

A Riparian Portal

by
Miklós Csonti

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Architecture

Waterloo, Ontario, Canada, 2012

© Miklós Csonti 2012

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Modernization and its conveniences have obscured our relationship with the natural environment. We no longer have to personally interact with nature when consuming its resources. Consequently, we lack direct feedback from our exploits, and have lost any moral sensibility towards the finite resources of our planet.

This unwanted consequence of modernity has perhaps most explicitly manifested itself on the urban riverbanks of the developed world. Such riparian landscapes, once animated with human activity, have become desolate environments, often programmed solely to serve utilitarian functions. At best, some have been revitalized to accommodate recreational amenities, but the direct interaction that was once necessary to utilize the river for its resources has been replaced by invisible machinery, turning the river's role in sustaining the city into an abstract concept.

The condition found on the banks of the Danube River in Budapest is the epitome of this unfortunate phenomenon. While inhabitants draw water from the faucet, buy fish in the supermarket, and expel waste into an enigmatic drain, the riverbank is far out of sight, deserted, and the river's role in satisfying their needs is never considered. Instead, the Danube is revered only for the pomp and grandeur it bestows upon the extravagant portrait of the boastful city.

In response to this skewed perception, this thesis presents a proposal on the site of Széchenyi Square, located at the base of the Chain Bridge in the heart of Budapest. Historically significant as the main port and gateway to the merchant town of Pest, the Square has since abandoned its role as mediator between city and river, and has instead become a mediator of automotive traffic. The proposal presented in this thesis revives its role as a gateway, but not in the traditional sense. It conceives a riparian portal that allows the passer-by to experience an alternate reality – a place where nature and city are superimposed, and the modern individual is granted direct interaction with his natural resources.

Acknowledgements

I would like to sincerely thank Dr. Robert Jan van Pelt and Dr. Jeff Lederer for their guidance and support throughout the evolution of this thesis. I'm also grateful to have had Rick Haldenby and Don McKay offer their invaluable insight and encouragement. All your help is greatly appreciated, and I'm delighted to have had the opportunity to work with you.

To my parents Zoltán and Ibolya, and my sister Anita, thank you for all your love and support. Your faith in me has been a driving force all my life, and I could not have done this without you. *Köszö mindannyiatoknak!*

And finally, to Tina, your love, patience, and sacrifice, have allowed me to achieve this goal always knowing that I had someone to turn to. Thank you for your unwavering support, I'm forever grateful to have you in my life.

For Budapest

Table of Contents

List of Illustrations.....	xii
Preface.....	1
Introduction.....	3
Part One: Man and Nature	
1.0 Straying From Nature.....	6
1.1 Cultural Metamorphosis.....	8
1.2 Technological Advancement.....	11
1.3 Social Modernization.....	14
2.0 The Pre-Modern Advantage.....	18
2.1 Proximity to Nature.....	19
2.2 Direct Utilization of Nature.....	23
2.3 Transparent Exploitation of Nature..	26
3.0 Reconnecting with Nature.....	30
Conclusion.....	107
Bibliography.....	115

Part Two: A City and its River	
4.0 Budapest: Pearl of the Danube.....	34
4.1 The Two-Faced River.....	35
4.2 Taming the Danube.....	42
4.3 The Consequence of Ingenuity.....	52
5.0 Széchenyi Square.....	58
5.1 Site History.....	59
5.2 Site Analysis.....	67
6.0 Danube Square: A Riparian Portal.....	76
6.1 Accessibility.....	88
6.2 Direct Utilization.....	92
6.3 Transparent Exploitation.....	98

List of Illustrations

Fig.	Pg.	Description	Fig.	Pg.	Description
1.1	8	Concepts of people and Environment <i>Peter Dickens, Reconstructing Nature (New York, Routledge, 1996) 6.</i>	1.10	16	'I Shop Therefore I am' < http://www.arthistoryarchive.com/arthistory/feminist/Barbara-Kruger.html >
1.2	9	The Creation of Adam < http://en.wikipedia.org/wiki/Sistine_Chapel >	2.1	19	Scene from 'Aluna' < http://www.alunathemovie.com >
1.3	10	Rene Descartes' L'homme < http://historical.hsl.virginia.edu/treasures/descartes.html >	2.2	19	Scene from 'Aluna' < http://www.alunathemovie.com >
1.4	11	The Birth of Applied Science <i>Image by author.</i>	2.3	20	Scene from 'Aluna' < http://www.alunathemovie.com >
1.5	12	Salomon's House < http://lifetheuniverseandrendering.wordpress.com >	2.4	21	Hydro Fields <i>Drew Adams, Fadi Masoud, Denise Pinto, Karen May, and Jameson Skaiife</i> < http://infranetlab.org/blog/page/2/ >
1.6	13	The Burlington House < http://en.wikipedia.org/wiki/Royal_Society >	2.5	21	Hydro Fields <i>Drew Adams, Fadi Masoud, Denise Pinto, Karen May, and Jameson Skaiife</i> < http://infranetlab.org/blog/page/2/ >
1.7	13	Watt's steam engine < http://www.oldbookillustrations.com/gallery/science/ >	2.6	22	The Rhone Riverbanks by in situ architects < http://epiteszforum.hu/node/13379 >
1.8	14	Machine from Modern Times <i>Screenshot from Modern Times by Charlie Chaplin</i>	2.7	22	The Rhone Riverbanks by in situ architects < http://epiteszforum.hu/node/13379 >
1.9	15	Assembly line motivational poster < http://srsbusiness.org/the-assembly-line/ >			

Fig.	Pg.	Description
2.8	22	The Rhone Riverbanks by in situ architects < http://epiteszforum.hu/node/13379 >
2.9	23	Peasant on the Nile <i>Photo by author</i>
2.10	23	Family on the Nile <i>Photo by author</i>
2.11	24	The Gary Comer Youth Center < http://www.asla.org/sustainablelandscapes/rooftophaven.html >
2.12	24	Kids Gardening < http://www.asla.org/sustainablelandscapes/rooftophaven.html >
2.13	25	The Coney Island Fishing Dock <i>Photo by author</i>
2.14	25	The Galata Bridge in Istanbul < http://trickersinegypt.blogspot.com/2010/11/istanbul-for-eid-galata-bridge-and-new.html >
2.15	26	The New Orleans Riverfront (1890) <i>Ari Kelman, A River and Its City (California, University of California Press, 2003) 62.</i>
2.16	26	The Levee at New Orleans < http://nutrias.org/~nopl/exhibits/river/print1.htm >

Fig.	Pg.	Description
2.17	27	The Puget Sound market boat < http://www.farmboat.org/gallery/ >
2.18	27	The Puget Sound Floating Market < http://www.farmboat.org/gallery/ >
2.19	28	The Jackson-Triggs Niagara Estate Winery < http://www.kpmb.com >
2.20	28	The Jackson-Triggs Niagara Estate Winery < http://www.kpmb.com >
2.21	28	Southbrook Vineyards < http://www.dsai.ca/projects/southbrook-vineyards-niagara-on-the-lake >
3.1	31	A typical riverfront condition. <i>Photo by author</i>
3.2	31	An unrelenting fisherman. <i>Photo by author</i>
4.1	41	Map of Buda and Pest (1837) <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 201. - Edited by author</i>
4.2	42	The Franz Joseph Embankment (1894) <i>György Klösz, Budapest Anno (Budapest, Corvina Kiadó, 1979)</i>

Fig.	Pg.	Description	Fig.	Pg.	Description
4.3	42	The Wharf Market under the Franz Joseph Bridge(1896) <i>György Klösz, Budapest Anno (Budapest, Corvina Kiadó, 1979)</i>	4.11	47	'Flood by the Opera' painting by John Hürlimann < http://budapestcity.uw.hu/02-tortenet/1838-arviz/index-hu.htm >
4.4	43	'Market at Petőfi Square' painting by Balló Ede < http://helyiturista.blogspot.ca/2010/04/festoi-belvaros.html >	4.12	47	Ice-Damming on the Danube < http://budapestcity.uw.hu/02-tortenet/1838-arviz/index-hu.htm >
4.5	43	'Riverside Market' painting by Bruck Lajos < http://szeretembudapestet.hu/cimkek/kiallitas/ >	4.13	48	The Széchenyi Chain Bridge in 1870 < http://budapestcity.org/07-hidak/07-lanchid/index-hu.htm >
4.5	44	The Devil's Ditch <i>Katalin Jalsovszky, Emöke Tomsics, Budapest az ikerfőváros: 1860 - 1890 (Budapest, Helikon Kiadó, 2003)</i>	4.14	49	Tierney Clark's Cofferdam Design < http://budapestcity.org/07-hidak/07-lanchid/index-hu.htm >
4.6	44	Water Vendors < http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm >	4.15	49	The foundation stone ceremony in 1842 < http://budapestcity.org/07-hidak/07-lanchid/index-hu.htm >
4.8	45	Skaters on the Danube <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 272.</i>	4.16	50	The Natural Watershed of Buda and Pest < http://www.sulinet.hu/eletestudomany/archiv/2002/0206/07.html >
4.9	45	The Danube bath <i>Katalin Jalsovszky, Emöke Tomsics, Budapest az ikerfőváros: 1860 - 1890 (Budapest, Helikon Kiadó, 2003)</i>	4.17	50	The Devil's Ditch of Tabán in Buda <i>Judit N. Kósa, Péter Szablyár, Underground Buda (Budapest, Judit N. Kósa, Péter Szablyár, 2002) 13.</i>
4.10	46	The Extent of the Great Flood of 1838 < http://www.geomarket.hu/Photos/P0000020.gif >	4.18	50	The Vault of the Devil's Ditch <i>Judit N. Kósa, Péter Szablyár, Underground Buda (Budapest, Judit N. Kósa, Péter Szablyár, 2002) 11.</i>

Fig.	Pg.	Description	Fig.	Pg.	Description
4.19	51	Typical section of Budapest's Ring Road <i>Judit N. Kósa, Péter Szablyár, Underground Pest (Budapest, Judit N. Kósa, Péter Szablyár, 2002) 29.</i>	4.27	56	Embankment Construction near Gellért Hill < http://budapestcity.uw.hu/02-tortenet/1870-a-duna-szabalyozasa/index-hu.htm >
4.20	52	Buda's Well < http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm >	4.28	57	Plan of the Danube's Regulation < http://budapestcity.org/02-tortenet/1870-a-duna-szabalyozasa/index-hu.htm >
4.21	53	Temporary Waterworks Station of Pest < http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm >	4.29	58	Bridges and Tunnels of Budapest <i>Image by author</i>
4.22	53	Permanent Waterworks Station of Pest < http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm >	4.30	59	Bridges of Budapest < http://www.flickr.com/photos/yanosso/2112285979/ >
4.23	54	The Danubius Fountain <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 323.</i>	4.31	60	The water-supply network of Budapest <i>Image provided by Budapest Waterworks</i>
4.24	54	'Kálvin Square' painting by Molnár József (1884) < http://budapestcity.uw.hu/03-muemlekek/05/Danubiuskut/index-hu.htm >	4.32	61	Water supply and Sewage Diagram <i>Image by author</i>
4.25	55	The Construction of the Lower Wharf <i>László Gerö, Pest-Buda Építészete az Egyesítéskor (Budapest, Műszaki Könyvkiadó, 1973) 41.</i>	4.33	62	Embankment Traffic <i>Photo by author</i>
4.26	56	The Extent of the Danube's Regulation <i>Image by author</i>	4.34	63	Budapest as a Romantic Painting <i>Image by author</i>
			5.1	64	Széchenyi Square from Castle Hill < http://upload.wikimedia.org/wikipedia/commons/e/e7/20090401-budapest_pano.jpg >
			5.2	65	Aerial view of Széchenyi Square < http://maps.google.ca/ >

Fig.	Pg.	Description	Fig.	Pg.	Description
5.3	65	Map of the Turkish Cemetery <i>György Hajós, A Roosevelt tér (Budapest, Építésügyi Tájékoztatói Központ Kft., 2003) 7.</i>	5.12	68	The Bombardment of Buda and Pest <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 249.</i>
5.4	65	József Pollenzig's city plan of 1789 <i>Gábor Preisich, Budapest Városépítésének Története (Budapest, Hungarian edition TERC Kft., 2004) 45.</i>	5.13	69	The Austrian army enters Pest <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 250.</i>
5.5	66	János Hild's city plan of 1805 <i>István Bart, Budapest Krónikája : A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 145.</i>	5.14	69	Bird's-eye-view of Buda and Pest by Alt Rudolf < http://stein.mtak.hu/en/large/038.htm >
5.6	66	Classical Square Panorama <i>György Hajós, A Roosevelt tér (Budapest, Építésügyi Tájékoztatói Központ Kft., 2003) 11.</i>	5.15	70	The 'Kardvágás' Ritual <i>György Hajós, A Roosevelt tér (Budapest, Építésügyi Tájékoztatói Központ Kft., 2003) 18.</i>
5.7	67	Barrels at Unloading Square < http://www.btmfk.iif.hu/seengerkepek.html >	5.16	70	Franz Joseph Square (1868) <i>György Klösz, Budapest Anno (Budapest, Corvina Kiadó, 1979)</i>
5.8	67	The Sawmill < http://www.btmfk.iif.hu/seengerkepek.html >	5.17	70	Layout of Franz Joseph Square (1868) <i>György Hajós, A Roosevelt tér (Budapest, Építésügyi Tájékoztatói Központ Kft., 2003) 19.</i>
5.9	67	'Danube Embankment' painting by Barabás Miklós < http://www.btmfk.iif.hu/seengerkepek.html >	5.18	71	North view of Franz Joseph Square (1895) <i>László Lugosi Lugo, 1900 Budapest 2000 (Budapest, Vince Kiadó, 2001)</i>
5.10	68	Construction of the Chain Bridge <i>Screenshot from "The Bridgeman" 2002</i>	5.19	71	Map of Franz Joseph Square (1884) < http://terkepek.sg-1.hu/ >
5.11	68	Procession of the National Guard at the Chain Bridge <i>István Bart, Budapest Krónikája: A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 241.</i>	5.20	71	South view of Franz Joseph Square <i>Gábor Preisich, Budapest Városépítésének Története (Budapest, Hungarian edition TERC Kft., 2004) 255.</i>

Fig.	Pg.	Description	Fig.	Pg.	Description
5.21	72	The bombed Chain Bridge < http://budapestcity.org/07-hidak/07-lanchid/index-hu.htm >	5.30	77	Statue of Ferenc Deák < http://www.panadea.com/pages/magyar/utikonyv/europa/magyarorszag/budapest-es-kornyeke/budapest/kepgaleria/ >
5.22	72	Inauguration Ceremony for the Reconstructed Bridge <i>István Bart, Budapest Krónikája : A Kezdetektől Napjainkig (Budapest, Corvina Kiadó, 2007) 549.</i>	5.31	77	Observation Tower <i>Photo by author</i>
5.23	73	Points of Interest in Downtown Budapest <i>Image by author</i>	5.32	78	Existing Traffic Layout <i>Image by author</i>
5.24	74	Satellite Image of Széchenyi Square < http://maps.google.ca/ >	5.33	79	Traffic Section A-A <i>Image by author</i>
5.25	74	Panorama of Buda and Castle Hill < http://www.360cities.net/area/budapest-hungary >	5.34	79	Traffic Section B-B <i>Image by author</i>
5.26	76	Urban Artefacts <i>Image by author</i>	5.35	80	<i>Extent of Flooding</i> <i>Image by author</i>
5.27	77	Statue of István Széchenyi < http://www.owl.hu/owl/3gallery/gownpic2007/2007_24_5q2.htm >	5.36	81	People by the Riverfront <i>Photo by author</i>
5.28	77	Gresham Palace < http://www.flickr.com/photos/yon_willis/5181836011/sizes/l/in/photostream/ >	5.37	81	Water Levels Graph <i>Image by author, Data from < http://www.hydroinfo.hu/hidinfo.html></i>
5.29	77	Budapest's Oldest Tree < http://www.flickr.com/photos/25030909@N03/2831705595/sizes/o/in/photostream/ >	5.38	81	<i>Flooding of Széchenyi Square (2010)</i> <i>Photo by author</i>
			6.1	77	<i>Aerial View</i> <i>Image by author</i>

Fig.	Pg.	Description	Fig.	Pg.	Description
6.2	78-79	Context Axo <i>Image by author</i>	6.12	92	Plan of the proposed lower embankment. <i>Image by author</i>
6.3	80-81	Site Plan <i>Image by author</i>	6.13	95	The Skating Surface <i>Image by author</i>
6.4	82-83	Section A-A <i>Image by author</i>	6.14	94	Plan of the lower embankment during winter. <i>Image by author</i>
6.5	84-85	Section B-B <i>Image by author</i>	6.15	96	The guiding track <i>Photo by author</i>
6.6	86-87	Section C-C <i>Image by author</i>	6.16	96	Plan of the proposed fishing dock. <i>Image by author</i>
6.7	89	Existing automotive traffic circulation. <i>Image by author</i>	6.17	96	Connection detail <i>Photo by author</i>
6.8	89	Proposed automotive traffic circulation. <i>Image by author</i>	6.18	96	Progression diagram illustrating dock buoyancy. <i>Image by author</i>
6.9	89	Proposed compromise between pedestrian, automotive, and rail traffic circulation. <i>Image by author</i>	6.19	97	The Fishing Dock <i>Image by author</i>
6.10	90-91	Unobstructed River Access <i>Image by author</i>	6.20	99	The Stormwater Outlet <i>Image by author</i>
6.11	93	The Water Pump <i>Image by author</i>	6.21	98	Plan of the stormwater filtration channel. <i>Image by author</i>
			6.22	101	The Flood Mounds <i>Image by author</i>

Fig.	Pg.	Description
6.23	100	Plan of the lower embankment during seasonal flooding. <i>Image by author</i>
6.24	103	The proposed market boat route. <i>Image by author</i>
6.25	102	Progression diagram illustrating the dock's lift mechanism. <i>Image by author</i>
6.26	104- 105	The River Market <i>Image by author</i>
c.1	109	The Flood <i>Image by author</i>
c.2	111	The Farmer <i>Image by author</i>
c.3	112- 113	The Fisherman <i>Image by author</i>
c.4	114- 115	The Hunter <i>Image by author</i>

Preface

If you happened to be born in the town of Zenta in northern Serbia, you most likely take pride in calling yourself a “Tiszaparti Gyerek” (A kid of the Tisza-shore). The Tisza is a tributary of the Danube River and before their waters merge in Belgrade, it forges the landscape that served as my childhood playground - I’m a Tiszaparti Gyerek.

The term is not merely a geographical reference. Rather, it is one that portrays identity. The Tisza’s unique ability to lend itself to personal experiences has shaped the lives of many inhabitants along its shores – my own included. Whether it was falling through thin ice, drifting downstream on an air mattress, or fishing for dinner along the shore, intimate experiences have allowed me to foster a unique type of relationship that isn’t very common throughout the developed world – a relationship shared with a natural entity.

Until civil war forced my family to leave Serbia, I always assumed that everyone felt as intrinsically connected to their rivers as I was to my own. However, over the years, through experiences living in various cities of the West, I’ve gained some valuable insight. Through no fault of their own, citizens of the developed world are indifferent toward their rivers. Although rivers of the West sustain cities just as they do elsewhere, modern infrastructure has made this role entirely obscure. Highways have replaced the river’s function as a transportation corridor, fish are bought in supermarkets, people cool off in their backyard swimming pools, and the water supply system of the city makes water readily available at the turn of a faucet. As a result, people no longer associate their fulfillment of everyday needs with the resources that the river provides.

This was also the impression I got when I spent four months of my undergraduate career in Budapest, living some 200 meters from the

Danube. It was during these four months that I decided to investigate the cause of the disassociation between the city and its river as part of my thesis requirement for the Masters program. The problem seemed fairly straightforward at the time. However, once I started the investigation it became clear that the roots of the disassociation were much more profound than I originally suspected. What I assumed to be causes of the problem (physical alterations along the river’s embankments) proved to be mere symptoms – tangible manifestations of a much greater ailment. The problem was not merely the disassociation between city and river; it was the incremental disassociation between man and nature as a result of modernization.

Introduction

The question of how to revive the lost relationship between a city and its river is not a simple one. The very fact that this problem is generalized, and applicable to most river-cities in the developed world, reveals that the problem is a result of all-encompassing phenomena, rather than isolated local circumstances. As such, it is not adequate to only consider site-specific issues when conceptualizing new strategies for the revival of a city-river relationship. Rather, the strategies have to be deduced from the overarching phenomena that have made this into a global problem - that is, the emergence of modernization.

Consequently, this thesis is divided into two parts. Part One focuses on the evolution of modernity and its role in obscuring man's dependency on nature. It also formulates design strategies that can be implemented to reaffirm nature's role in sustaining humanity. Part Two focuses on Budapest and the Danube. It appropriates the design strategies introduced in Part One to implement a proposal that will revive the lost relationship between the city and its river.

Part One (Man and Nature) is composed of three chapters. Chapter 1.0 examines the various factors that have disassociated man from nature throughout the evolution of the Western world. It identifies cultural metamorphoses, technological advancements, and the modernization of social structure as the three most significant factors. As a means to arrive at new design strategies that can reverse this unwanted consequence of modernity, chapter 2.0 outlines the most crucial circumstances that have allowed, and still allow, pre-modern societies to retain a profound relationship with nature. That is, their proximity to nature, direct utilization of nature, and transparent exploitation of nature. Appropriating these pre-modern advantages, chapter 3.0 introduces a set of adaptable strategies that can be applied universally where there is a desire to improve man's awareness of his dependency on nature in the modern world.

Part Two (A City and its River) also consists of three chapters. Chapter 4.0 introduces Budapest and the Danube. It describes the profound relationship they once shared, as well as the unwanted consequences that modernization and ingenuity has imposed on it. Next, chapter 5.0 presents Széchenyi Square, the site of this thesis' proposal. It is comprised of a short history and analysis of the site to establish its significance as well as its shortcomings. Finally, chapter 6.0 appropriates the strategies presented in Part One: chapter 3.0 and applies them to a design proposal that will allow Széchenyi Square to reintroduce the inhabitants of Budapest to the Danube, and all the vital resources it provides.

