, from a spring or aqueduct supplied by a distant and higher source of water, which provided the required hydraulic head. The gardens in Versailles and elsewhere promoted the use of fountains that gradually became a common sight in public places. Fountains have also been decorated with magnificent sculptures which are, however, covered only in passing in this study. The major chapters of the book – simplified by the terms necessity, monumentalism and enjoyment – reflect the changes in the use, themes, location and size of water fountains.

Regarding water fountains in the worldscape our study identified some 40 features of the PESICTEE (Political; Economic; Social, Institutional, Cultural; Technological; Environmental and Esthetic) framework. It is not possible to describe the changes of water fountains and their use in just a few words. Yet, it is obvious that the basic need of providing drinking water for people and animals has gradually been replaced by aesthetic and decorative purposes. Variation of water flow and illuminated jets have become an increasingly common decorative effect. Some of the early fountains of aristocratic societies reflect the immense wealth and resources that were available for making an impression on people already at that time. Many of the historical fountains are located in towns or on sites included in the UNESCO World Heritage List. Over time, fountains have also spread from pub-

lic places to public buildings and private plots – early examples of that exist as well.

The themes of water fountains vary while similar types of designs or ideas are found in several locations which shows that ideas do travel. Although conventional urban studies may consider fountains just an artificial element to soften the otherwise angular urban structures, their wide use nevertheless indicates that people like them. Obviously we all find the sound of flowing water fascinating. Indeed in our environment – natural or built – water seems to be one of the most important factors enriching and enlivening our perceptions. Instead of just providing passive visual experiences, water is also the source of a range of aesthetic values.

The findings of this book on the historical changes in the urban roles of water fountains largely reflect the views of architectural historian Spiro Kostof. In spite of monumentalism flowing water represents also nature in the urban environment. The audiovisual scenery created by water is so complex and full of nature's meanings that no structure created by man can compete with it. In that sense water fountains can be compared with urban parks. Through their complexity and multitude of meanings they both complement the more simple order created by man. The balance coming from this combination has indeed been part of urban planning models and principal pillars ever since the start of modern urban planning.

Potential problems relating to fountains in the cityscape include water quality risks and vulnerabil-



ity of infrastructure. In some cases they may limit the use of fountains in public spaces. Another possible future limitation is the likelihood of more frequent droughts in certain areas as in the case of Barcelona, Spain. It is also true that high rising jets consume a considerable amount of energy. For instance, in Hämeenlinna, Finland in the early 1990s the operation of such a jet was discontinued during the prevailing economic crisis. Yet, winter conditions need not be a limitation if covers of modern and appropriate materials are developed and used. Public water utilities could also make better use of water fountains in their promotional activities such as the Singapore Water Works.

On the whole, it can be concluded that a huge variety of fountains have been built over time. The emphasis has shifted, or rather expanded, over time along with social development from meeting basic needs, such as drinking water for people and animals and fire fighting water, more towards aesthetic values and enjoyment. Watching and listening to running water – as looking at a fire, a sunset or the smiling face of a child – are something that people will not get tired of. Public policy and related decision making will determine the future uses, justification and priorities concerning fountains in the public cityscape.

A garden locked, a fountain sealed... a garden fountain, a well of living water and flowing streams from Lebanon "

Song of Solomon 4:12

ABOUT THE AUTHORS

EDITORS

Ari J. HYNYNEN is an architect and Professor at Tampere University of Technology, School of Architecture, EDGE Laboratory for Architectural and Urban Research, Seinäjoki Unit. His recent research has pertained, for example, to the interaction of technical networks and urban form, including also the role of water in urban and regional development. He has published articles and made seminar presentations on the subject. Email: ari.hynynen@tut.fi

Petri S. JUUTI is an Adjunct Professor and a Senior Researcher at the University of Tampere, Finland. His major area of interest is environmental history, especially urban environment, city service development, water supply and sanitation, urban technology, pollution, and public policy. Juuti has acted as Visiting Professor in North-West University (2011) and University of Johannesburg (2007, 2009, 2010). He is also member of executive council of IWHHA, International Water History Association. He is the author or co-author of c. 30 books and 30 referee articles. He has received four international and two national awards. Dr Juuti leads IEHG, International Environmental History Group that was set up in 2001. Email: petri.juuti@uta.fi