Part One
Man and Nature



1.0 Straying from Nature

In our own time, the development of technology and the growth of cities have brought man's alienation from nature to the breaking point. Western man finds himself confined to a largely synthetic urban environment, far removed physically from the land, and his relationship to the natural world is mediated entirely by machines. He lacks familiarity with how most of his goods are produced, and his foods bear only the faintest resemblance to the animals and plants from which they were derived. Boxed into a sanitized urban milieu (almost institutional in form and appearance), modern man is denied even a spectator's role in the agricultural and industrial systems that satisfy his material needs. He is a pure consumer, an insensate receptacle. It would be unfair, perhaps, to say that he is disrespectful toward the natural environment; the fact is, he scarcely knows what ecology means or what his environment requires to remain in balance. (Murray Bookchin, 1965)



Murray Bookchin, a New York based libertarian author, orator, and philosopher, defends our morality as citizens of the Western world by claiming that our degradation of the natural environment is a result of ignorance rather than destructive intentions. He also points out that this ignorance is a result of modernity – a force that has improved our standard of living, but at the same time, disassociated us from the natural environment and the resources it provides.

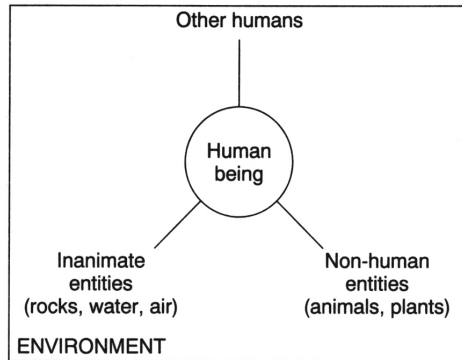
Since we no longer directly engage with nature, it comes as no surprise that we fail to recognize the consequences of our exploits. Therefore, in order to re-establish a harmonious and sustainable existence with our natural resources, we have to rebuild the deteriorated relationship by providing opportunities to engage with nature on an intimate level. But to do so effectively, we have to be aware of the causes that created the breakdown of the relationship in the first place.

For an architect, it is almost instinctual to blame changes in the built environment - physical obstructions that deter direct engagement with nature. However, these obstructions are mere symptoms of a more profound disconnection. The built form of the city itself, along with its obstruction of nature, is a reactionary manifestation of

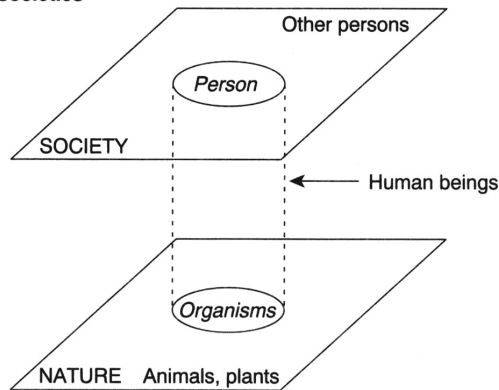
its cultural and social requirements. Therefore, to fully understand the roots of our alienation from nature, the investigation has to extend beyond the physical realm.

Consequently, this chapter focuses on the social and cultural evolution of the Western world, as a means to find the causes of our disassociation from nature. It identifies cultural metamorphoses, technological advancements, and the modernization of social structure as the primary agents of our estrangement.

Pre-modern societies



Modern societies



1.1 Cultural Metamorphosis

The natural world has become a subordinate of ‘civilized’ culture. Its finite resources sustain our obsession with advancement, yet our idea of advancement is not always concerned with regaining a sustainable existence on the planet. Consequently, this one-way relationship is running on empty.

This kind of exploitative attitude toward nature was not always in effect. Somewhere, in the evolution of Western civilization, a shift occurred that changed our cultural perception of nature and our role in it. This becomes evident when we contrast our conceptions of nature with those held by pre-modern societies. (See Fig. 1.1)

Peter Dickens, an environmental sociologist at the University of Cambridge, claims that pre-modern societies do not differentiate between the social world and the natural world. Rather, the individual in such societies inhabits only one sphere of existence: one that contains other humans, non-human entities such as plants and animals, and inanimate entities such as rocks, water, and air. Modern societies on the other hand, have created a fundamental split between how the individual relates himself to nature and to other human beings. Whereas he sees himself as a person in the social world, he is merely an organism in the natural world. Consequently, even our means to analyze these environments have been divided into two separate fields of study, that is, the social sciences and the physical sciences - two disciplines that seldom care to inform one another.¹

As a result of this dual existence, there is a fundamental disconnect between our actions in the social world and their respective consequences in the natural world. Since we are now lacking feedback from everything we do, we are no longer morally restrained from degrading our natural resources.

Fig. 1.1. Peter Dickens’ illustration contrasting man’s relationship with his environment in Pre-modern and Modern Societies.

1. Peter Dickens, *Reconstructing Nature: Alienation, Emancipation and the Division of Labour* (New York, Routledge, 1996), 5.

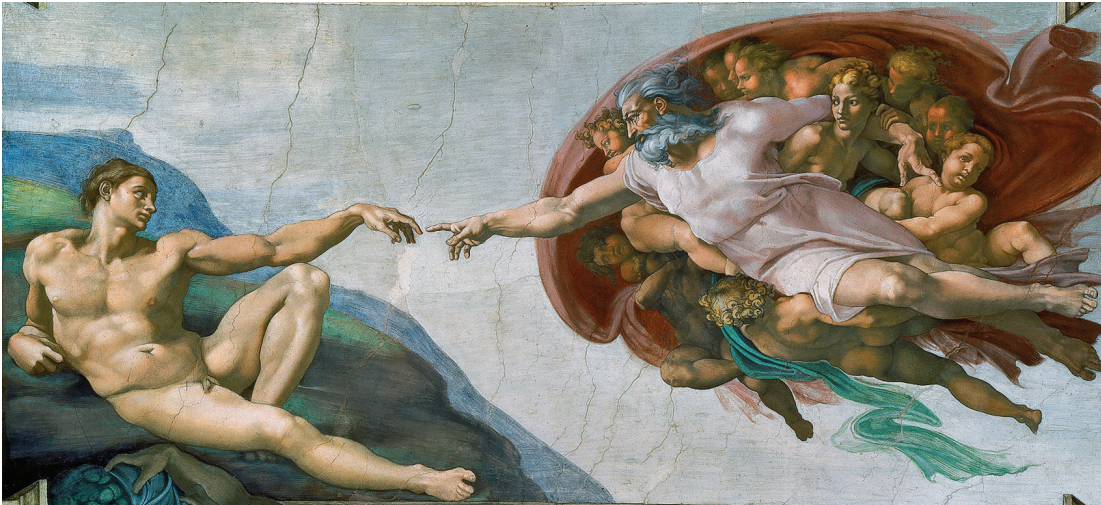


Fig. 1.2. *The Creation of Adam*

But how did this mitosis of worlds come to be? What would compel an entire civilization to remove itself from the natural order? According to Lynn White Jr., a late professor of medieval history at Princeton University, this phenomenon has biblical origins.

In his widely read essay, ‘The Historical Roots of our Ecological Crisis’, White asserts that human ecology is deeply conditioned by our beliefs regarding nature and destiny – that is, by religion. He then goes on to pinpoint the origins of our anthropocentric nature by referencing the Judeo-Christian story of creation, in which man receives a God given prerogative to rule over nature.²

And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the

earth, and over every creeping thing that creepeth upon the earth.³

With this God given impetus to exploit nature by any means, there was a revolutionary shift in the man-nature relationship. In direct contrast to contemporary Pagan beliefs that every living and non-living entity had a soul, Christianity not only established a dualism of man and nature but also insisted that it is God’s will that man exploit nature for his proper ends. Consequently, when most leading Romans converted to Christianity under Emperor Constantine, the predominant view of nature in the civilized world became the anthropocentric one we operate under to this day.

2. Lynn White, Jr., “The Historical Roots of our Ecological Crisis,” *Science* 155 (March 1967): 1203-1207.

3. Genesis 1:26

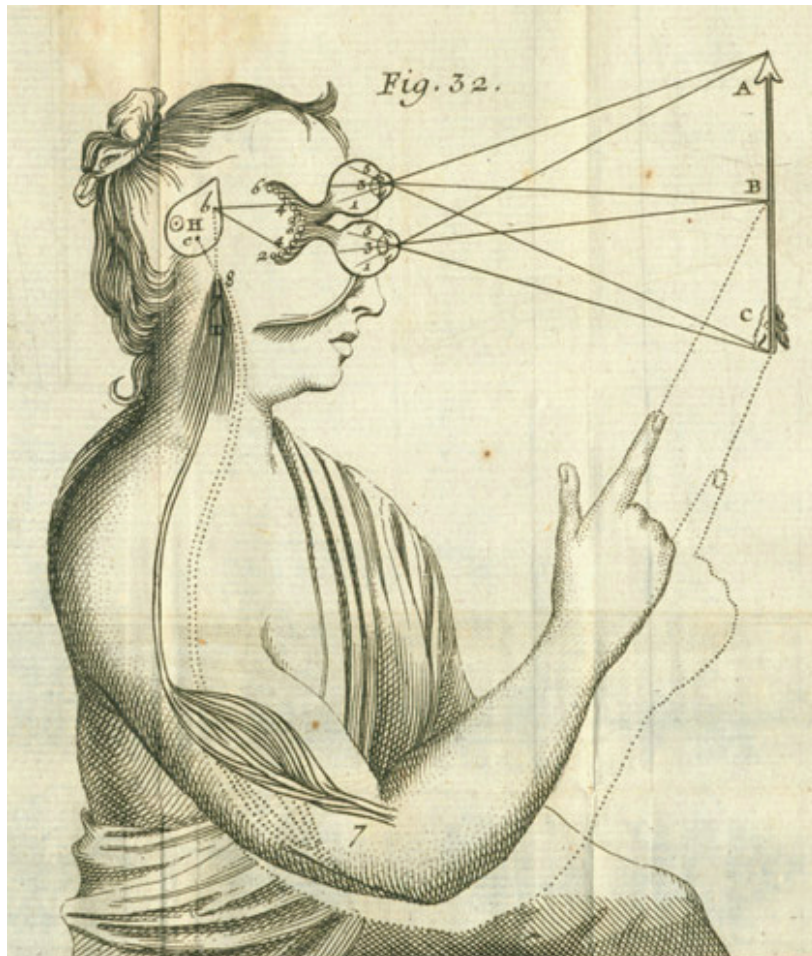


Fig. 1.3. Rene Descartes' *L'homme*, showing the influence of mathematics on his perception of how the body works.

The notion of our dominion over the natural world gained further justification by the 17th century. The Scientific Revolution brought about an imperative to decode the natural world, laying a philosophical foundation that saw no need to mystify the forces of nature. It became common belief that natural phenomena are subject to rational laws, and can therefore be figured out by rational thought.

Benjamin Kline credits Rene Descartes among other scientists of the age for this paradigm shift. As an environmental historian, he asserts that the development of coordinate geometry further reinforced man's domination of nature. Since the intricacies of nature could be reduced to mathematical formulas, just like that of any machine, it became man's prerogative to deconstruct the world around him. Kline also reiterates Descartes' conclusion that although living things acted and reacted according to set principles, humans possessed conscious thought, and therefore free will, allowing man to remain dominant over nature. Consequently, by the 17th century, it was not God's will that granted humanity absolute authority over the natural world, but man's own ability to reason and deconstruct its forces.⁴

Due to this revelation, humanity became further removed from nature, solely operating within an abstract social world. In order to rationalize nature, we started to look at it from an outside perspective, disassociating ourselves from natural ecology.

As a result of such cultural transformations, civilized society not only had God's command to exploit its natural environment, it was also able to strip nature of all its mysticism. This degrading perception of nature, established throughout the evolution of the Western world, has resonated throughout the centuries. And with the advent of industrialization as well as colonization, unsustainable exploitation of the natural environment has spread all over the globe.

4. Benjamin Kline, *A Brief History of the U.S. Environmental Movement* (Maryland, Rowman & Littlefield Publishers Inc., 2007), 10.

1.2 Technological Advancement

The technologist's own standard is one of efficiency; seeking proper means to a defined end, he can evaluate the results only in terms of technical success or failure. The selection of the ends, on the other hand, and their evaluation in terms of their ultimate social impact, lies beyond the technological act. (Forbes, 1968)

In a perpetual strive to achieve ultimate technological efficiency, we have incrementally distanced ourselves from the manual work required to fulfill certain needs and desires. From mechanization to automation, we continually seek to remove ourselves from the responsibilities of heavy lifting, and even heavy thinking. Although this liberation from manual labour allows us to pursue more creative endeavours, our interactions with the natural environment are now entirely mediated by machines.

This was not always the case. Even though technology has been an intrinsic constituent of human evolution ever since the dawn of man, archaic tools were too primitive to become mediators of our exploits. In fact, it was not until modern history that technology gained the catalyst it needed to reach the level of sophistication that allowed the machine to become enigmatic to its operator. This catalyst, the one ultimately responsible for igniting the Industrial Revolution, was the unification of technical craft with scientific theory.

Although the two disciplines are intrinsically connected in today's practice of the 'applied sciences', they were once regarded as two separate schools of thought.

Robert James Forbes, the late historian of applied science and technology at the University of Amsterdam, explains that natural science was once exclusively an intellectual and philosophical pursuit,

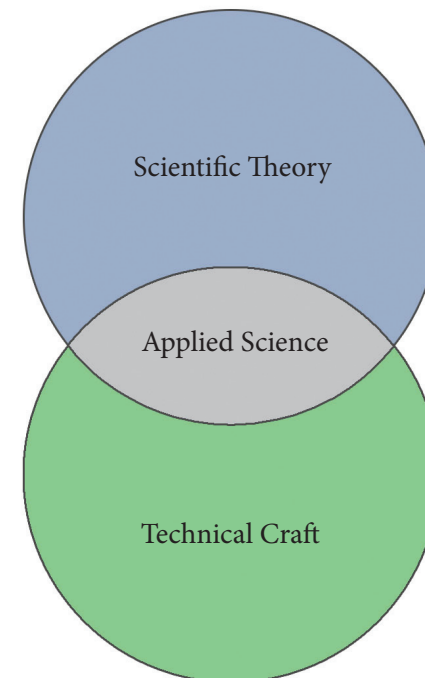


Fig. 1.4. *The Birth of Applied Science*



Fig. 1.5. A 19th century engraving of Salomon's House as described in Bacon's 'New Atlantis'.

and that technical issues only concerned the lower class. He describes the role of the scientist in Ancient Greece as a philosopher, from which came the term "natural philosophy". He claims, however, that these philosophers only devoted their time to theoretical research - practical application did not interest them. The craftsmen on the other hand had no knowledge of any basic scientific principles, relying exclusively on trial and error to advance in their field. Consequently, technological innovation, as well as theoretical philosophies, were slow to progress.⁵

Despite their isolation, the two disciplines continued to evolve until their undoubted affiliation began to surface. Forbes suggests that Sir Francis Bacon was the first to realize the potential inherent in the unification of the two disciplines. He claims that Bacon not only advocated experimental science instead of purely theoretical discussions, but also stressed the value of scholars studying the "trades" and vice versa. This assertion stemmed from Bacon's "Salomon's House", which was an institute for scientific cooperation between scholars, artisans, and manual workers. With the disciplines working side by side, Bacon envisioned a place where scholars might receive useful suggestions rising from practical experience, while the application of scientific methods could make the crafts more efficient, benefiting mankind as a whole.⁶

Although Salomon's House was merely a fictional institute, detailed in Bacon's novel "New Atlantis", the ideology portrayed by its M.O. soon became the archetype for many research universities, as well as the "Royal Society" - the very first institution dedicated to discovering practical applications of scientific theories. One such application ultimately led to the discovery of the steam engine - the machine that replaced man's dependence on geographically constrained 'prime movers' such as the windmill and the water wheel.

5. Robert James Forbes, *The Conquest of Nature* (New York, Frederic A. Praeger, Inc., 1968), 14.

6. *Ibid.*, 20.

But the advent of the steam engine was responsible for more than just making the production process more efficient; it also created social and cultural paradigm shifts that forever changed our relationship with nature. By the 19th century, Bacon's prediction that the scientific method would make the crafts more efficient was not only accurate; it became an understatement. The 'craft' became so advanced in fact, it no longer needed craftsmen.

The mechanization of various manual operations that led from home to mill to factory ended the era of the craftsman. Machinery took over a phase, or even an entire operation, out of the series of acts leading from raw material to end product.⁷

As a result of this fragmented production process, humans were no longer solely responsible for the transformation of nature into the things they acquired. Whereas the production of their food, water, clothes, furniture, and even shelter were once an explicit and intimate endeavour, with the advent of mechanization the sources and life cycles of everything they consumed and utilized became a mystery.

The fragmentation of our understanding has proliferated since the Industrial Revolution. Our ignorance of the production process, and our estrangement from nature, has grown in direct relation to the advancements made by new and more efficient technologies. From mechanization, to automation, to cybernation, our understanding of everything we do has severely deteriorated as our technical abilities flourished. Harry Braverman, an American socialist and political writer, very effectively articulates this paradox:

The more science is incorporated into the labour process, the less the worker understands of the process; the more sophis-

7. Ibid., 27.

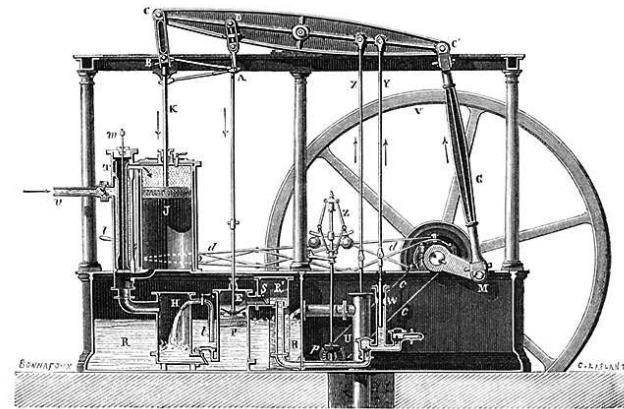
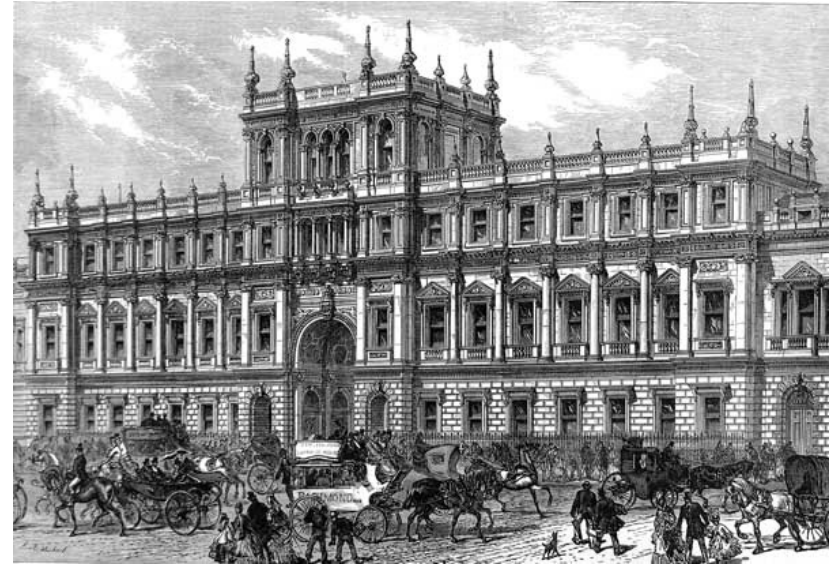


Fig. 1.6. (above) *The Burlington House, Royal Society's HQ from 1873 to 1967*
 Fig. 1.7. (below) *Watt's Steam engine.*

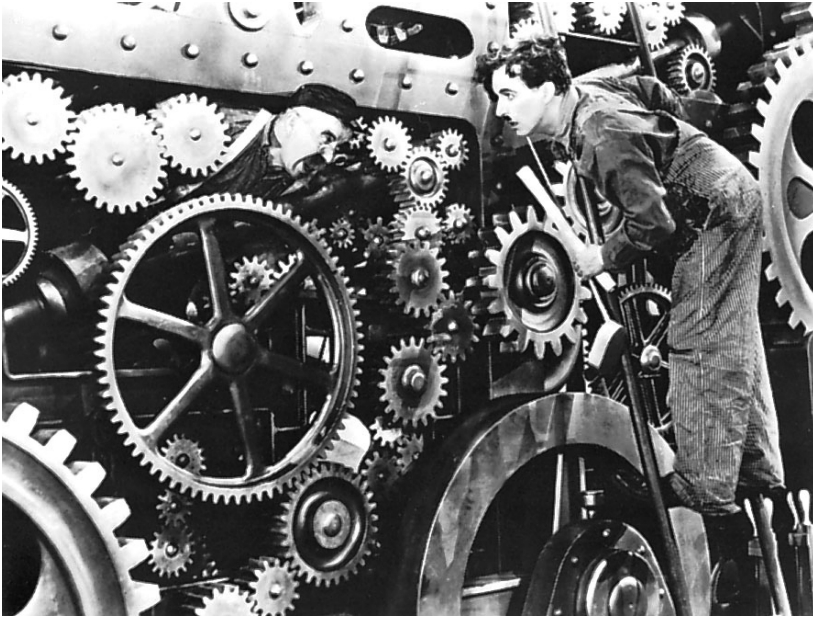


Fig. 1.8. A scene from *Modern Times* by Charlie Chaplin displays a machine so intricate it seems impossible to comprehend.

ticated an intellectual product the machine becomes, the less control and comprehension of the machine the worker has. In other words, the more the worker needs to know in order to remain a human being at work, the less does he or she know.⁸

In today's world of advanced automation and telecommunication, technology moderates our everyday existence. We no longer require a primitive survival skill-set to acquire shelter, heat, food, water, and whatever luxuries we deem necessary for our lavish lifestyles. Consequently, we're no longer required to directly interact with nature, causing a disassociation between the health of the natural environment and our survival.

1.3 Social Modernization

Modern social structure - in terms of production and consumption - is a complex system, an entity of its own that emerges from the multiplicity of relatively simple interactions between individuals. Everyone plays a specific and often crucial role, yet most of us remain totally oblivious to the collective processes involved in transforming nature into the things we need and want.

This social arrangement was greatly exacerbated by the Industrial Revolution and the advent of mechanization. Not only did machines take over an entire phase of production, individual work became highly specialized in order to boost productivity, creating a fragmented understanding of society's exploits.

This specialization of work, often referred to as the 'division of labour', is not associated with manual labour alone; it also encompasses the division of mental labour, the spatial division of labour, the sexual division of labour, and even the global division of labour. Whatever

8. Harry Braverman, *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century* (New York, Monthly Review Press, 1974) 465.

the context may be, its implications are the same; individual efforts in a modern society are alienated from one another, resulting in the individual's inability to gauge his or her role with respect to the collective functions of society.