Tapio S. KATKO is an Adjunct Professor, Senior Research Fellow and a sanitary engineer at Tampere University of Technology. His main research interests are long-term development of water and related infrastructure as well as institutional, governance, management and policy issues of water and sanitation services. He has worked overseas for more than four years and involved in several international projects. In 2006-09 he served as an executive council member of IWHHA. He has received five international and four national awards, and leads CADWES, Capacity Development of Water and Environmental Services –research team at TUT. (www.cadwes.org). He is the author of numerous papers and many books, and is the coordinator of this book project. Email: tapio.katko@tut.fi

GRAPHIC DESIGNER

Tommi KUIKKA, MSc (Arch) has designed layouts and graphics for several books and university publications. He is a practising architect as well as a freelance graphic designer and an artist. Email: tommy.kuikka@elisanet.fi

AUTHORS

Argentina, Buenos Aires

José Esteban CASTRO is Professor of Sociology at Newcastle University, United Kingdom. His main research interests are long-term development processes, and he has done extensive work on urban water issues in a number of countries, including Argentina, Brazil, Mexico, the United Kingdom, and Portugal. He has recently published “Water, Power, and Citizenship. Social Struggles in the Basin of Mexico” (Palgrave-Macmillan, 2006) and, co-edited with Léo Heller, “Water and Sanitation Services: Public Policy and Management” (Earthscan, 2009). Email: esteban.castro@newcastle.ac.uk

Australia, Adelaide

Carol FORT is Senior Lecturer in Australian history and Associate Dean, International Studies, at Flinders University, Adelaide, where she teaches specialist courses and supervises postgraduate research in environmental history, South Australian history, and the history of Australian Indigenous and settler relations. She publishes in the area of public policy development (especially environmental/water history) and is currently Vice-President of both the International Water History Association and the History Council of South Australia. Email: carol.fort@flinders.edu.au

Austria, Vienna

Staffan LODENIUS is Professor of Urban Planning and Design in the Department of Architecture at Tampere University of Technology. As a partner in an architects’ office he has also been an active planner and designer for four decades. The relationship between city and water in the historical development and as a challenge in contemporary planning has been a topic of special interest. Email: staffan.lodenius@tut.fi

China

ZHENG Xiao Yun is Professor and the director of the International Center for Ecological Culture Studies, Yunnan Academy of Social Sciences, China and the current President of International Water History Association. He has published more than 100 research papers and 10 books in China and internationally. His research focus is on human culture and natural resources management, water history and water related culture in Southwest China and Great Mekong Subregion, Japan. He has led international research projects and hosted a series of international conferences on Water Culture and Water Environment Protection in 2005 and Ecological Civilization in the Red River Basin in 2008. Email: zhengxy68@163.com

Finland, Helsinki

Ari J. HYNYNEN, Petri S. JUUTI & Tapio S. KATKO Editors

France, Montpellier

Michel BAKALOWICZ is Senior Scientist in hydrogeology, presently retired, associated to Hydro-Sciences Montpellier, a research unit of Montpellier University, CNRS and IRD, France (<http://www.hydrosociences.org/>). He did his PhD on karstic hydrogeology in Turkey and his “Doctorat ès Sciences” on groundwater geochemistry in karst aquifers. He was assistant head of the Regional Centre for Water and Environment at the School of Engineers of St Joseph University of Beirut. He has been on several expert missions for IAEA in Maghreb, Middle East and Haiti, and research missions in Europe, North America, China and the Middle East. He is Associated Editor of Journal of Hydrology. Email: Michel.Bakalowicz@gmail.com

Germany, Hamburg

Hans-Werner KRUGER acted as the head of the public relations department of Hamburger Wasserwerke (Hamburg Waterworks) GmbH until his retirement in 2005. He has written a book on the West German drinking water situation in 1982 as well as several articles for various media on water supply, water politics and related subjects. He is also a member of anti-privatisation networks and a free writer. Email: h-w-krueger.hh@t-online.de

Hungary, Budapest

Viktor PÁL is a Hungarian PhD student of the Finnish Graduate School of History. His fields of interest are urban environmental history, water history, history of technology and popularizing science. Viktor has carried research out at the University of California Los Angeles under the supervision of Professor Ivan T. Berend and published his research in English, Estonian, Finnish, Hungarian and Italian. Email: viktor.pal@uta.fi

Israel, Jerusalem

Avi SASSON is a PhD who works for Ashkelon Academic College, Department of Land of Israel Studies. His doctoral dissertation dealt with the historical-geographical study of the Land of Israel in the 19th century, and he has published books, book chapters and papers on related themes. Dr Sasson is the leading expert on the region's water fountains in the Ottoman period, and published some papers on fountains in Israel. Email: sassonavi@walla.co.il