According to Peter Dickens this phenomenon is the main culprit responsible for our unsustainable exploitation of nature. He asserts that the division of labour disables us from using our local lay knowledge and tacit understandings to monitor, understand, and control the consequences of our actions.⁹ This is simply because our lay knowledge, as well as our moral judgement, no longer play an integral role in our contributions to society. Instead, our contributions are now derived solely from specialized labour. Consequently, the collective actions of society filter any tacit understandings we may have of our dependence on nature, and with it, any moral constraint we may have in exploiting it.

Murray Bookchin very beautifully articulates the importance of these tacit understandings of nature, as well as how our collective disregard for such profound knowledge has affected the man-nature relationship.

The sun, the wind, and the earth are experiential realities to which men have responded sensuously and reverently from time immemorial. Out of these primal elements man developed his sense of dependence on – and respect for – the natural environment, a dependence that kept his destructive activities in check. The Industrial Revolution and the urbanized world that followed obscured nature's role in human experience. Man's dependence on the natural world became invisible; it became theoretical and intellectual in character, the subject matter of textbooks, monographs, and lectures.¹⁰

9. Dickens, *Reconstructing Nature*, 26.

10. Janet Biehl, *The Murray Bookchin Reader* (London, Cassell, 1997), 30.

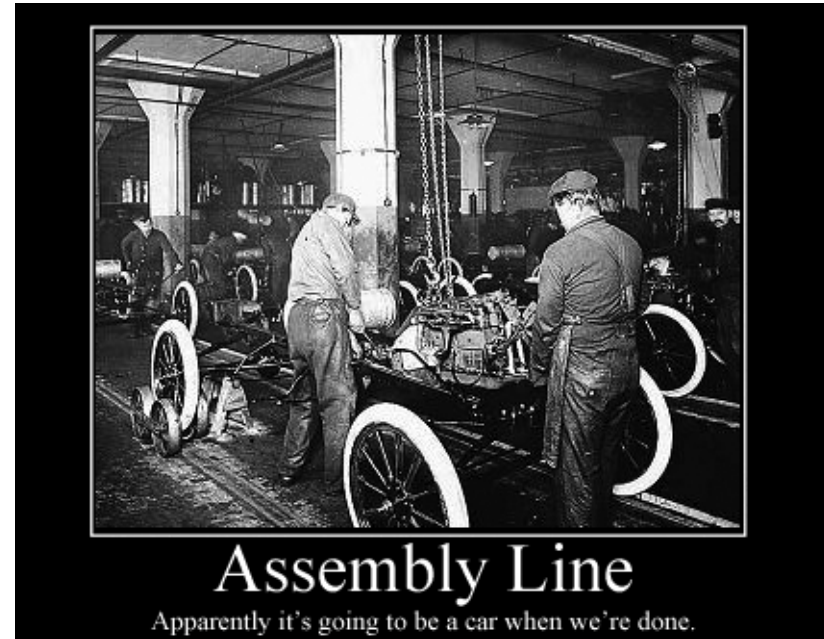


Fig. 1.9. A sarcastic motivational poster calling attention to an undesirable consequence of efficiency introduced in assembly lines.



Fig. 1.10. A popular image by artist Barbara Kruger criticizing consumerist ideals

Since we have abstracted our relationship with nature, we have become morally exempt from consuming its resources at an ever-increasing rate. Other than our specialized contributions to society, we've become mere consumers, devouring our resources without the slightest idea of the strain we're imposing on the natural environment.

Consumerism was born out of the ease with which we now obtain our sustenance and material goods. This ease is also a testament of the division of labour. While the individual performs his or her specialized duty in return for monetary compensation, others are busy in their roles making sure there is plenty of available sustenance and material goods ready for purchase at any time. Supermarkets, shopping malls, big-box stores, and online shopping have all made self-sustainability obsolete, causing a rupture in the man-nature relationship. This ease has also accelerated the pace with which we consume our natural resources, turning humanity into a parasitic species - depleting our host - blinded by an insatiable hunger.

2.0 The Pre-Modern Advantage

Despite the innumerable benefits of modernization, the Western world has become an unstable force. Its instability lies primarily in its disassociation from the natural world, and consequently, its apathetic attitude toward environmental degradation. As a result, we're not only biting the very hand that feeds us; we're consuming it entirely. In order to find strategies to reverse this malignant by-product of modernization, we have to examine the circumstances that have allowed, and still allow, pre-modern societies to retain a profound relationship with nature.

After careful consideration of the pre-modern "advantages" outlined in this chapter, it will become obvious to the reader that these can be reduced to a single overarching advantage of individualism. Any given example of a beneficial circumstance within the next few pages will illustrate that pre-modern societies have a profound relationship with nature because the individual within such societies is granted a personalized affiliation with his or her natural resources. As a result, conservatory practices to maintain a healthy environment becomes a moral choice of the individual, rather than an imposed policy submitted by an authority. Therefore, in order to achieve a fully sustainable society within the modern world, similar moral principals need to be

established within the modern individual. To do so, our built environment has to not only accommodate, but also encourage personal experiences with natural resources in daily life; experiences that have been eradicated through modernization.

2.1 Proximity to Nature

Individuals in modern societies live in artificial confines at the scale of metropolitan cities linked together by a network of highways, railways, air space, and telecommunications. The artificial landscape is so widespread and interconnected that one has to consciously and physically retreat into nature, if so inclined. On the other hand, individuals in pre-modern societies are intrinsically integrated with the natural environment. They have direct encounters with their natural resources in daily life.

In reference to the Kogi - a pre-modern society still active in Colombia - Peter Dickens explains the benefit of such integration. He claims that the overlapping of land, production, and consumption allows the Kogi to know where they stand in relation to their environment simply because their everyday lives, unlike those of us in modern societies, are bound up with it. Effectively, they know when things are going wrong.¹

This ability to receive immediate feedback from potentially hazardous actions towards resources is one of the greatest assets of pre-modern societies. The Kogi, who refer to the modern world as “The Younger Brother”, continually witness the consequences of our exploits through their everyday encounters with nature. In an effort to stop “The Younger Brother” from killing the planet, the Kogi invited Alan Ereira, a television producer, to send out a warning to the modern world.

1. Peter Dickens, *Reconstructing Nature: Alienation, Emancipation and the Division of Labour* (New York, Routledge, 1996), 7.



Fig. 2.1. (top) and Fig. 2.2. (bottom) The Kogi tribe of Colombia



Fig. 2.3. A member of the Kogi tribe looks upon the mountaintops that were once covered with snow.

Their message reached us via Ereira's film entitled "The Elder Brothers' Warning", which first appeared in 1992. In short, the Kogi claimed that "Younger Brother" is carelessly destroying the earth through environmental devastation. Since their assessment of environmental health is based on direct interaction with plant and animal life, as well as general observations of the world around them, they are easily able to recognize warning signs when the earth is in trouble. The most troubling sign of distress they've encountered is the fact that the snow peaks of the Sierra Nevada mountain-range have entirely dried up. They blame this transformation on the exploits conducted by the modern world, and have pleaded for the pillaging to stop.²

Through their intimate knowledge and connection with land that sustains them, the Kogi are able to appropriately respond when their actions lead to environmental degradation. Unfortunately, this is an advantage that has been eradicated in the modern world through the proliferation of the artificial environment we inhabit. Due to our isolation from the natural world, we have no direct contact with the resources that sustain us, and remain oblivious to the consequences of our actions. As a result we continue to consume until there is nothing left, and the only people that bare witness to the damage first-hand are societies such as the Kogi - societies immersed in nature.

But how can this advantage of proximity be implemented in a modern world, where an increasingly large percentage of the population live in cities? - Cities that are sprawling outward, progressively segregating its inhabitants from the natural world, as well as its resources.

Murray Bookchin argues that in order to resolve this issue, cities of the future have to adopt a hybridized existence with the agricultural landscape. He claims that the "urbanized farmer" or the "agrarianized townsman" should not be a contradiction of terms, and that the city

2. Alan Ereira, Director, *From the Heart of the World: The Elder Brothers' Warning*, 1992.

needs to bring agriculture together with urban life in order to synthesize both into a rounded human, cultural, and social development.³

This was exactly the aim of a project proposed by a group of students at the University of Toronto. In their project entitled “Growing the Hydro Fields”, the team proposed that Toronto’s network of Hydro corridors could drastically decrease the city’s reliance on imported produce if it was utilized for agricultural production. In combination with public amenities running parallel to the newly cultivated landscape, the proposal could effectively reintegrate land, production and consumption into the same overlapping condition that has allowed societies such as the Kogi to keep their destructive activities toward natural resources in check.

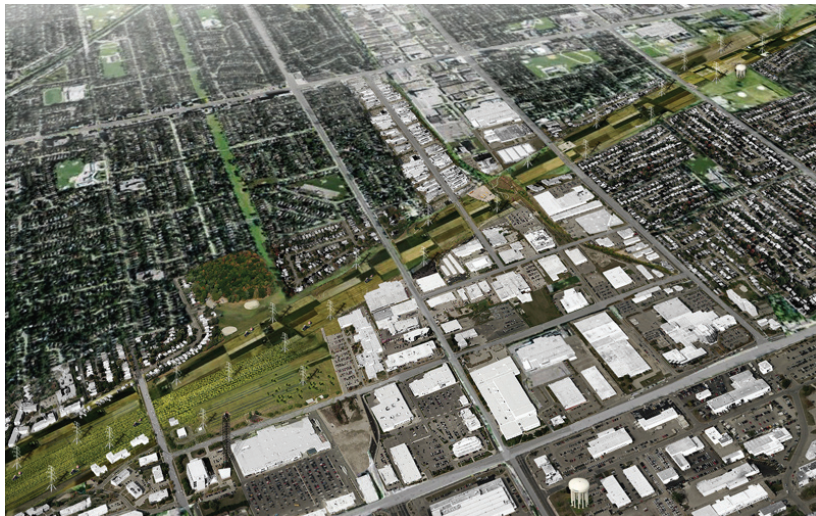


Fig. 2.4. (left) An aerial view of ‘Hydro Fields’, proposed by Drew Adams, Fadi Masoud, Denise Pinto, Karen May, and Jameson Skaife.

Fig. 2.5. (below) A series of renderings illustrating hybridized landscapes.



3. Janet Biehl, *The Murray Bookchin Reader* (London, Cassell, 1997), 17.



Another opportunity to introduce 'proximity' in modern cities is to provide easy-access to natural resources that are persistent in penetrating our artificial confines. Rivers have been shaping and sustaining cities throughout the history of civilization, yet in our modernized world, urban riverbanks are often programmed solely to accommodate infrastructure or other utilitarian functions. Consequently, the inhabitants of the city are restricted from approaching the very resource that sustains their daily requirement of water consumption. Fortunately, in an attempt to reintroduce the urban population to their rivers, cities have started to rehabilitate the riparian landscape. Lyon, France is a shining example of how cities are now taking initiative in transforming urban riverbanks into public spaces that are intrinsically entwined with the urban fabric, allowing the public to re-establish a relationship with their most vital natural resource.

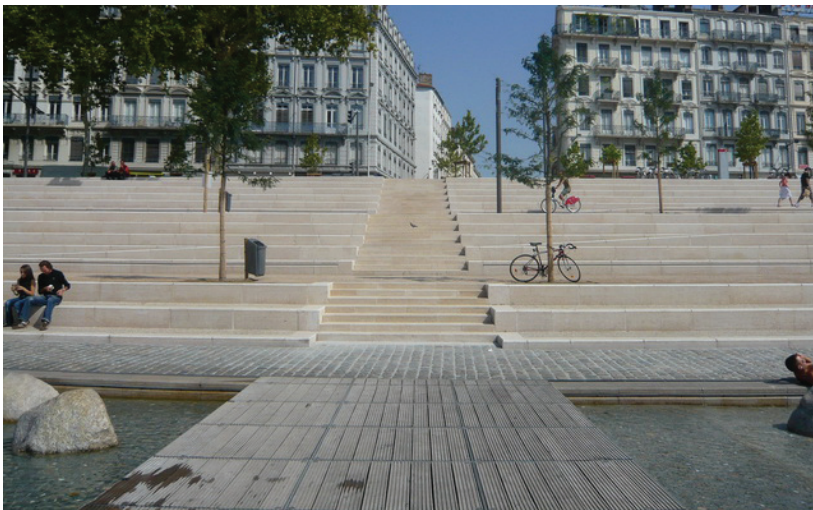


Fig. 2.6. (top) Fig 2.7. (bottom) Fig. 2.8. (bottom-right) The Rhone riverbank in Lyon, France, designed by in situ architects.

2.2 Direct Utilization of Nature

Although introducing accessibility to nature and its resources is advantageous, as well as a necessary step in improving the man-nature relationship, it is not enough. An additional significant advantage that pre-modern individuals possess in establishing an intimate relationship with nature is their direct utilization of its resources. For them there is no technology advanced enough to wholly take over the work necessary to exploit a specific resource, therefore individuals are required to personally engage with nature in order to benefit from it. This personal interaction then becomes an intrinsic factor in establishing a relationship that induces appreciation and respect for the natural environment. Richard White, the Margaret Byrne Professor of American History at Stanford University, explains this phenomenon by contrasting modern exploitations of nature with the more intimate methods utilized in an earlier time period.

For much of human history, work and energy have linked humans and rivers, humans and nature. But today...there is little in our day-to-day life to preserve the connection. Machines do most of our work; we disparage physical labour and labourers. The link between our work and nature's work has weakened. We no longer understand the world through labour. Once the energy of the Columbia River was felt in human bones and sinews; human beings knew the river through the work the river demanded of them.⁴

Although direct utilization of resources has progressively faded in our modernized milieu, it remains evident in relatively undeveloped corners of the world. One of the most explicit examples can be

4. Richard White, *The Organic Machine: The Remaking of the Columbia River* (New York, Hill and Wang, 1995), 4.



Fig. 2.9 (top) A peasant washing his goats in the Nile River.

Fig. 2.10. (bottom) A peasant family washing clothes and dishes in the Nile.



Fig. 2.11. (top) Fig. 2.12 (bottom) The Gary Comer Youth Center roof garden in Chicago

witnessed on the banks of the Nile River, where there is a complete absence of the infrastructure the modern world relies on for exploiting water resources. As a result, Egyptian peasants have established an intrinsic relationship with the Nile through their efforts in personally utilizing its waters for drinking, washing, bathing, playing, fishing, shipping and cooking.

Although the modern world has eradicated the need to work on nature to benefit from it, there are opportunities to encourage self-sustenance. According to Murray Bookchin, there is in an inherent desire, even in the modern individual, to work on nature as a means to reduce his environment to a more human scale. Unfortunately, these desires usually manifest themselves through what he calls 'suburban vices.' The obsession to keep a perfect lawn, as exquisitely useless as it may be, allows the individual to recreate a world that reminds him of the freedom, gentler rhythms, and quietude of rural surroundings. Therefore, these suburban vices are a necessary catharsis for maintaining one's humanity in the modern world.⁵

Consequently, there is an opportunity to harness a natural impulse to 'work on nature' and redirect it toward more fruitful and fulfilling activities; activities that promote self-sustenance, negate reliance on environmentally degrading industrial processes, and re-establish a profound relationship with nature.

Community gardens are one of the most well established examples of how our desire to work on nature can be appropriated toward more constructive endeavours. Although urban agricultural activity is most prevalent in the cities of less-developed countries, more voices are being heard in the past decade among adherents in developed nations.⁶ This is in part because urban farming is gaining in popularity as a recreational activity, and is not solely regarded as a monetary or an

5. Biehl, *The Murray Bookchin Reader*, 15.

6. Jerry Kaufman and Martin Bailkey, *Farming Inside Cities: Entrepreneurial Urban Agriculture in the United States* (Cambridge, Lincoln Institute of Land Policy, 2000), 5.



environmental effort. Consequently, cities such as Toronto, New York, and Chicago, are increasingly appropriating unused spaces such as rooftops for community gardens - proliferating green space in the city, and reintroducing urbanites to invaluable natural resources such as the soil, the sun, and the rain.

Although community gardens are the most common, there are other methods of implementing direct utilization of natural resources within an urban setting. Urban fishing is also quite popular amongst adventurous urbanites, however, it is often impeded by high floodwalls, roads, and other obtrusive infrastructures. Fishing itself as a recreational activity is also somewhat of an acquired taste, therefore individuals will only be inclined to try it if they are presented with an incentive. There is, however, an opportunity to encourage urbanites to directly utilize their rivers and lakes for fishing if the proper amenities are established. Fishing docks, such as the one in Coney Island, are



Fig. 2.13. (top-left) The Coney Island fishing dock.
Fig. 2.14 (above) The Galata Bridge in Istanbul.



Fig. 2.15. (top) Fig. 2.16 (bottom) The public wharves of New Orleans bustling with human activity as goods pass through the port.

utilized profusely by New Yorkers. Other urban fishing spots, such as the upper deck of the Galata Bridge in Istanbul, are established more organically, but in the austere zoned and programmed cities of the West, such spaces need to be clearly designated.

2.3 Transparent Exploitation of Nature

A third advantage of societies unaffected by modernization is the transparent production process utilized to transform natural resources into necessities, luxuries, and even capital. Due to the explicit nature of such processes, individuals in pre-modern societies have a much better understanding of their dependence on nature. However, with the advent of self-propagating technologies and increasingly complex social structures, the production process in the modern world has become entirely esoteric. Consequently, we have lost a crucial understanding that once mediated the man-nature relationship. To illustrate this, Ari Kelman - an environmental historian at UC Davis - reflects on an earlier period in the history of New Orleans, when the Mississippi river was still regarded as the lifeline of the city.

In a typical year in the 1830's, a pedestrian could stroll the waterfront amid thousands of reams of paper, boxes of candles and soap, and hogsheads of tobacco; marvel at tens of thousands of barrels of apples, bushels of oats, and animal hides; pay homage to hundreds of thousands of bales of "king" cotton; and contemplate millions of pounds of pork or gallons of whiskey. Today, we are used to supermarkets filled with goods from around the globe. Refrigeration, vacuum packing, airplanes, trucks, and other technologies allow us to buy bagged Florida oranges in the produce aisle, plastic-wrapped

Texas beef at the deli counter, and bottled Italian balsamic vinegar in the foreign-food section. The world's goods are at our fingertips; we buy without thinking about a product's place of origin or how it came to be in our hands.⁷

The increased efficiency with which we transform and utilize nature has drastically changed the way we live our daily lives. For the most part, it is a welcomed change because it is said to have improved our quality of life. Although this conception is not without critics, it is undeniable that modernity has significantly eased our daily struggle in acquiring necessities and luxuries. Unfortunately, the highly systematized production process that has liberated the modern individual from his daily struggles, has also eradicated any transparency in how, or to what extent, nature is being exploited - and the consequences are proving to be disastrous.

It is obvious therefore that the pre-modern advantage of transparency in the utilization of natural resources has to be reintroduced into the modern world. Examples of this already exist to some extent. Farmer's markets are an ideal way to break down the intricate network that is usually required to transport food from farm to plate. The Puget Sound Floating Market in Washington State takes it one step further. Reverting back to the food distribution system that was in place more than a hundred years ago, a fleet of boats once again deliver local foods directly from farms to waterfront communities on a regularly scheduled bases. The goods are either sold by the ship's crew or by the farmers themselves who pay a fee to participate, just as they would on any land based farmer's markets.⁸

By reintroducing an explicit utilization of waterway transportation routes, the Floating Market not only brings producer and consumer

7. Ari Kelman, *A River and Its City* (Berkeley, University of California Press, 2006), 62.

8. *Puget Sound Floating Markets* < <http://www.farmboat.org/about/floating-market-concept.php>>, accessed July, 2011.



Fig. 2.17. (top) A Floating Market boat entering the harbour.

Fig. 2.18 (bottom) Unpacked produce on the docks.



Fig. 2.19. (top) Fig. 2.20 (middle) The Jackson-Triggs Niagara Estate Winery by KPMB Architects

Fig. 2.21 (bottom) Southbrook Vineyards by Diamond and Schmitt Architects

closer together, but also re-establishes Puget Sound as a crucial resource in food conveyance. Consequently, consumers are much better informed as to where a certain product is coming from, and how it came to be in their hands.

Another example of transparency in the production process and the utilization of natural resources can be witnessed at most wineries around the world. Wineries, although primarily a production facility, are often visited by agro-tourists and wine connoisseurs. The cultivation of the grapes, and their transformation into wine, are made entirely explicit as guests sample the flavours produced by the area's terroir – the site-specific conditions that determine the unique characteristics of any given wine. As a result, the individual is not only granted insight into the production process, but also a palpable experience of the natural resources that define the qualities of the grape.

3.0 Reconnecting with Nature

The advantages that pre-modern societies possess in establishing an intimate relationship with nature are not implemented by design. Rather, the advantages are a circumstantial absence of modernity. Although the aim of this thesis is to re-institute these advantages, the intention is not to revert back to a pre-modern existence, but to strategically integrate them into modern life. To do so by any measure, the following strategies have to be considered:

1. Provide easy-access to natural resources
2. Provide opportunities to directly utilize natural resources
3. Provide transparency in the collective exploitation of natural resources

These strategies, derived from the pre-modern advantages presented in the previous chapter, are highly adaptable and can be implemented at any scale of design. Whether they are applied to a building, a neighbourhood, or an entire metropolis, they will - at least to some extent - improve the inhabitant's experience with, knowledge of, and concern for, his natural resources.

To illustrate how these strategies can be implemented, part two of this thesis presents a proposal on a site where the threshold between city and nature is confined to narrow stretch of land - a place of dramatic juxtaposition where the existing relationship between man and nature is explicitly manifested - that is, on the batture of an urban riverfront.

*Fig. 3.1. (right) A typical riverfront condition in cities of the developed world.
Fig. 3.2. (below) An unrelenting fisherman on the urban batture.*



Part Two
A City and its River

4.0 Budapest: Pearl of the Danube

The Danube stretches nearly three thousand kilometers, forges its way through ten countries, and penetrates four capitals. And yet, there is one city more commonly associated with its name than any other: Budapest. The exclusive relationship is rooted in history – centuries of prosperity and devastation, an entirely convoluted past that is palpable to this day. Unfortunately, modernity has made the association between Budapest and the Danube exceptionally abstract. Their affiliation in popular culture is purely romantic resonance of a once active and mutually influential relationship. Art has preserved the connection, but in practice, it has grown stoic.

To convey the extent of the Danube's influence in the evolution of Budapest, this chapter reflects on the once reliant yet susceptible nature of the city's relationship with its river. It also examines various engineering projects implemented on the Danube - projects that were employed to exploit the river safely and more efficiently as population levels rapidly proliferated in the 19th century. Finally, taking into account such engineering impositions, this chapter analyzes why the relationship between the city and its river deteriorated as Budapest set out to become a modern, industrialized city.

4.1 The Two-Faced River

The relationship between a city and its river is saturated with dualities. On the one hand, the river is a nurturing entity, on the other, a destructive force. Budapest's relationship with the Danube is no exception. The Danube is the lifeline of Budapest – the most vital and influential natural resource in its evolution. And yet, the river has also repeatedly decimated the city's very fabric – not only its buildings, but also the lives of its inhabitants. It is this complexity and tension that once defined the intimacy of the relationship.

The Danube's influence in the region of modern-day Budapest dates back to Classical Antiquity. The hills of the West bank, along with other geographical characteristics forged by the Danube, provided ideal spatial conditions for Celtic settlements. The region later became the site of Aquincum – capital of the Roman province of Pannonia. Its northeaster boundary, defined by the Danube's sinuous flow, served as a natural border between the Romans and the “Barbarian” hordes for 400 years.

Migrating Hungarians had not arrived until the 9th century AD. They settled in the region because the slow current and numerous shallows made this stretch of the river ideal for float crossing.¹ The slow current also provided a safe walkway during the winter, as it made the river more susceptible to freezing. However, Hungarian efforts to establish a permanent home by the Danube were repeatedly interrupted. A brief stint of Mongolian pillaging, followed by 150 years of Ottoman rule, ensured that the evolution of Budapest would not be a linear one. Rather, its fabric was born out of a cyclical evolution of prosperity and devastation - construction and destruction - witnessed, and influenced by the Danube.

1. Péter Buza, *Bridges of the Danube*, trans. József Pálffy (Budapest, Sík Kiadó, 1999), 3.

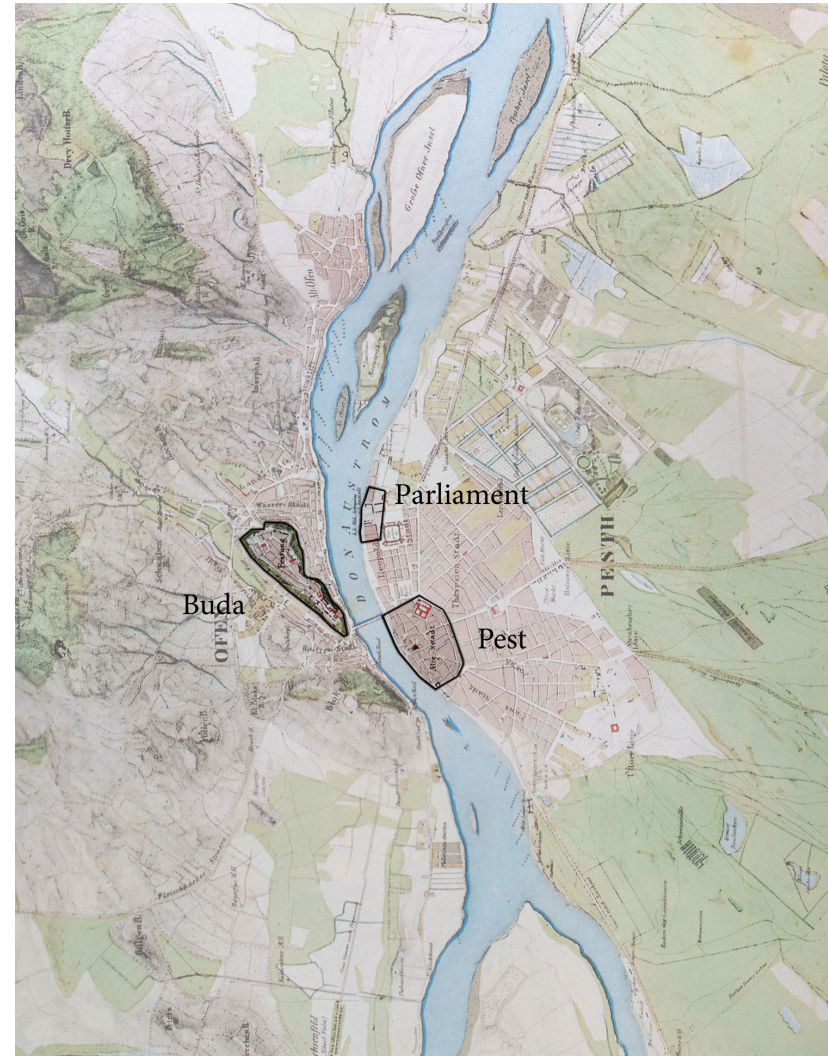


Fig. 4.1 A map of Buda and Pest highlighting the extents of the Old Towns, as well as the site of the unified city's Parliament building inaugurated in 1896.



Fig. 4.2 (left) The Franz Joseph embankment in Pest shows lumber unloaded for further transportation (1894).



Fig. 4.3. (right) The wharf market under the Franz Joseph Bridge in 1896.



Fig. 4.4. Market at Petöfi Square



Fig. 4.5. The riverside market near Petöfi Square. Buda Castle is visible in the background.

Following Ottoman sovereignty in Europe, Buda and Pest once again entered an era of prosperous proliferation under the Hapsburg Monarchy; and the Danube became their vital artery. As the two towns rapidly grew, there was an increasing need for building-materials; particularly lumber. Taking advantage of the natural transportation corridor provided by the river, the lumber was shipped from the north on primitive rafts, and entered the heart of Pest at the site of today's Széchenyi Square, located at the eastern base of the Chain Bridge.² Although seemingly poetic, the Danube quite literally conveyed the very fabric of Budapest.

However, building-materials were not the only thing being conveyed by the river. Commerce in the region flourished since prehis-

toric times due to its ideal location along the Danube corridor. Various metals, salts, furs, and ambers were transported along this route, as it was the most efficient connection between the east and the west.³ By the time Buda and Pest were approaching their united "global city" status in the late 19th century, trade and navigation on this section of the Danube was firmly established. It was this direct utilization of the river that once littered Budapest's embankments with markets and human activity.

2. György Hajós, *A Roosevelt Tér* (Budapest, Építésügyi Tájékoztatósi Központ Kft., 2003), 9.

3. *History of Danube Navigation* < http://www.donauschiffahrt.info/en/facts_figures/the_danube_as_a_major_route_of_transport/history/>, accessed September, 2011.



Fig. 4.6. (above) The Devil's Ditch waste canal in Buda.

Fig. 4.7. (top-left) Water vendors with mule-drawn wagons.



The Danube was also an intrinsic water-supply resource. Although the population primarily relied on dug water-wells for drinking, river-water was utilized for other household purposes, such as washing. The river-water was distributed by the *wasserman* [waterman], self-proclaimed water vendors who scoured the streets of Buda and Pest on mule-drawn wagons, shouting *Tónavósz!* [Danube-water] to attract the attention of potential customers.⁴ In addition, as the two towns proliferated into cities, wells alone were no longer able to sustain the growing population. Consequently, water from the Danube was mixed in with well water in order to meet demand.⁵

More importantly perhaps, the Danube also provided a means to expel sewage. The capability of a river to wash away the excrement of an entire city is one of its most critical assets. The Danube very

4. István Bart, *Budapest Krónikája: A Kezdetektől Napjainkig* (Budapest, Corvina Kiadó, 2007), 167.

5. *Budapest Vízellátásának Története* [The History of the Budapest Water Supply] < <http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm>>, accessed September 2011.

explicitly provided this same service. Superficial waste canals, such as the infamous “Devil’s Ditch”, were utilized extensively to direct sewage into the river and away from the two cities.

But the Danube was not only exploited for utility. It also offered itself as a brilliant host for leisurely activities. Before the regulation of its current, the Danube’s surface became a solid sheet of ice for several months every winter. In addition to allowing foot-traffic to flow continuously between Pest and Buda, the transformation also allowed the river to become an ideal skating surface, and even a magnificent stage for large-scale balls and fairs.⁶ Also taking into account the numerous summertime activities carried out along its shores, it is clear how such romantic interactions further elevated the people’s appreciation for the Danube.

Unfortunately, the Danube was not always hospitable. Almost as an act of self-preservation, the river also created serious complications for the progression of the two rapidly evolving cities. Although several methods existed as means to cross the river, it often became a nuisance. Not only did it impede traffic between Pest and Buda, it also delayed their inevitable unification until a permanent bridge could be built. The most problematic time of year to cross the river was in the late winter, just as the ice started to break apart. The venture was potentially life threatening, yet some were still willing to take the risk. Péter Buza, a Budapest based journalist and author, describes their arduous efforts:

There were always people with urgent business, who could not postpone the crossing and wait until the river cleared from the drifting ice. Ferryman or one of the daring boatmen charged a small fortune for putting his life at risk. In the wintertime, in the middle of the small ferryboat, there was a cylindrical

6. Buza, *Bridges of the Danube*, 5.

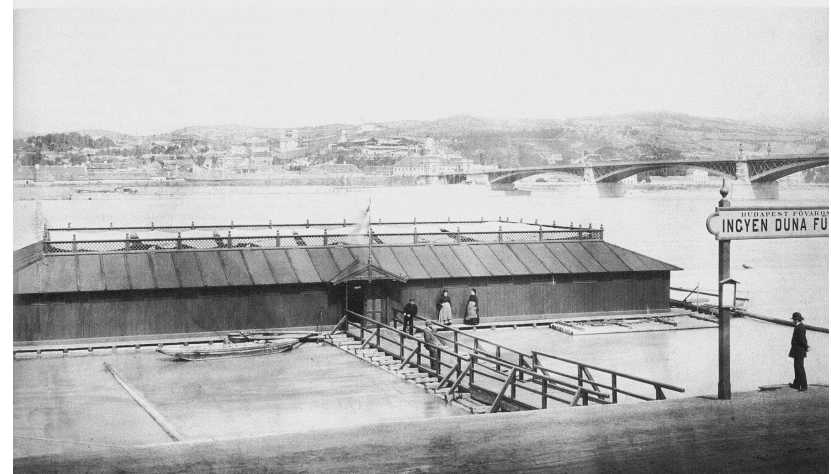


Fig. 4.8. (top) Ice-skaters on the frozen Danube.

Fig. 4.9. (bottom) The free Danube bath near the Margaret Bridge.

started to thaw, break apart, and drift downstream from the centre, the still frozen stretch of impenetrable ice to the south embodied a perfect dam, concealing the river's corridor. With no other direction to flow, the frigid waters of the Danube sprawled over Budapest, submerging it for several days. The flood levels peaked on March 15th and reached a maximum depth of 2.6 meters. Following the disaster, the damage was assessed. Pest suffered the greater loss with 2281 buildings destroyed and 827 severely damaged; 1146 remained. Buda incurred less damage due to its higher elevation with 204 buildings destroyed, 262 severely damaged, and 2023 remaining. In total, between 50 and 60 thousand people were left homeless, and Budapest suffered its most significant setback due to a natural disaster.⁹

Despite the overwhelming loss, Buda and Pest were to be rebuilt. However, with so many potential hazards and annoyances threatening the development and well being of the twin cities, it became a growing consensus that the great river would have to be tamed.



9. *A Nagy Pesti Árvíz* [The Great Flood of Pest] <<http://budapestcity.uw.hu/02-tortenet/1838-arviz/index-hu.htm>>, accessed September 2011.

Fig. 4.11. (top) The flood in front of the Opera Building.
Fig. 4.12. (bottom) Ice-damming to the south of Gellért Hill.

4.2 Taming the Danube

The schizophrenic nature of the river instilled both admiration and fear into the hearts of the people. As a result, the Danube demanded a great deal of respect. However, as technical ingenuity continued to progress throughout the Industrial Revolution, it became evident that Budapest no longer had to “put up” with the fickle river. Suspension bridges could negate it as a barrier, underground water supply/sewer networks could reduce the spread of cholera, and constricting floodwalls could speed up its current in order to reduce the risk of flooding due to ice-damming. By adopting modern techniques already implemented in the industrialized world, the Danube’s threats and annoyances could be entirely eliminated, while its assets continued to be thoroughly exploited.

Count István Széchenyi initiated the first major engineering project in the Pest-Buda region of the Danube. A Hungarian statesman, and an enthusiastic advocate of modernization, Széchenyi believed that Hungary could only obtain autonomy from the Hapsburgs if the country drastically improved its infrastructure, and ultimately, its economy. Consequently, in 1832, he established an association that was to have one fundamental objective – to build a permanent bridge between Buda and Pest in order to unify the two halves of the country. After personally scouting England for suitable engineers, Széchenyi gave the design commission to William Tierney Clark. Being among the earliest designers of suspension bridges, Clark possessed the re-



Fig. 4.13. The Széchenyi Chain Bridge in 1870. Buda Castle, before its expansion, is visible in the background.

quired expertise to span the nearly half-kilometer wide section of the Danube.

Clark's proposal, a design that notably resembled his earlier Hammersmith Bridge over the Thames, was accepted on September 18th, 1838. However, financing issues still remained to be resolved, therefore construction had not begun until July of 1840. By that time, Tierney Clark appointed his English colleague Adam Clark as "resident engineer". His role was to oversee the construction of the new bridge in its entirety – an endeavour that would last a decade.

The first elements to be erected were the cofferdams - several enclosures of pile-rows in the middle of the river, from which water could be expelled to construct the pier foundations. This phase alone took 2 years to complete.¹⁰ The ceremonial laying of the foundation stone then occurred on August 24th, 1842, inside one of the cofferdams. The event was especially unique as this venue was essentially an artificially constructed void in the Danube itself – a testament to the ingenuity of modern man.

Once complete, the Széchenyi Chain Bridge became a symbol of Hungary's long awaited ascension to modernity. In the latter half of the century, it stimulated the unification of the two cities, ultimately promoting Budapest to become the economic powerhouse of Hungary. The bridge achieved wonders as resource of economic and political development. The river no longer had the ability to segregate the two halves of the country and, as a result, it no longer had the ability to restrict its ambitions of modernization.

10. Buza, *Bridges of the Danube*, 19.

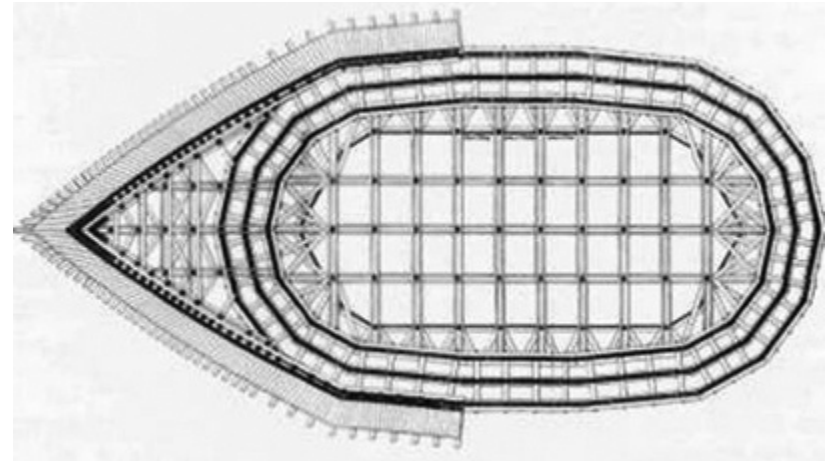


Fig. 4.14. (top) A plan of Tierney Clark's cofferdam for the construction of the pillars.

Fig. 4.15. (bottom) The laying of the foundation stone ceremony inside the bridgehead cofferdam - August 24th, 1842.

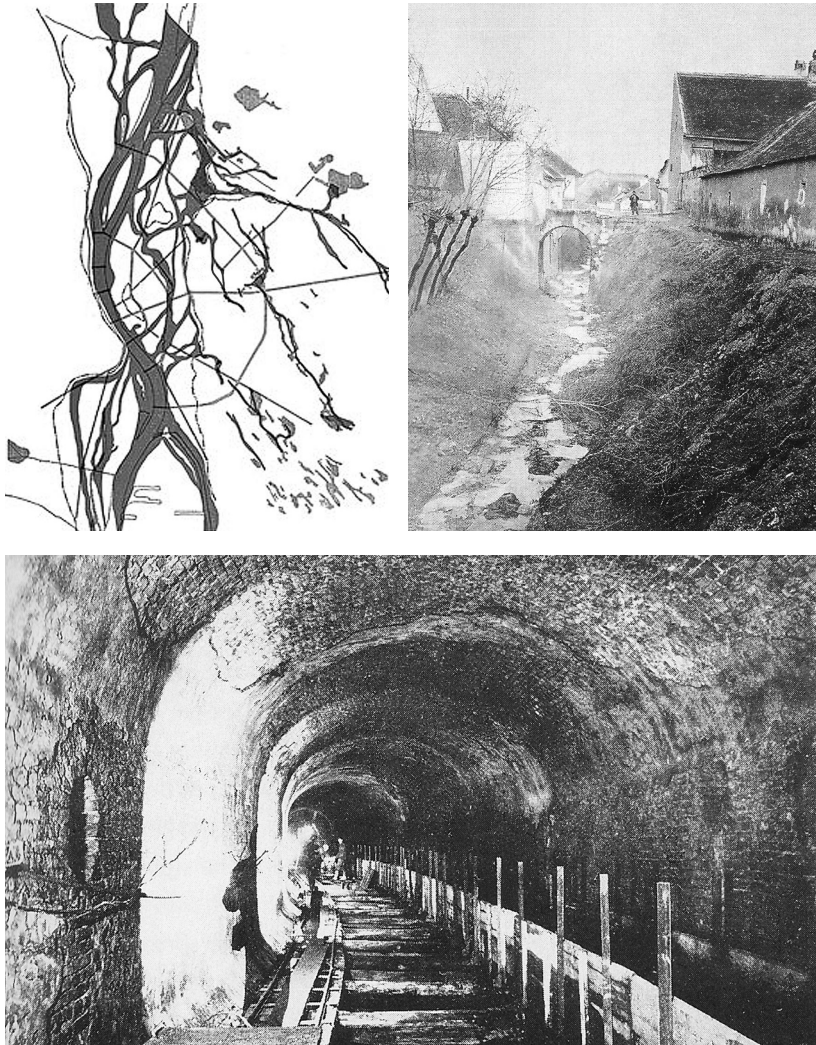


Fig. 4.16. (top-left) The natural watershed of Buda and Pest supplied a means to expel sewage.

Fig. 4.17. (top-right) The Devil's Ditch in Buda before it was arched over.

Fig. 4.18. (bottom) The Devil's Ditch after it became covered and put out of sight.

But another unwanted characteristic of the Danube still remained to be conquered - its conveyance of waterborne diseases. Both the water supply and wastewater management of the twin cities were too inadequate to fight the imminent threat. In fact, their open ditches and stagnant wells only enhanced the distribution of pathogens. Consequently, in 1801, Joseph Anton Johann (Palatine of Hungary) presented a petition to the King, which, among other clauses, requested a regulated sewer system for the city of Pest. In a chapter entitled "Construction of Underground Sewers and the Removal of Other Obstacles", the petition called for the following:

For the purpose of cleanliness of the streets and the health of the population, each city needs underground sewers. House owners should be prompted to conduct small sinkers from their houses to the main sewers and to plug the cesspools which contaminate the streets.¹¹

Although construction of underground wastewater channels had already begun in the late 18th century, they were all independent endeavours. Each channel served only one building and was generally laid out to attain the shortest possible route to the Danube. The first such wastewater channel was implemented in 1780, and served the House of Invalids in Pest. Similar projects shortly followed, however, it wasn't until 1847 – 46 years after Palatine József's petition – that a sewage regulation decree was finally approved by the city council of Pest.

Sewer-related construction started to gain momentum in the subsequent decades. By 1860 Buda was endowed with 26,300 meters of underground sewer pipes, while Pest had already reached more

11. Joseph Anton Johann, "[Petition to the King, 1801]" as found on < <http://www.fcsmrt.hu/en/>>, accessed August 2011.

than twice that length at 54,000 meters.¹² The inception of a proficient wastewater network was well on its way, however, its components still remained largely isolated from one another.

The design of a harmonized and comprehensive sewer network was not conceived until 1869, when an English entrepreneur commissioned Sir Joseph Bazalgette to draw up a proposal for the improvement of Pest's existing sewer system. After familiarizing himself with the existing infrastructure, Bazalgette proposed the same "tout à l'égout" (all-in-one sewer) system that he already successfully implemented in London. The system would collect rainwater, as well as household and

industrial wastewater, into a unified main pipeline before expelling it into the Danube.

The design was submitted to an expert committee, which included Ferenc Reitter, one of the most influential and prolific Hungarian engineers of the time. In 1873, the year of Buda and Pest's unification, Reitter drafted a plan of his own. He appropriated much of Bazalgette's design for Pest; however, he now had to consider Buda's wastewater problems as well. His design was not initially constructed, but its concepts were preserved in the work Otto Martin, the engineer who later prepared the implemented sewage plans for Budapest.

12. *The History of the Sewage of Budapest* <<http://www.fcsmrt.hu/en/>>, accessed August 2011.