Italy, Rome

Walter DRAGONI is Professor of Hydrogeology and Engineering Geology in the Earth Sciences Department at Perugia University, Italy. At present he is involved mainly in research regarding the mathematical modelling of hydrogeological and hydrologic systems and in defining the impact of climatic variations on the hydrological cycle. Dragoni is also doing research on the history of hydraulic constructions and hydrology. Email: dragoni@unipg.it web site: <http://www-b.unipg.it/denz/dragoit>

South Africa, Pretoria

Johannes HAARHOFF (Ph.D in Sanitary Engineering), Department of Civil Engineering Science, University of Johannesburg, South Africa is Professor with a technical research interest in drinking water quality and treatment. He also holds a degree in history and is currently involved in a number of projects for recording various aspects of our engineering heritage. Email: jhaarhoff@uj.ac.za

Spain, Barcelona

David SAURI-PUJOL has a B.A and an M.A. in Geography and a Ph.D. in Geography. Currently he is a member of the Geography Department and the Institute of Environmental Science and Technology of the Universitat Autònoma de Barcelona, and was the Director of the Centre for Environmental Studies in 2000-03. He has authored or co-authored over one hundred publications (in Catalan, Spanish, French and English) on natural and technological hazards; water planning and management, urban change and environmental impacts on water, cultural heritage in rivers and wetlands, socio-environmental change in Mediterranean rural areas, and nature-society theories. In 2007 he received the Environmental Prize of the Institute of Catalan Studies. Email: David.Sauri@uab.es

Sweden, Stockholm

Kenneth M. PERSSON (PhD in food engineering, 1994) is Professor at Lund University, Department of Water Resources Engineering, whose special research interests are water quality and water supply. He also works as research manager at Sydvatten AB, South Sweden Water Supply, a regional water supply company owned by municipalities in the region of Skåne. He has written books on the history of water in Sweden, water towers and the concept of water in popular quotes and proverbs. Email: kenneth.persson@tvrl.lth.se

Tunisia, Tunis

Jarmo J. HUKKA is a sanitary engineer, Senior Research Fellow and Adjunct Professor at Tampere University of Technology. He has worked for water and sanitation projects in the Cayman Islands (1982–1983), Sri Lanka (1984–1987) and Kenya (1994–1996). He was also a Senior Academic Advisor at the University of Pristina, Kosovo, in 2000–2002, and a Principal Water and Sanitation Engineer in the African Development Bank (2007–2009). His research interests include governance, management and strategic development of water services. Email: omraj@jarmohukka.fi

Dr. Petri S. JUUTI (editor)