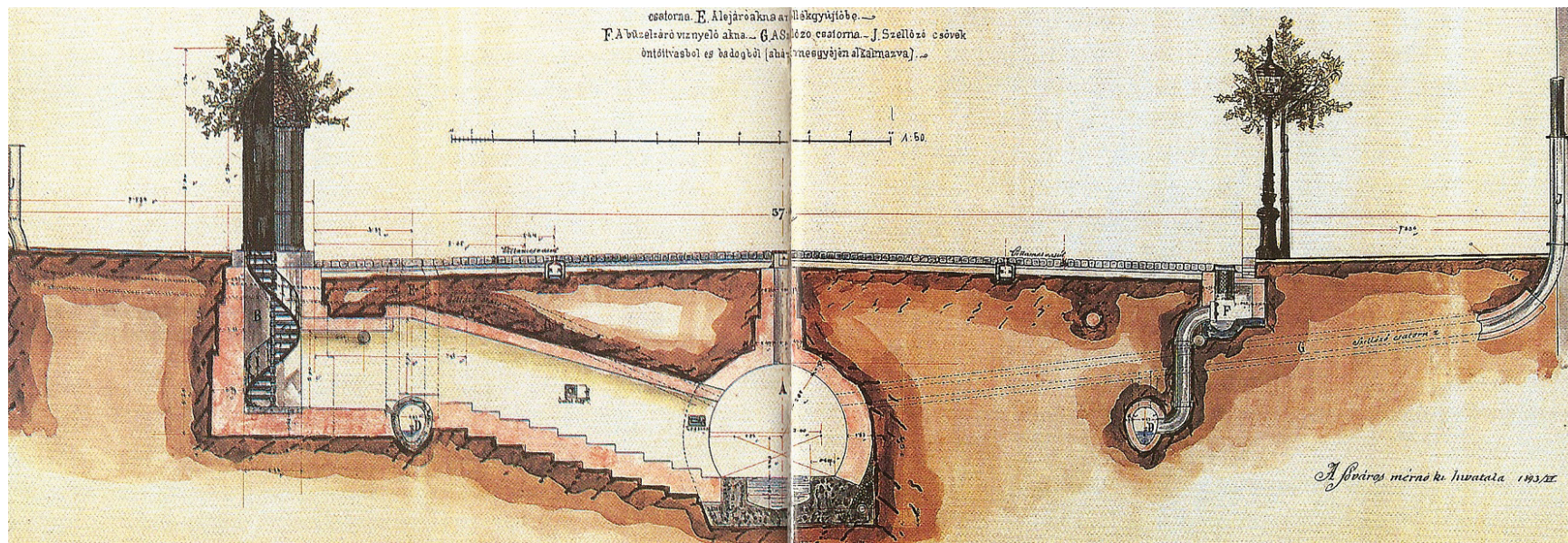


Fig. 4.19. A typical section of Budapest's Ring Road drawn by the city's Engineering Department in 1893.

Concurrently, as the sewer network proliferated, the implementation of a comprehensive water-supply system was getting just as much attention. Although population levels drastically increased in the 19th century, the main culprit behind the endeavour was not water shortage, but water contamination.

Until 1868, the population relied solely on backyard water-wells for drinking. Consequently, people often contracted diseases. In response, Lajos Forster was commissioned to prepare plans and a budget for a water-supply system that could sustain Pest with filtered water from the Danube. Based on his proposal, Forster was issued a permit to form a waterworks company in 1856. However, a lack of financing, as well as his untimely death, postponed the project's realization. Several subsequent attempts were made to bring the city's water supply up to an industrial standard. These too failed to reify, primarily because the city remained indecisive as to whether the project was to become a private or a public enterprise.

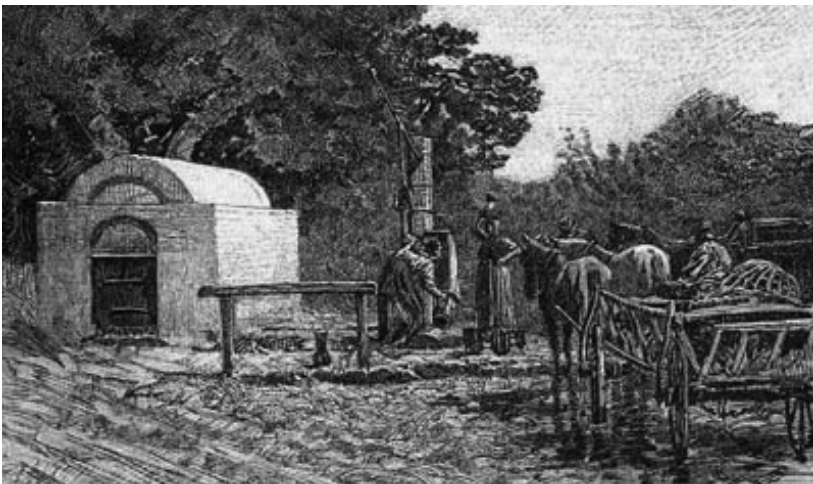


Fig. 4.20. Buda's main well - rehabilitated in 1718, after it was rendered useless during Ottoman rule.

It was not until 1866 when a new impetus hastened the decision making process. A cholera epidemic invaded the twin cities, demanding resolute action. Consequently, on September 24th, 1867, the city council of Pest determined that a temporary water-supply system was to be built with public funding, by a reputable expert.

William Lindley, a renowned English engineer, arrived in Budapest in late January of 1868. By February 1st his proposal was complete, and the contracts were signed less than two weeks later. His design specified a water carrying capacity of 9100 m³/day - 5 times the city's recommendation. The construction of the waterworks station was initiated in April at the site of today's Parliament building. By December of the same year, Lindley's water-supply network was operational, supplying filtered Danube water to 37,000 residents.¹²

The project continued to expand, but so did the population. In 1871, only about one fifth of the city's residents were sustained by Lindley's water-supply system.¹³ In addition, budgetary constraints restricted Lindley to using natural filtration, a method that often resulted in poor water quality. Consequently, in 1873, the newly unified city of Budapest opened its first waterworks office to finally implement a permanent and sustainable water supply system.

János Weinn, a colleague of William Lindley, was elected as director. His first order of business was to expand Lindley's temporary network in order to meet the immediate demand. He also designed and constructed a permanent waterworks station for Buda near Margaret Island. His building is functional to this day, and has been since its conception in 1882. The fact that it has not become outdated is a testament to Weinn's foresight. His design took into account the city's rapid proliferation, and was constructed to easily acclimate to its evolution.

12. *Budapest Vizellátásának Története* < <http://budapestcity.uw.hu/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm>>, accessed September 2011.

13. *Ibid.*



Fig. 4.21. William Lindley's temporary waterworks station between Margaret Bridge and the site of the Parliament building in 1895.

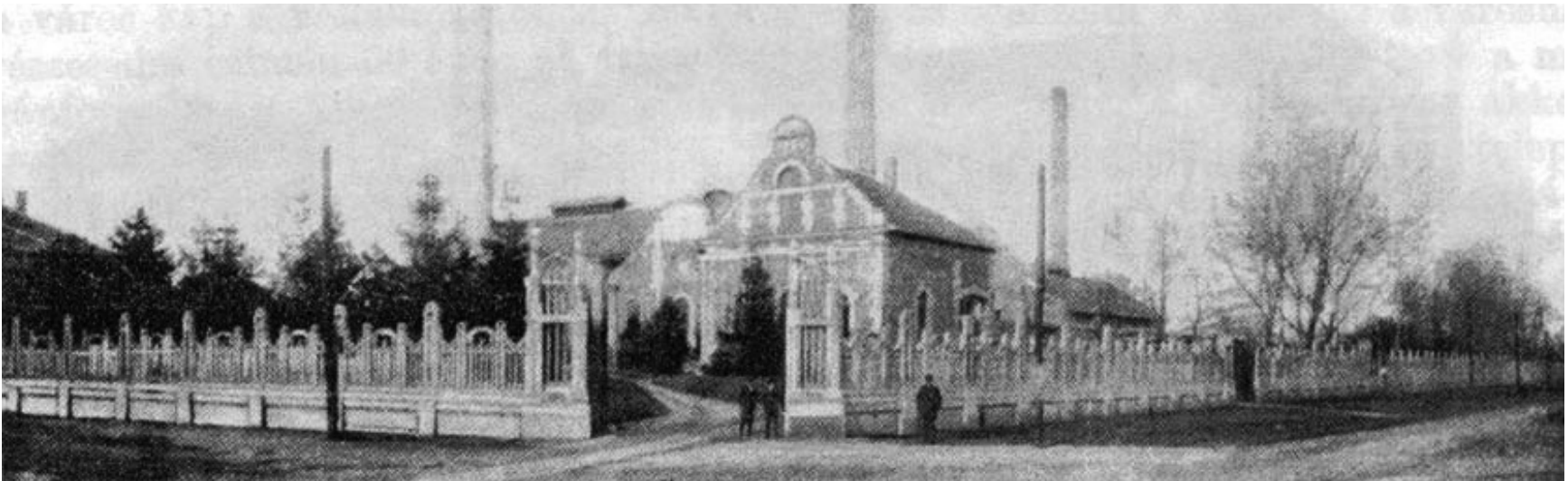


Fig. 4.22. János Weinn's permanent waterworks station for Pest, located in Káposztásmegyér near Szentendre Island.



Fig. 4.23. The Danubius Fountain in Kálvin Square.

The upgraded system of Pest, however, still had its shortcomings. The construction of the Parliament building displaced the existing waterworks station further to the north, and the makeshift machine houses and wells simply could not accommodate the growing demand in their new location. As a result, in 1884, János Weinn was entrusted with the task of proposing a permanent waterworks station for Pest. It was to be located at the border of Káposztásmegyér, across from Szentendre Island. He completed his assignment in only two months; however, its implementation did not begin until 1893.

And so, by the end of the 19th century, Budapest's management of its drinking water, as well as its wastewater, was starting to be under control. Its streets and squares began to resemble the modern city it inspired to be. Putrid wastewater no longer contaminated the air, and as of 1883, the Danubius fountain showcased the city's command over its most precious natural resource. Cholera outbreaks became much less severe, and the city was ready to enter its most prolific era.



Fig. 4.24. Kálvin Square with the Danubius Fountain and the National Museum in the background.

Although these accomplishments were quite extraordinary, the most ambitious undertaking during Budapest's industrialization came with the regulation of its riverbanks. In the wake of the great flood of 1838, Vásárhelyi Pál demonstrated that the flood was a result of ice-damming, and subsequently prepared a comprehensive design for the regulation of the Danube's embankments for the twin cities. His plans failed to reify, and it was not until 1867 – the year of the dual monarchy compromise – that the newly established Hungarian government reintroduced the idea of the river's regulation.

Previously, only minor projects had been implemented to improve the structural integrity of the embankments. In fact, the first such project was more of an initiative to improve transportation infrastructure, rather than flood prevention. This occurred in 1853, when the Danube Steamboat Company built 345 meters of stone wharves and floodwalls at the base of the Széchenyi Chain Bridge in Pest. In the 1860's, the city extended the wharves by an additional 374 meters to the North, and approximately 700 meters to the South.¹⁴ Although this greatly improved loading and unloading of cargo, it could not effectively prevent extensive flooding.

By 1870, however, the Hungarian government passed a law for the comprehensive regulation of the Danube River. Within the next 5 years, the stretch of the Danube flowing through Budapest was entirely transformed - almost beyond recognition. The main objectives of the regulation were to constrict the river's width in order to induce a stronger current, to dredge the riverbed in order to accommodate increased volume, and to introduce stone wharves to improve loading cargo for transportation. All in all, 17.4 kilometers of dykes and constricting floodwalls were built - eliminating 2,098,000 square meters from the river's surface area. In addition, a total of 97,200 square meters of wharves were created, stretching 10.7 kilometers.¹⁵

14. Gábor Preisich, *Budapest Városépítésének Története* [The History of the Construction of Budapest] (Budapest, TERC Kft., 2004), 117.

15. A Duna Szabályozása [The Regulation of the Danube] <<http://budapestcity.uw.hu/02-tortenet/1870-a-duna-szabalyozasa/index-hu.htm>>, accessed September 2011.

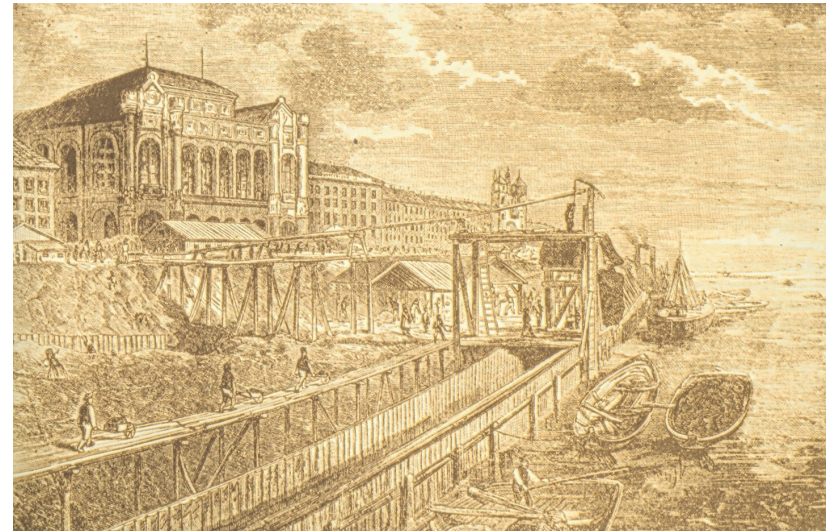


Fig. 4.25. A wood engraving from 1866 depicting the construction of the lower wharf and floodwall.

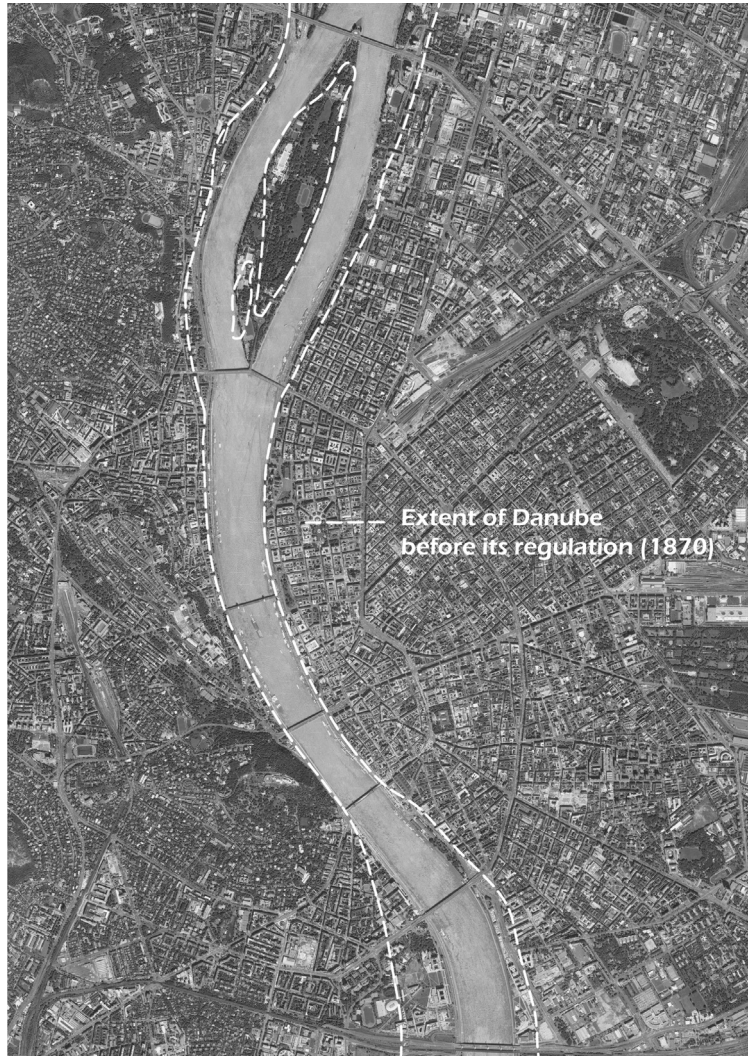


Fig. 4.26. A map comparing the river's width before and after its regulation.

Budapest's new defence mechanism was put to the test in 1867 when a second major flood threatened the city. The endeavour proved to be successful, however, flooding of Buda's unprotected southern region urged the work to continue without delay. By 1885 the necessary work was complete, and Budapest finally enjoyed undisputed command over its river.



Fig. 4.27. The Construction of the embankment near Gellért Hill.

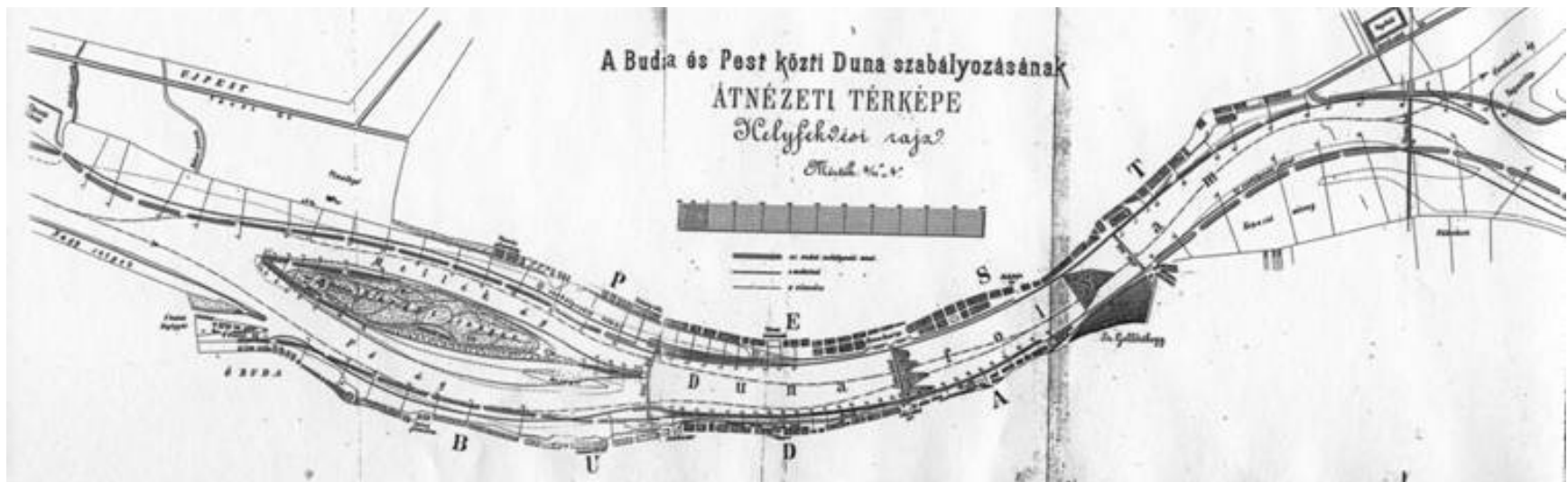


Fig. 4.28. The plan of Danube's regulation between Buda and Pest shows the extensive interventions.

4.3 The Consequence of Ingenuity

*I do not know much about gods; but I think that the river
Is a strong brown god – sullen, untamed and intractable,
Patient to some degree, at first recognized as a frontier;
Useful, untrustworthy, as a conveyor of commerce;
Then only a problem confronting the builder of bridges.
The problem once solved, the brown god is almost forgotten
By the dwellers in cities – ever, however, implacable (T.S. Elliot, 1941)*

Ingenuity is the lifeline of modernization. It's the human trait that has allowed us to remain in control over nature, under any given circumstance. Whether it's building a bridge to cross a river, or setting up a network to improve communications, our desire has always been to attain ultimate safety and efficiency in our daily endeavours. However, for all of our explicit achievements in ingenuity, there are implicit consequences. Budapest's success in taming the Danube River is the epitome of this conundrum.

When the Széchenyi Chain Bridge was completed, it not only undermined the river's sovereignty, it also took away from its grandeur. Nature was no longer awe-inspiring; the city was. Elevated 10 meters from the Danube's surface, clients willing to pay the toll, no longer had to concern themselves with the rushing river below their feet. They could bask in their human superiority as they transgressed the humbled river.

Eventually, as bridges and tunnels proliferated throughout the city, condescension turned to apathy. Today's inhabitants of Budapest have become so acclimated to crossing the Danube with disregarded ease, that they often don't even acknowledge its presence. Consequently, as T.S. Elliot affirms, the brown god has been forgotten.

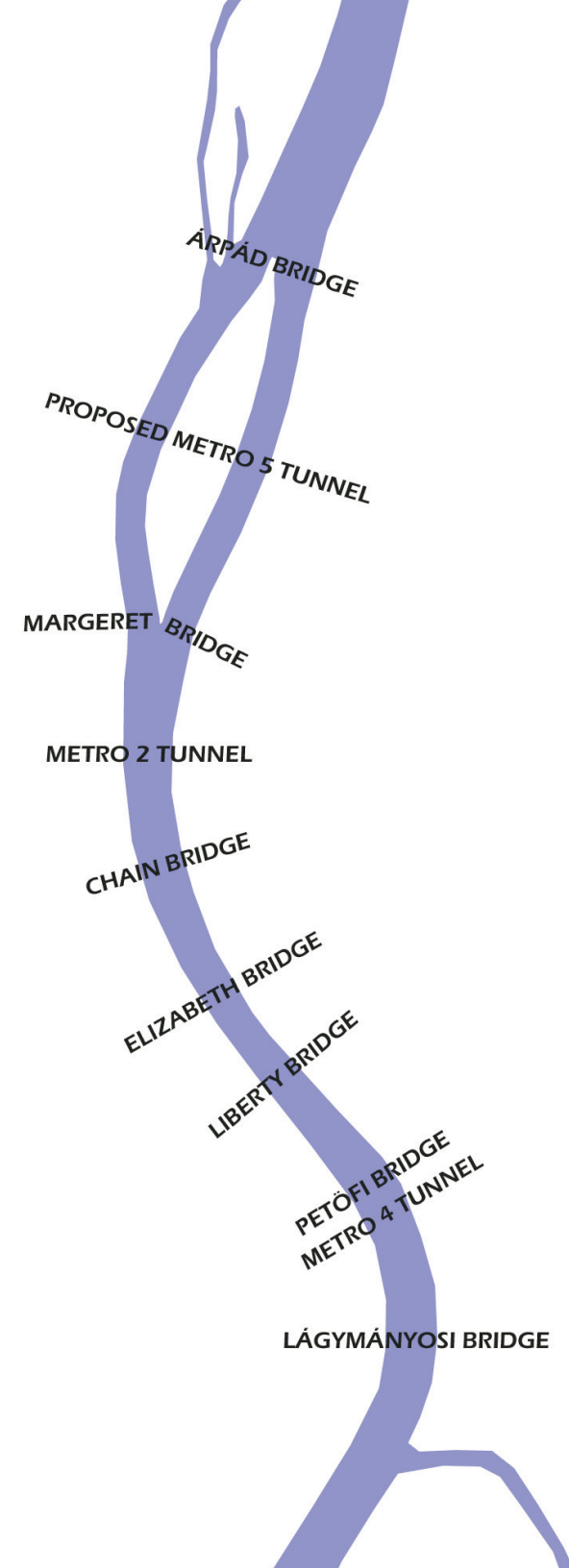
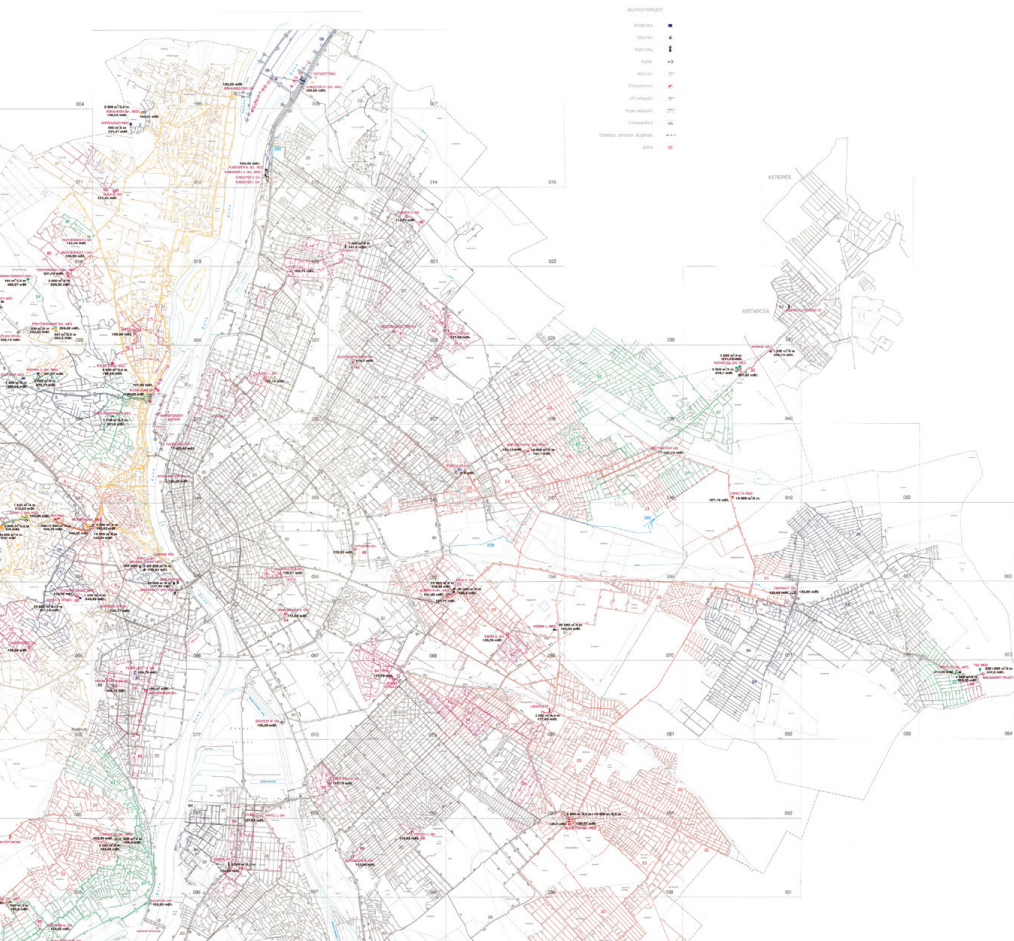




Fig. 4.29. (left) An illustration showing the proliferation of bridges and tunnels in Budapest.

Fig. 4.30. (above) A photo taken from Castle Hill, showing the many bridges of Budapest. Elizabeth Bridge is in the foreground, Liberty Bridge in the middle, and Petőfi Bridge in the back.



An even more pertinent consequence that arose from taming the Danube was the resulting inability of Budapest's urbanites to trace the origin of their drinking water. Once the water supply network began to function, the urban population no longer had to personally obtain water for the household. Therefore, after the novelty of the faucet wore off, people's attitude toward the source of their water supply became one of indifference. Consequently, in today's daily routines, the people of Budapest fail to associate the water running out of their tap, with the water constituting the mighty Danube. And thus, profound appreciation for the river has progressively died out.

Much of the same can be said for the consequence that arose from implementing an underground sewer system. It is by no means an undesirable solution for the wastewater management of the city. However, it too disguises the Danube's intrinsic role in sustaining Budapest. Whereas once, the wastewater of a household could be observed as it trickled down superficial waste canals and swept away by the Danube, today's wastewater simply disappears into a drain, never to be seen again. This is, of course, a desirable condition. However, as the population become distracted by such efficiencies, their reliance on the Danube as a cleanser of their city, become entirely abstract.

Fig. 4.31. (left) The water-supply network of Budapest.

Fig. 4.32. (right) An illustration depicting extensive yet unwitting use of the river.



Wells

Purification Plants

Reservoirs

Water Towers

Pumping Stations

Drinking

Washing

Bathing

Playing

Cooking



Water Supply Network - 5100 km

Sewer Network - 5350 km

Outlet

Treatment Plants



Fig. 4.33. A typical scene on the Danube's embankments in Budapest.

The most intrusive consequence came about with the regulation of the river's embankments. Although the wharves once served as ideal locations for markets, the progressive nature of modernization has turned them into highways and tramways, physically separating the city from its lifeline. In addition, the design of the embankment offsets the upper wharf from the lower wharf by a shear drop of several meters. As a result, it is often difficult to approach the elevation of the river's surface. But the physical segregation imposed by the embankments is not the only consequence. Romantic scenes of skaters and dancers on the frozen river are now only a vague memory. The constricting embankments ensured that the faster current would never again allow the river's surface to freeze over completely. In short, the stone embankments have encouraged all human activity to disperse inland.

Through numerous such achievements in ingenuity, the notion of the Danube as a life-giving entity has become an abstract concept. In practice, it very much lives up to the description; it's the source of the city's water supply, an intrinsic transportation corridor, as well as a refiner. However, its services are now so obscure that urbanites, through their blind exploitation, are no longer required to acknowledge the river's role in sustaining the city. Instead, it is now simply an element of Budapest's grand decor. As tourists and natives stroll along the promenade, the valley of the Danube serves only as dramatic tension between the foreground and background of the Romantic painting that is modern day Budapest.



Fig. 4.34. A popular vantage point for tourists with the Little Prince Statue in the foreground and Buda Castle in the back.



5.0 Széchenyi Square



Fig. 5.1. (top) Széchenyi Square viewed from Castle Hill.

Fig. 5.2. (bottom) Aerial view of Széchenyi Square.

Located in Pest at the base of the Chain Bridge, Széchenyi Square is ideally situated in the heart of the city. It was once Budapest's main port – a mediator between the city and its river. Today it is a negotiator of vehicular traffic, welcoming and diverting motor vehicles by way of an oval-shaped roundabout, larger than a hectare. Enclosed within the perpetual circling of automobiles lies an inaccessible park. Other than accommodating statues of historical figures, its only purpose is to please the grandeur of the surrounding buildings with its natural décor. Tourists flock to the square, but only to obtain the postcard-like snapshot of Buda Castle perched up on the hill across river. Once satisfied, they continue on their way, never having considered the intrinsic connection the Square once had with the Danube.

Through its modernization, Széchenyi Square has become a glorified thoroughfare. Although its function has always been more utilitarian than recreational, it has remained an intrinsic part of the urban fabric throughout most of its history - primarily as a gateway to the city. This is no longer the case. The square has become a hindrance rather than an advocate in maintaining the city's relationship with its river. This chapter illustrates this transformation by delineating the

various uses of the square throughout its evolution. It also presents an in depth analysis of the existing conditions that obstruct visitors from approaching and interacting with the river.

5.1 Site History

If this chapter had been written only a few months ago, the site in question would be referred to as Roosevelt Square. Considering that it has already been renamed six times, the recent change in designation seems to be almost routine. For the most part, the reforms have been quite rational; as the function of the square changed, so did the name. In fact, the names have often been indicative of the various services that the Square has provided. This correlation can therefore be a useful guide in understanding the character of the Square throughout its evolution.

The site of today's Széchenyi Square once fell outside the city walls of Pest. During Ottoman rule the area served as a Turkish cemetery. However, it never received a specific designation until 1789, when József Pollencig's city plan labelled the empty undulating terrain as "Städtisches Zimmer Platz". The area was largely unused. It had a natural deposit of debris, alluvium, and garbage, due to the slow current induced by the slight bend in the Danube's flow. Consequently, it was an undesirable area for the city to develop.

It was not too long, however, before the city started to recognize the potential inherent in the unused space. As the city continued to grow, it required increasingly more lumber to satisfy its need for building material. The slow current in this section of the river made it the safest and most efficient place to unload such cargo. Therefore, it quickly became the established area for not only unloading lumber, but also for its processing. The designation of the Square later became official

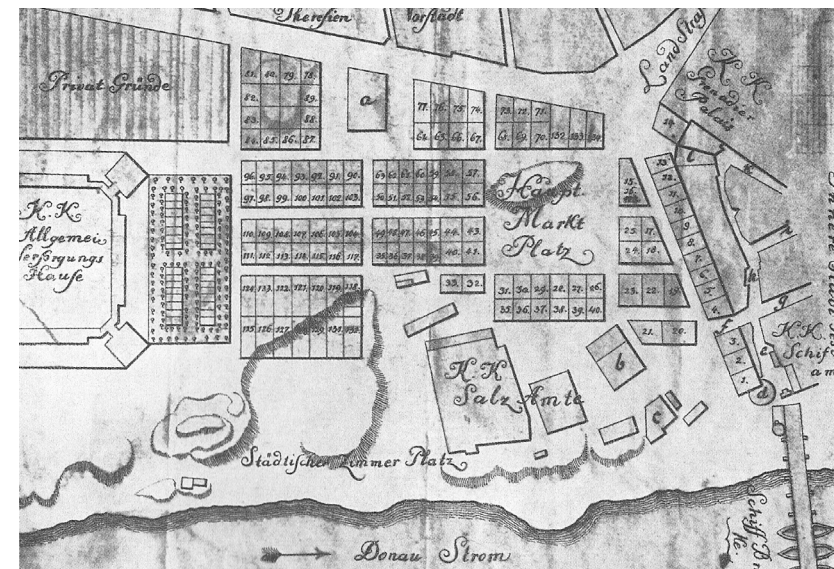
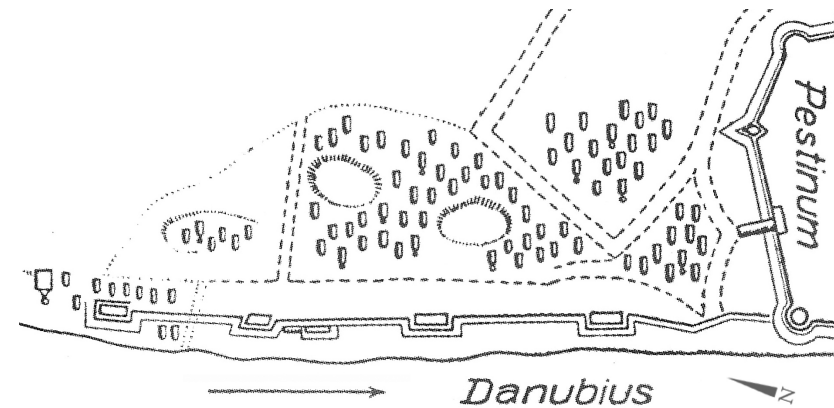


Fig. 5.3. (top) A Turkish cemetery on the site of today's Széchenyi Square.
Fig. 5.4. (bottom) Joseph Pollencig's city plan of 1789.



when János Feszl purchased much of the land in 1791 and operated a sawmill there until 1833.¹ Consequently, the appropriated space came to be called “Carpenter Square”.

It was in 1805 when János Hild prepared the first city plan that allocated plot lines over the square. Although the sawmill, at this point, was officially sitting on several building plots, it remained operational for three more decades. The remaining plots, however, were soon sprouting ornate buildings, strictly regulated by the city’s beautification committee to remain in the Classical style. By 1837, seven such buildings defined the eastern and southern perimeter of the newly dubbed “Classical Square”.

1. Hajós, *A Roosevelt tér*, 9.

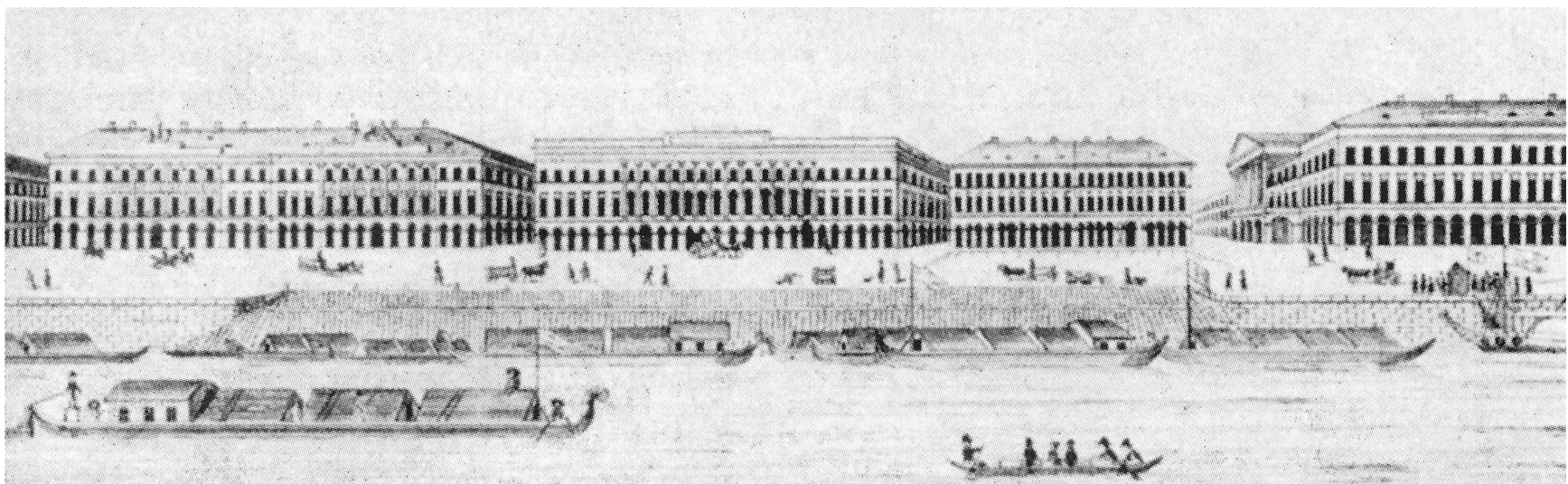


Fig. 5.5. (top) János Hild’s city plan of 1805 depicting plot lines drawn over the site.

Fig. 5.6. (bottom) The site as it appeared under its new name “Classical Square”. The buildings from right to left: Lloyd palace, Diana bath, Libaschinsky-Coburg palace, Nakó palace, and Ulmann palace.

Despite its ostentatious new name, the Square continued to function as a port - not only for receiving various types of goods, but passengers as well. It became such an animated space that many notable visitors took note of its bustling activity. Entering the city at its main gateway, a Russian diplomat once wrote in his journal that they could hardly disembark their boat due to all the commotion. Several years earlier, a German economist named Ferenc Schams wrote that the masts of the moored boats depicted a scene only found in a dense forest.² Given such descriptions, it is not difficult to imagine why the port was renamed “Unloading Square” by 1847.

2. Ibid., 12.

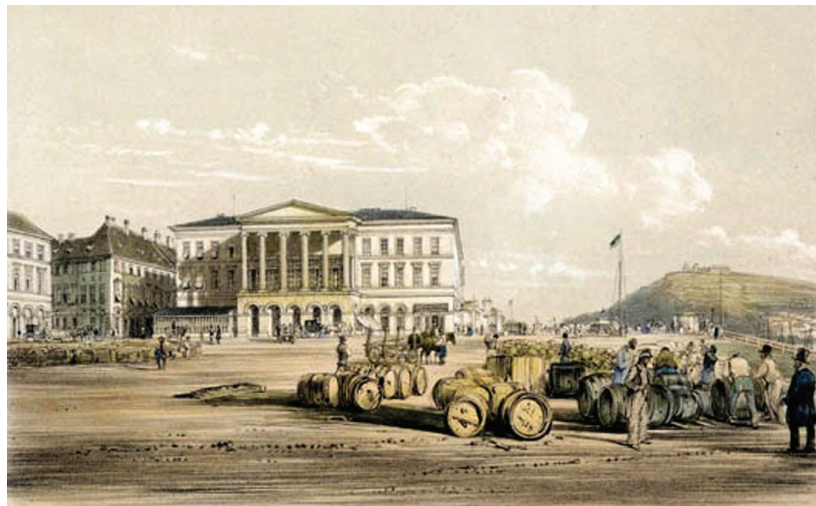


Fig.5.7. (above) Barrels of goods sitting on the site with Lloyd palace and Gellért Hill in the background.



Fig. 5.8. (top) The sawmill on the site of today’s Academy of Sciences located at the north side of the Square.

Fig. 5.9. (bottom) The embankment with Lloyd palace and Gellért Hill in the background.



Fig. 5.10. (top) A scene from the film entitled “The Bridgeman” depicting the construction of the Chain Bridge. The square can be seen in the background.
Fig. 5.11. (bottom) Procession of the National Guard at the Chain Bridge

During the construction of the Széchenyi Chain Bridge, the Square was primarily used for storing and processing building materials. As such, it played an intrinsic role in aiding the construction of the bridge. For example, cement plants were still non-existent in Hungary. As a result, the concrete required to form the pillars of the bridge had to be prepared by heating imported limestone on-site.³ Once the bridge was complete, it returned the favour by hastening the Square’s further development. It is no surprise, therefore, that the Square came to be referred to as “Chain Bridge Square” as of 1848.

It was under this name that the Square experienced the debilitating turmoil brought about by the War of Independence in 1848 and ‘49. Hungarians wanted to gain autonomy from the Hapsburg Empire, and were initially quite successful. However, their efforts were soon thwarted when minorities within Hungary lashed out against certain reforms, creating alliances with Austria. As the nearly completed

3. Ibid., 14.



Fig. 5.12. (above) The bombardment of Buda and Pest, May 13, 1849.

Chain Bridge was the only link between the two halves of the country, the Square had an intrinsic role in the events that ensued. In May of 1849, during Pest's bombardment, the buildings around the Square were considerably damaged. Two months later, as allied Russian and Austrian forces reclaimed the city, the open space was appropriated as a camp for the Cossack army.⁴ Hungary failed to gain its independence, and in 1858, the Square was renamed "Franz Joseph Square" – after the Austrian Emperor.

In 1853 the Danube Steamboat Company claimed a large portion of the Square by building stone wharves and warehouses along the embankment. Although these sat at the base of the bridge – several meters below the rest of the Square – they severely limited public access to the river. For the first time, the Square became physically cut off from the Danube.

4. Ibid., 16.

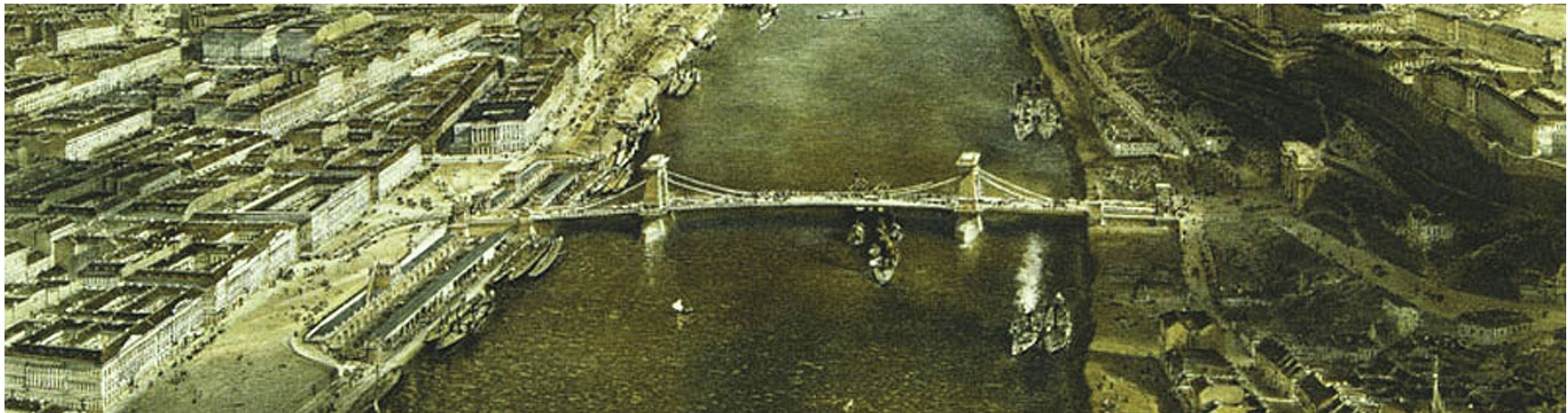
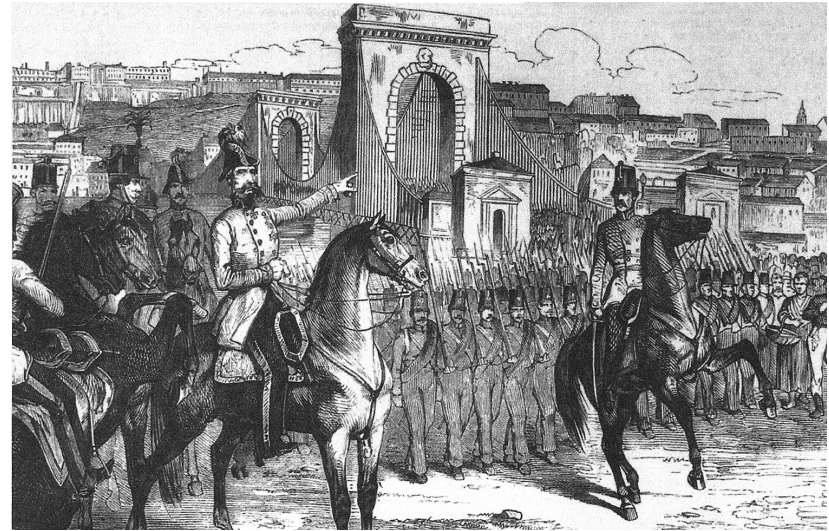


Fig. 5.13. (above) General Haynau and the Austrian army enter Pest on July 11th, 1849.

Fig. 5.14. (below) Alt Rudolf's bird's-eye-view of Buda and Pest, 1855. The newly built stone wharves and warehouses of the Danube Steamboat Company can be seen at the foot of the bridge on the left side of the image.