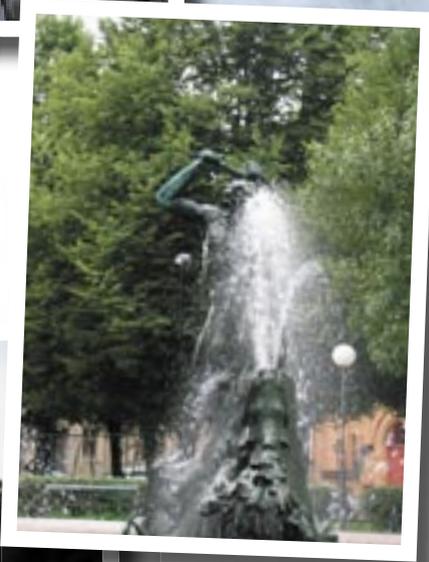
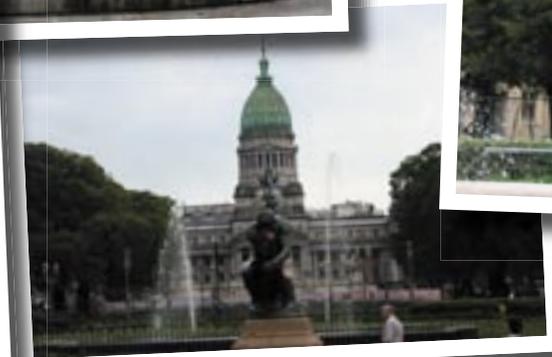
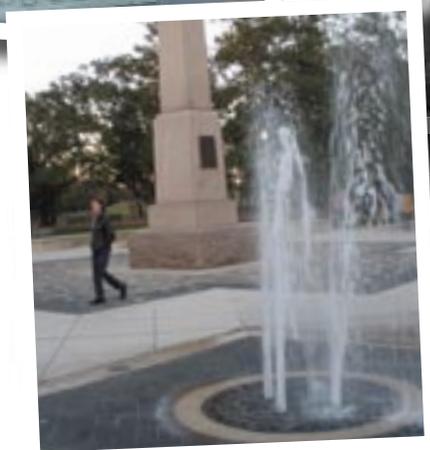
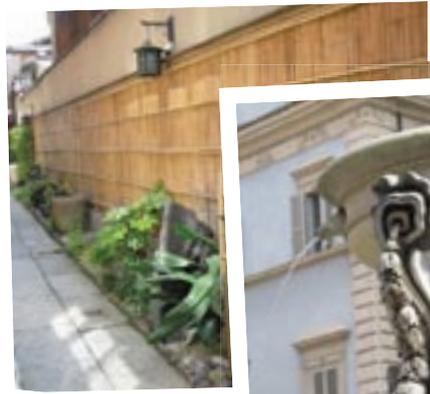
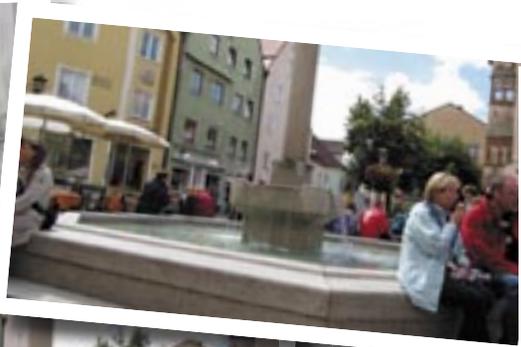
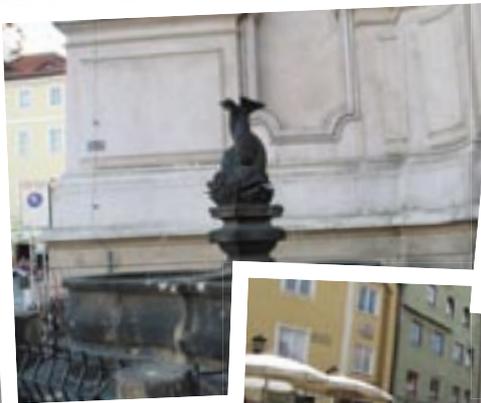
Turkey, Keçiören

Tapio S. KATKO (Editor)

The United States, Washington DC

Sanna-Leena RAUTANEN has an MSc in Civil Engineering from Tampere University of Technology, Finland where she is a doctoral student. Rautanen has worked with water and sanitation programmes in Guyana, Nepal, Tanzania, and the USA, and is currently the Chief Technical Adviser, Rural Village Water Resources Management Project, Nepal. Her special areas of interest in the water sector include capacity building, poverty, gender and ethnic equity, and democratic local development with specific interest in the role of the local stakeholders in developing water and sanitation services. Email: sannaleenar@gmail.com

Päivi SPOON is currently a Program Manager in Prince George's County, Maryland. She holds a Bachelor of Social Sciences in Planning and Geography (Umea Universitet, 1979) and a Master of Public Policy in Public Sector Financial Management (University of Maryland, 1991). Previously, she has held positions at the Ministry of the Interior in Finland, Nordic Council of Ministers, and the United States Air Force (Res.). Ms. Spoon has worked as the Executive's liaison to the Washington Suburban Sanitary Commission (WSSC), and as a Board Member of the DC Water and Sewer Authority (DCWASA). Her long-time interest has been water towers and their compatibility with the planned environment. Email: pespoon@co.pg.md.us



WATER FOUNTAINS IN THE WORLDSCAPE

This first-of-a-kind book presents an overall view of water fountains in different environments. That is quite surprising considering that most cities and townships have at least one fountain!

'As many countries worry about their future water supplies, it is well to remember that water is a thing of beauty as well as a human necessity. Congratulations on this inspirational volume which enables us to enjoy this beauty across many cultures and epochs.'

Neil S. Grigg, Professor (Water Infrastructure and Management), Colorado State University, US

'Water fountains are immensely diverse reflecting the differences in their use, themes, location and size from necessity and monumentalism to enjoyment. Often they are also popular meeting places such as the lively Fontana di Trevi in Rome. This book includes case studies and illustrations of water fountains in 16 cities on six continents. The comparative analysis contains additional examples from 72 cities in 39 countries. I highly recommend this book!'

Eikki Helamaa, Emeritus Professor (Architecture), Tampere University of Technology, Finland

ISBN: 978-951-96151-8-3



9 789519 815183