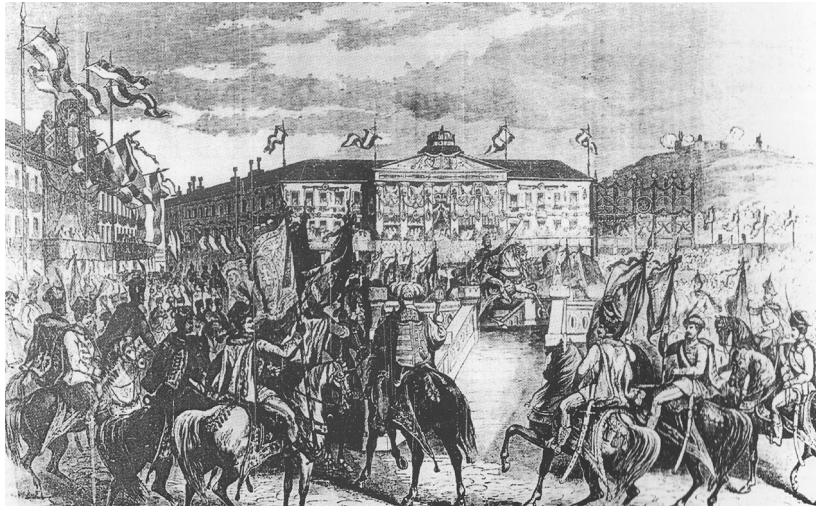


Fig. 5.15. Franz Joseph performing the “Kardvágás” ritual on the coronation mound.



Fig. 5.16. The square after the coronation ceremony with the mound at its centre and two new rows of trees. The Academy of Sciences can be seen in the background.

The elevated portion, however, soon became the host for an exceptionally public event. The coronation ceremony of Franz Joseph - Apostolic King of Hungary - was held on June 8th, 1867, not long after the dual monarchy compromise. In preparation for the event, soil from all the counties of Hungary were transported to the Square in order to build a three meter tall mound. The mound served as a stage for the symbolic *Kardvágás* [Swordcutting] ritual - a gesture in which the newly crowned King points his sword to the four cardinal axes, claiming to defend his country from whichever direction it may be attacked. The event was eagerly anticipated and in very high demand. Windows surrounding the square were rented out to the public for 200-300 Forints. Some keen observers even removed shingles from rooftops in order to poke out their heads, hoping to catch glimpses of the momentous event.⁵ Following the grand occasion, two rows of trees were planted diagonally from both corners of the Square leading to the Chain Bridge. The Academy of Sciences was built two years

5. Ibid., 18.

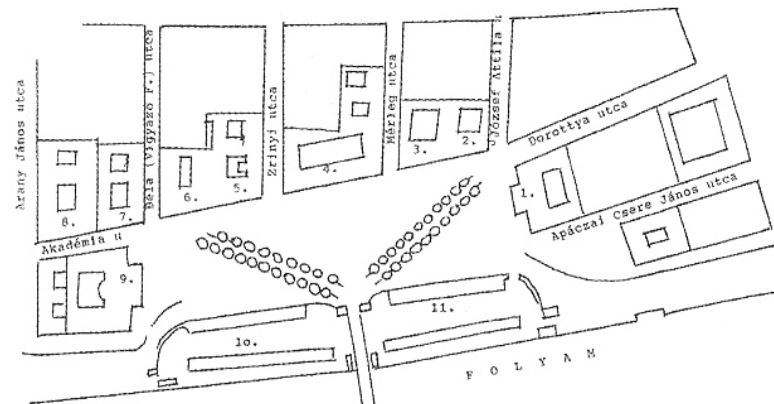


Fig. 5.17. The layout of the Square after the coronation ceremony.

prior, closing off and defining the northern perimeter of the Square, reiterating Hungary's strive for industrialization. The mound remained untouched for ten years.

The next transformation came in 1872, when the department of public works announced a competition for the rejuvenation of the Square. The winning entry proposed a symmetrical design, with a statue on either side of the bridge's axis. These are the monuments depicting István Széchenyi and Ferenc Deák, which remain in their original positions to this day. However, they were originally confined within two separate parks bisected by the main thoroughfare; a strategy that allowed for an efficient compromise between carriage and pedestrian circulation. By the early 20th century, an extended tramway also passed through the Square from the southwest to the northeast corner. This arrangement, including the warehouses of the Danube Steamboat Company, remained intact under the name "Franz Joseph Square" until WWII.



Fig. 5.18. The square after its transformation in 1895.

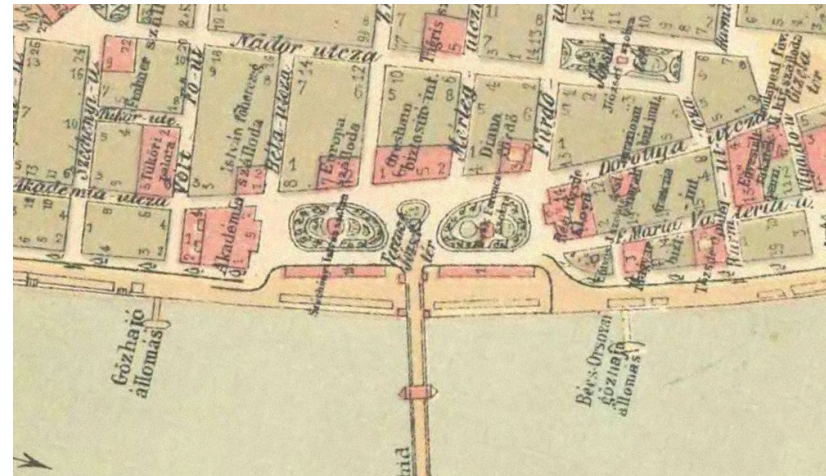


Fig. 5.19. Elements in the new layout of the Square begin to resemble the existing roundabout.



Fig. 5.20. View from the south side of the square.

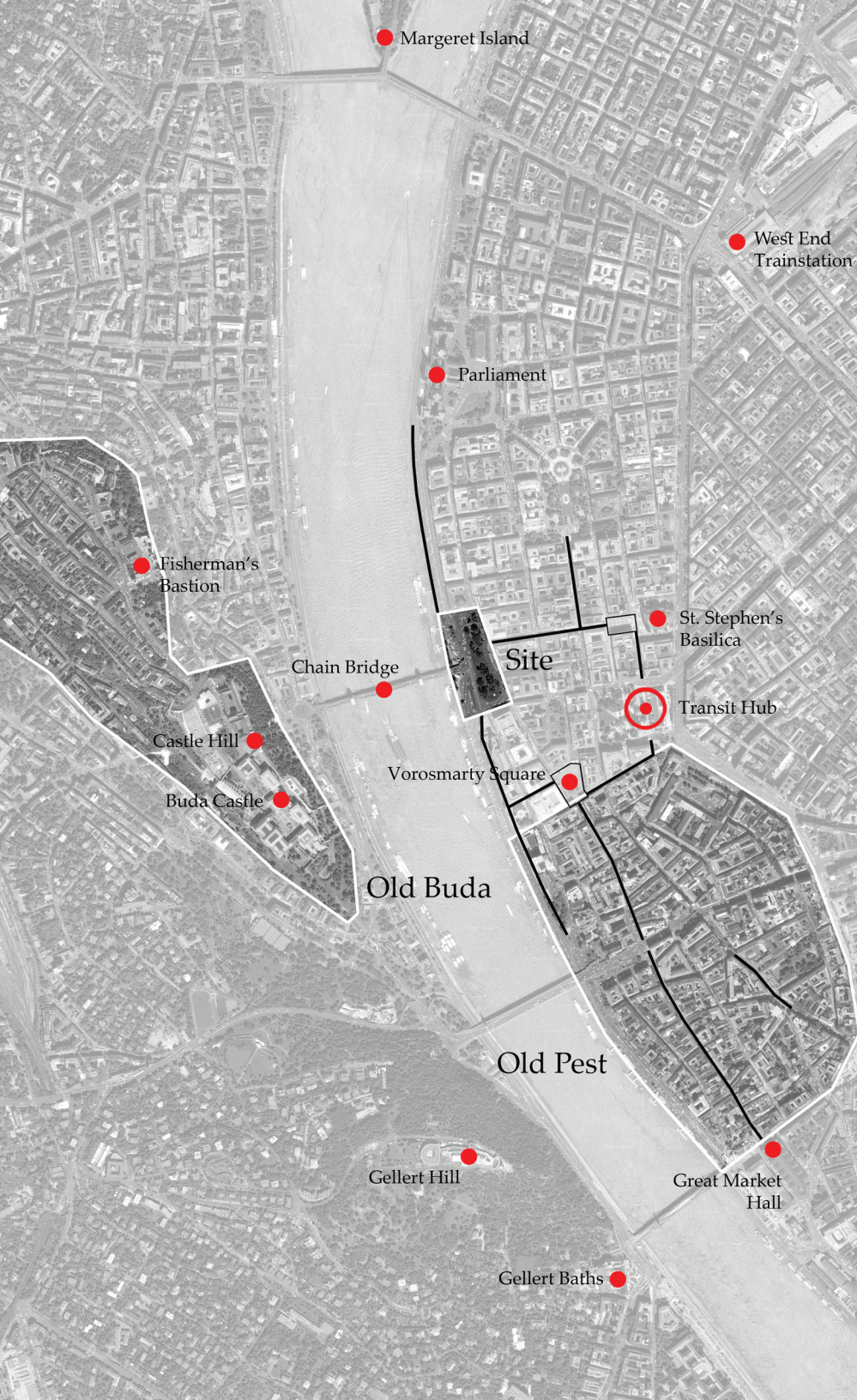


After the carnage of WWII, the Square laid in ruin. Many of the buildings were irreparably damaged, including the Széchenyi Chain Bridge, which was bombed on January 18th, 1945. One year later, the Square was renamed “Roosevelt Square” in honour of the former American president. It was under this new name that the Square was reshaped into the motor vehicle paradise it is today. By 1949 the bridge was rebuilt. The warehouses of the Danube Steamboat Company were demolished, making way for a new tramway flanking the Danube. As a result, the Square remained detached from the river. The parks surrounding the monuments of Széchenyi and Deák were joined together, essentially becoming interior landscaping for the newly implemented roundabout. Although the park was rehabilitated in 1950, it has since remained virtually isolated from pedestrian traffic. Today, the Square remains an integral part of Budapest’s history. Unfortunately, it is no longer an inhabitable space.



Fig. 5.21. (top) The Chain Bridge and Buda Castle after the bombing.

Fig. 5.22. (bottom) The inauguration ceremony of the new bridge on November 20, 1949.



5.2 Site Analysis

Although the perpetual movement of cars, trucks, buses, and trams, have turned Széchenyi Square into an uncomfortable environment, it still remains littered with pedestrians. For the most part, they're comprised of tourists simply passing through; and the ones that do take a minute to stop and absorb their surroundings are less interested in the square itself than they are in the view it provides of Castle Hill on the opposite shore. Some of the most popular tourist destinations surround the site, including the Chain Bridge itself. Therefore, the square is an obvious choice of departure when moving on from the nearby attractions of Pest to the medieval remnants of Buda. It is also an efficient thoroughfare for commuting locals, as there is a nearby transit hub along with several pedestrian-only streets. Consequently, when considering the site for redevelopment, its inherent role as a thoroughfare is a beneficial trait that can be taken advantage of. The site is ideally situated to attract pedestrian traffic and has great potential in providing the passer-by with amenities other than hazardous sidewalks and an inaccessible park.

Fig. 5.23. (left) A map of downtown Budapest indicating the site of Széchenyi Square and its relation to surrounding points of interest.



Fig. 5.24. (top) Széchenyi Square satellite photo.

Fig. 5.25. (bottom) The view from Széchenyi Square looking across the river. Significant landmarks from left to right: Gellért Hill, Buda Castle and Castle Hill, Széchenyi Chain Bridge, and the Academy of Sciences.

5.2.1 Setting

The setting of the Square is especially unique in that it offers an unobstructed panorama of Buda's fabric nestled within the undulating terrain. The Buda Castle, perched on Castle Hill, dominates the skyline with unequivocal grandeur, juxtaposing its imposing rigor against the subtlety of the natural landscape. Consequently, the presence of the river has become more relevant as an artistic element of a picturesque composition, than it has as a reminder of the city's dependency on natural resources. Given these circumstances, the Square is situated within such a setting that it compels visitors to revere the beauty and grandeur of the built environment, more so than the nurturing qualities of the mighty Danube.





Fig. 5.26. Significant artefacts in Széchenyi Square.

5.2.2 Urban Artefacts

In addition to the peripheral buildings, there are several elements within the Square that need to remain untouched due to their historic relevance. First and foremost, the embankment wall itself has been under UNESCO protection since 1987, as a result of its role in the city's evolution. The two observation towers, flanking the embankment at either end of the site, are remnants of the port that once operated under the Danube Steamboat Company. They mark the extent of the area that contained the port's warehouses from 1851 until the early 20th century. The foot of the Chain Bridge, including the steps leading to the lower wharf, also needs to remain in tact, as it constitutes the original construction from its inauguration in 1849. Two statues of historical figures have also become an integral part of the Square's

history. These monuments, depicting István Széchenyi and Ferenc Deák, have been a part of the Square since the unification of Budapest in 1873. Consequently, any new redevelopment of the Square should accommodate them, ideally in their original positions. In addition to these urban artefacts, there are also several mature trees that ought to be considered when proposing ideas for the Square's redevelopment.



Fig. 5.27. (top-left) The István Széchenyi Statue.

Fig. 5.28. (top-middle) Gresham Palace.

Fig. 5.31. (right) The south observation tower.

Fig. 5.29. (bottom-left) Budapest's oldest tree sits within the roundabout.

Fig. 5.30. (bottom-middle) The Ferenc Deák statue.

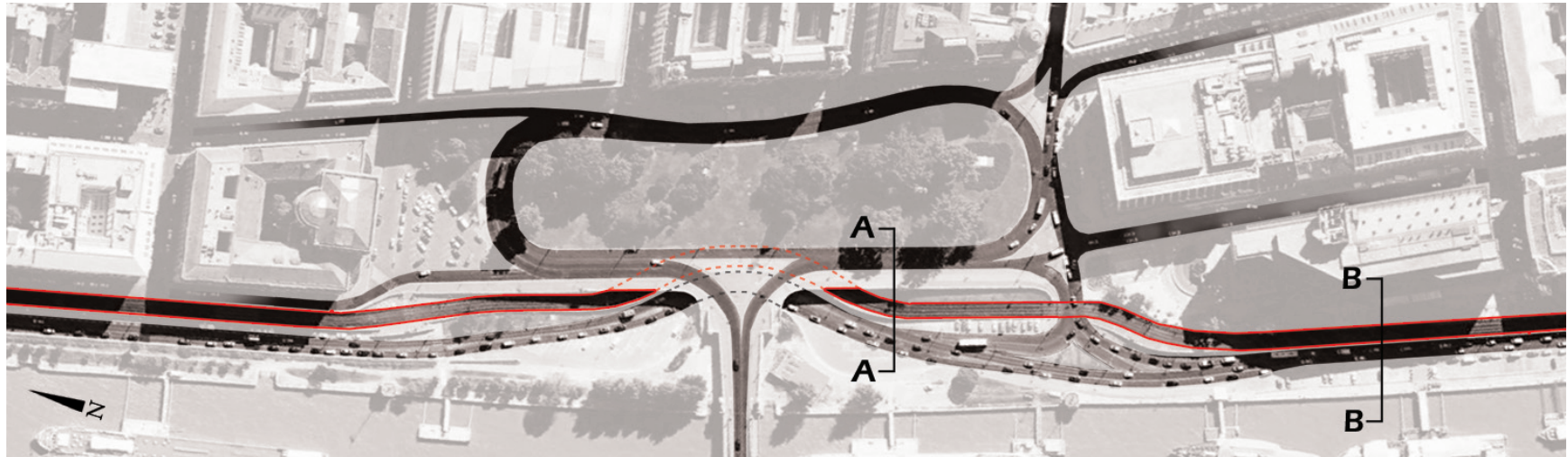


Fig. 5.27. Traffic layout in Széchenyi Square.

5.2.3 Traffic

Apart from being an obtrusive presence, the extravagant roundabout acts as a mediator between three arterial roads and six collector roads. The steadiest stream of vehicles arrives on Joseph Attila Street from Deák Ferenc Square to the east, primarily to arrive in Buda via the Chain Bridge, or vice-versa. There's also a link that connects the roundabout with the north-south arterial road on the lower wharf. Additionally, there are seven more streets that arrive into Széchenyi Square, six of which accommodate roads that ultimately connect to the roundabout. The roundabout itself consists of three lanes with no pedestrian crossing to access the park.

The 2A tramline flanking the upper wharf also passes through the Square. To avoid disrupting the flow of motor vehicle traffic passing

between the bridge and the roundabout, the tramline descends to the lower wharf as it enters the square and resurfaces once it has cleared the commotion above. Two tram stops are located at either end of the site, just before the line's descent. Both the tramlines and the arterial road on the lower wharf pass through a tunnel that averts the foot of the 163 year old Chain Bridge.

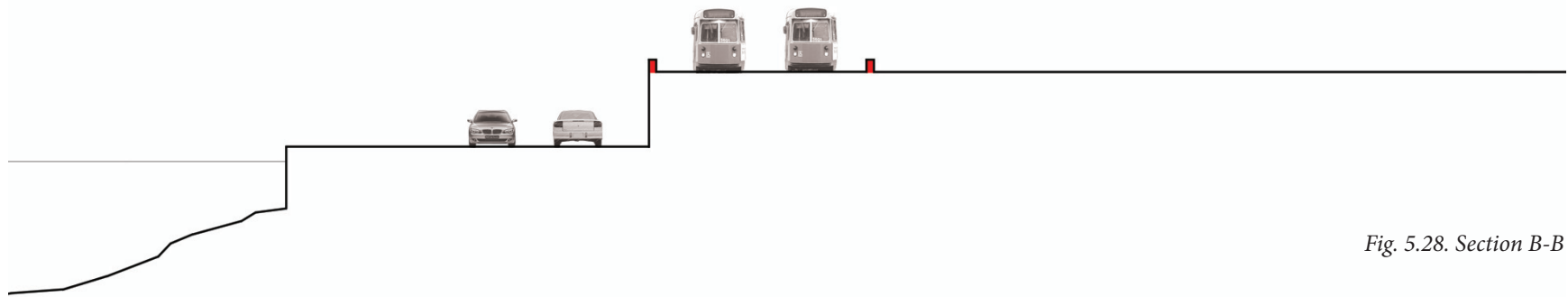


Fig. 5.28. Section B-B

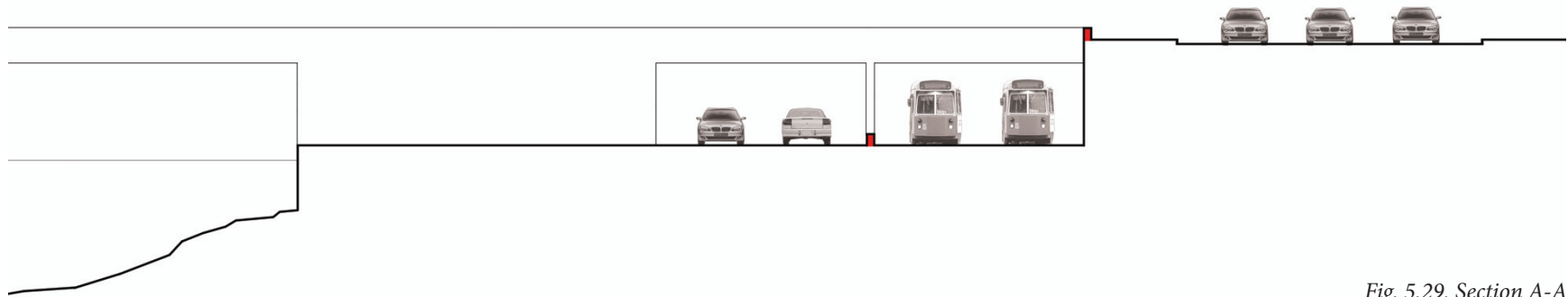


Fig. 5.29. Section A-A



Fig. 5.30. Extent of flooding in Széchenyi Square.

5.2.4 Flooding

Although the regulation of the embankments has eliminated any chance of flooding due to ice damming, seasonal flooding remains to be a frequent occurrence. The lower wharf is designed to flood during such an event, primarily to alleviate excess water and maintain lower water levels. The upper wharf keeps the river from entering the city, however the flood still manages to disrupt traffic that rely on the space appropriated on the lower wharfs. Consequently, as these tramlines and arterial roads flanking the Danube are forced to close, there is an immediate resurgence of human activity along the riverbank. Considering that seasonal flooding occur during the first few weeks of spring, it is one of the most pleasant times to rekindle the long lost relationship the city once had with its river.

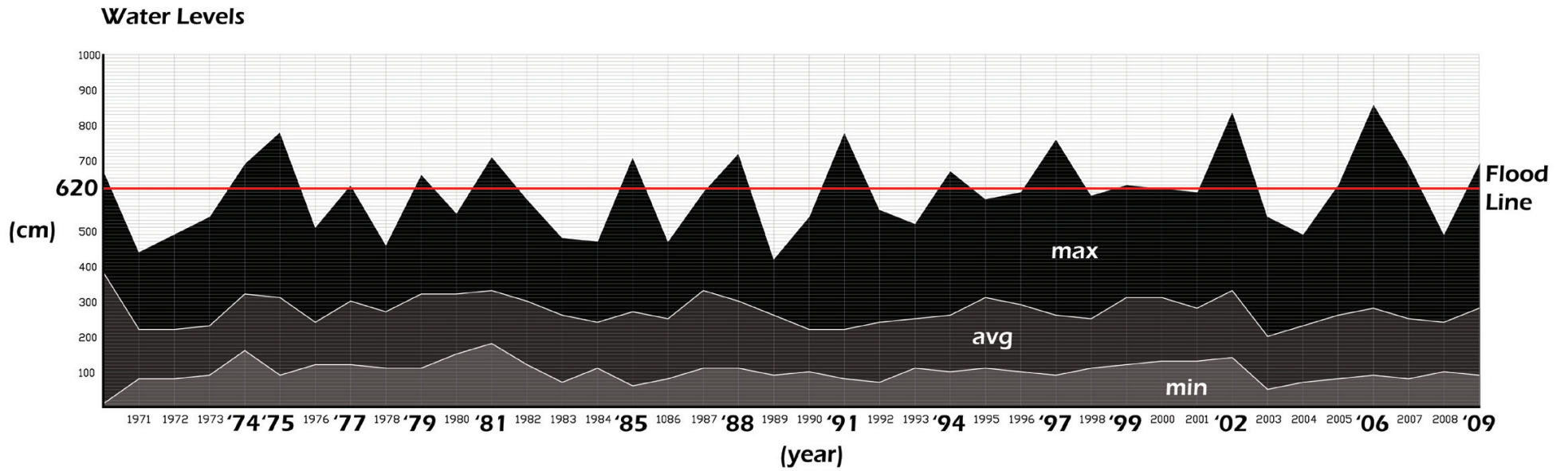


Fig. 5.31. People enjoying the unobstructed riverfront during the flood in 2010.



Fig. 5.32. (top) Water levels of the last four decades.
Fig. 5.33 (bottom-right) Flooding of Széchenyi square in 2010.

6.0 Danube Square: A Riparian Portal

The technical advancements made throughout the Industrial Revolution have turned Budapest's dependency on the Danube into an abstract concept. While scenes of bustling human activity on the embankments once reminded the population of their dependency on the river, today they're cut off from even approaching its shores. The convenience of running water in every household, along with other modern luxuries, have eliminated the need to directly utilize the river, and along with it, any explicit reiterations of the river's role in sustaining the city. Consequently, the general population has become apathetic towards the state and health of their most vital natural resource. In an attempt to reverse this by-product of modernization, this thesis proposes a design for the redevelopment of Széchenyi Square. It adopts the strategies outlined in Part One: Chapter 3, and appropriates them to address the problem of man's disassociation from nature within the context of Budapest and its River. With the aid of these strategies, Széchenyi Square is transformed into Danube Square - a riparian portal that allows the passer-by to experience an alternate reality. A place where city and nature are superimposed and the modern individual is granted a personal affiliation with the Danube and all of its resources.

1. Provide easy-access to the river (6.1)
2. Provide opportunities to directly utilize the river (6.2)
3. Provide transparency in the collective exploitation of the river (6.3)

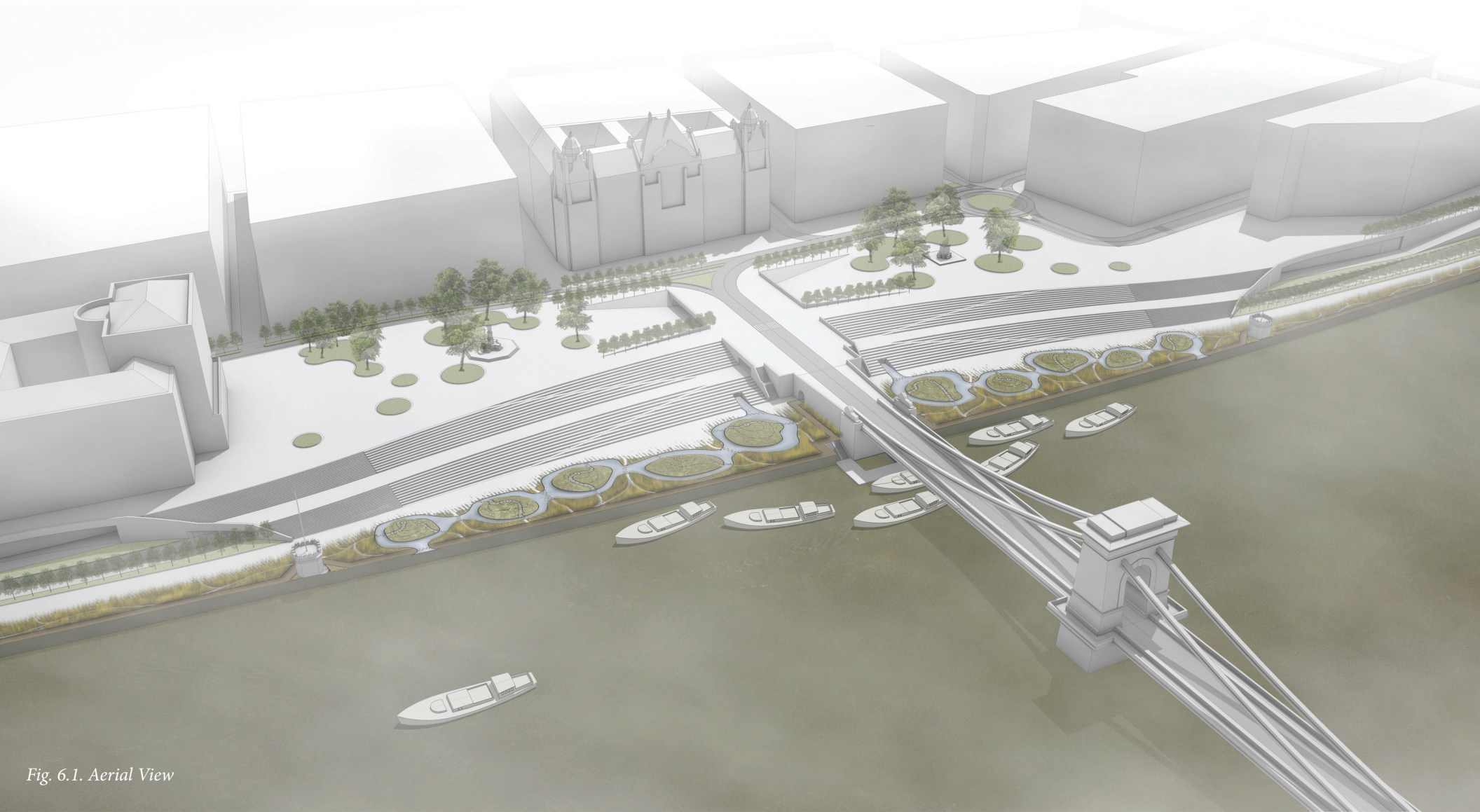
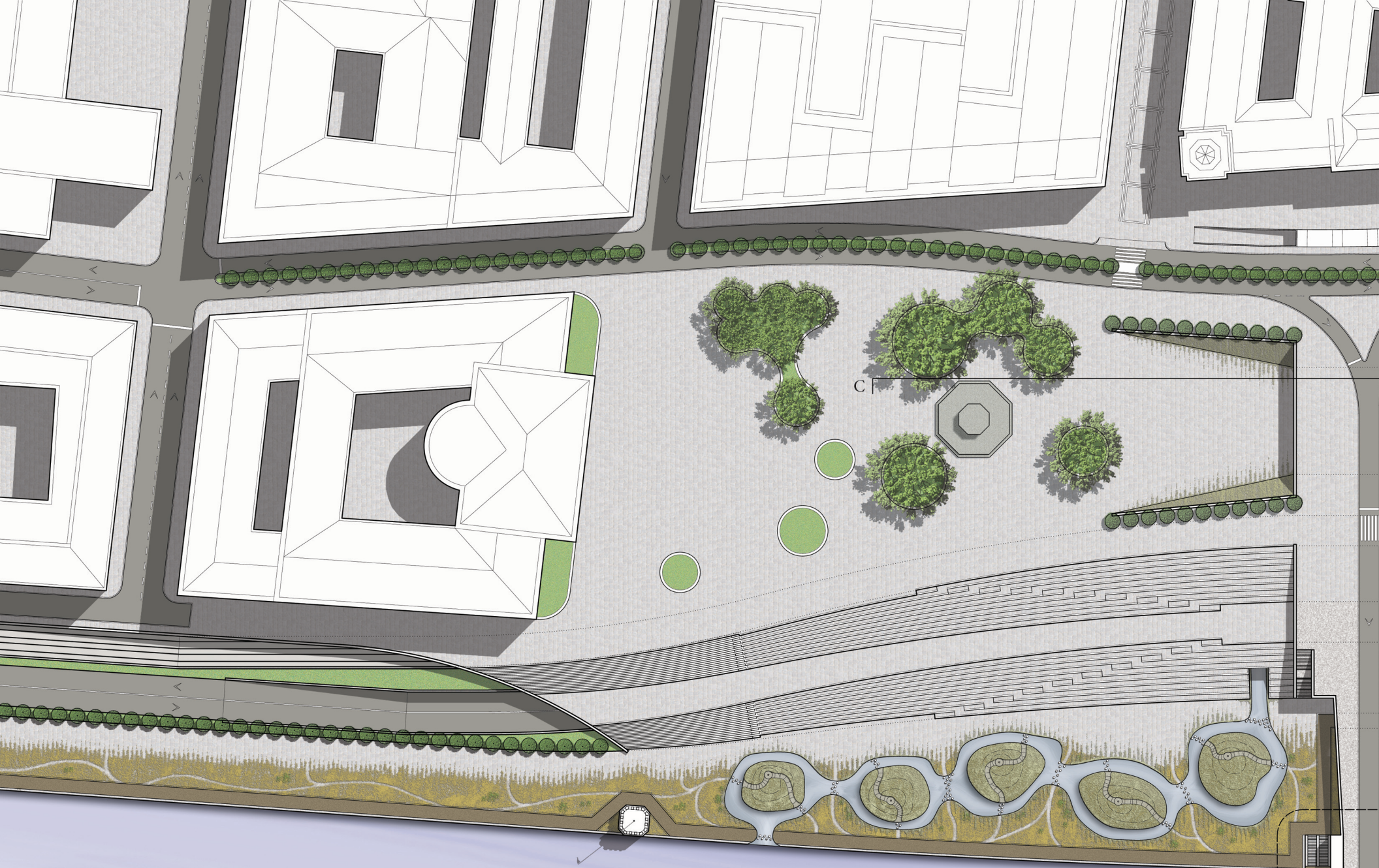


Fig. 6.1. Aerial View





Fig. 6.2. Context Axo

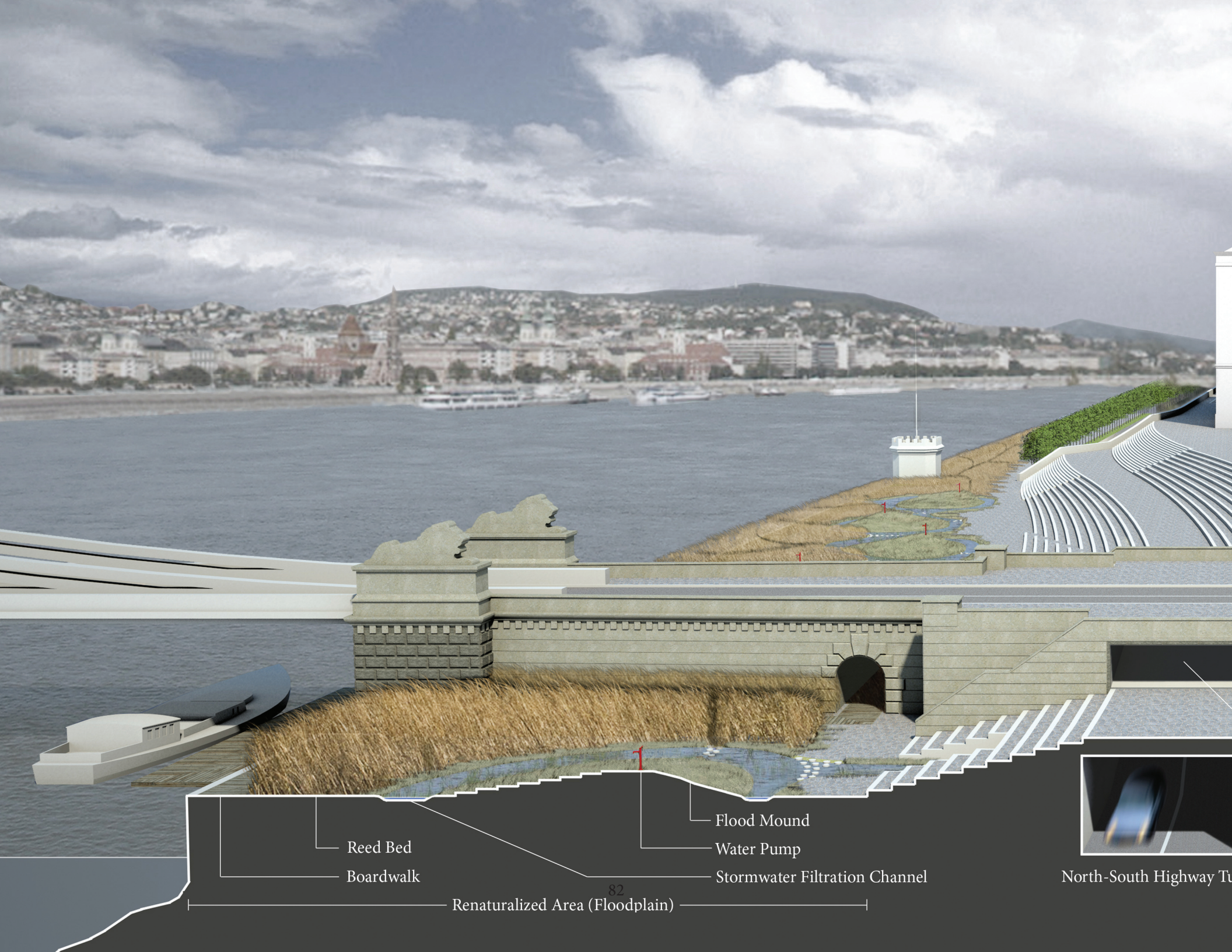


C

fig.6.16
pg.96



Fig. 6.3. Site Plan



Reed Bed

Boardwalk

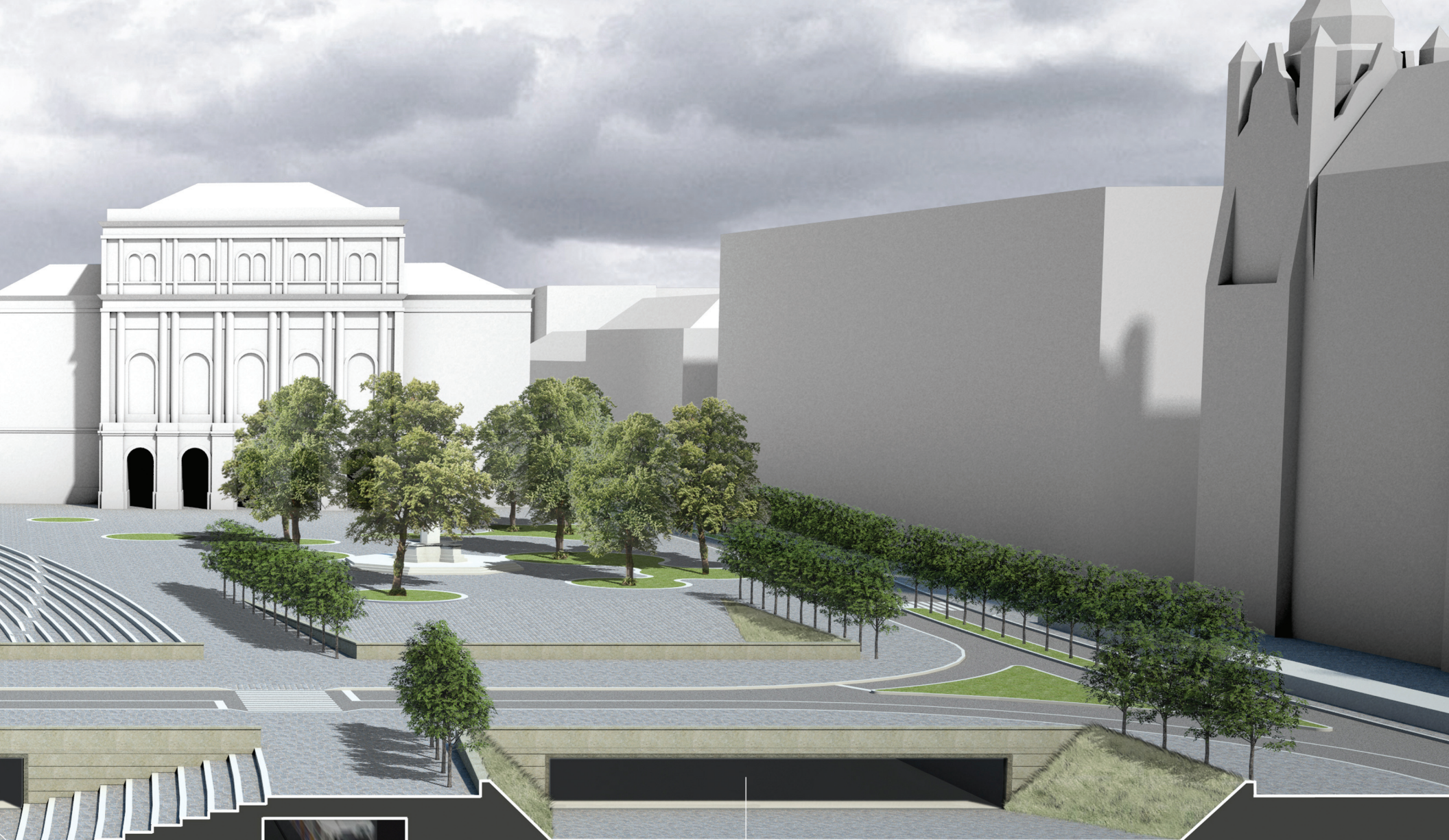
Flood Mound

Water Pump

Stormwater Filtration Channel

Renaturalized Area (Floodplain)

North-South Highway Tu



unnel

Tram Tunnel

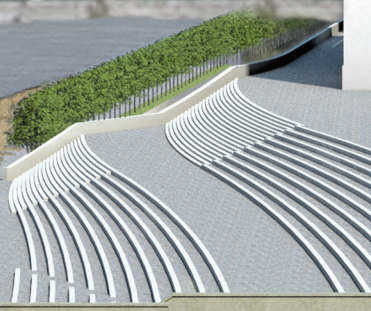
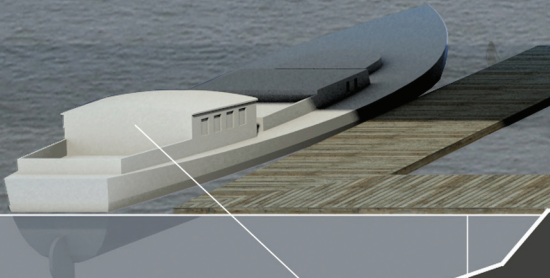
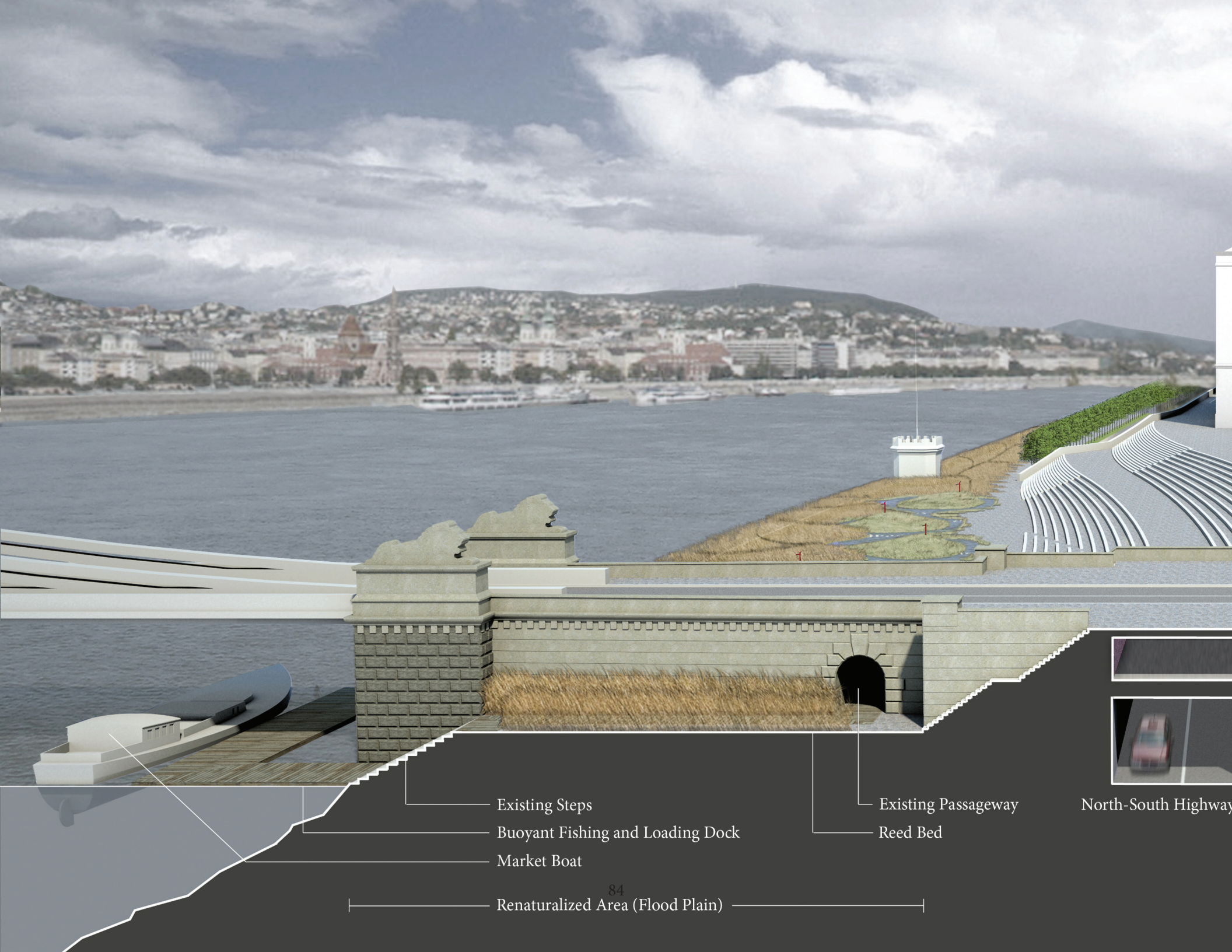
Access to Southbound Tram Platform

Chain Bridge Road Underpass

Access to Northbound Tram Platform

Chain Bridge Road Underpass

Fig. 6.4. Section A-A



Existing Steps

Buoyant Fishing and Loading Dock

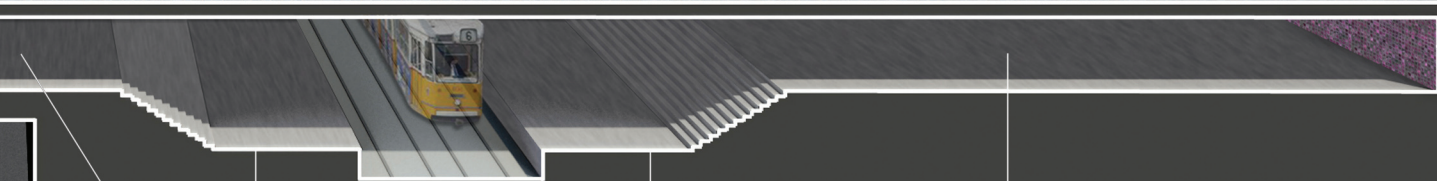
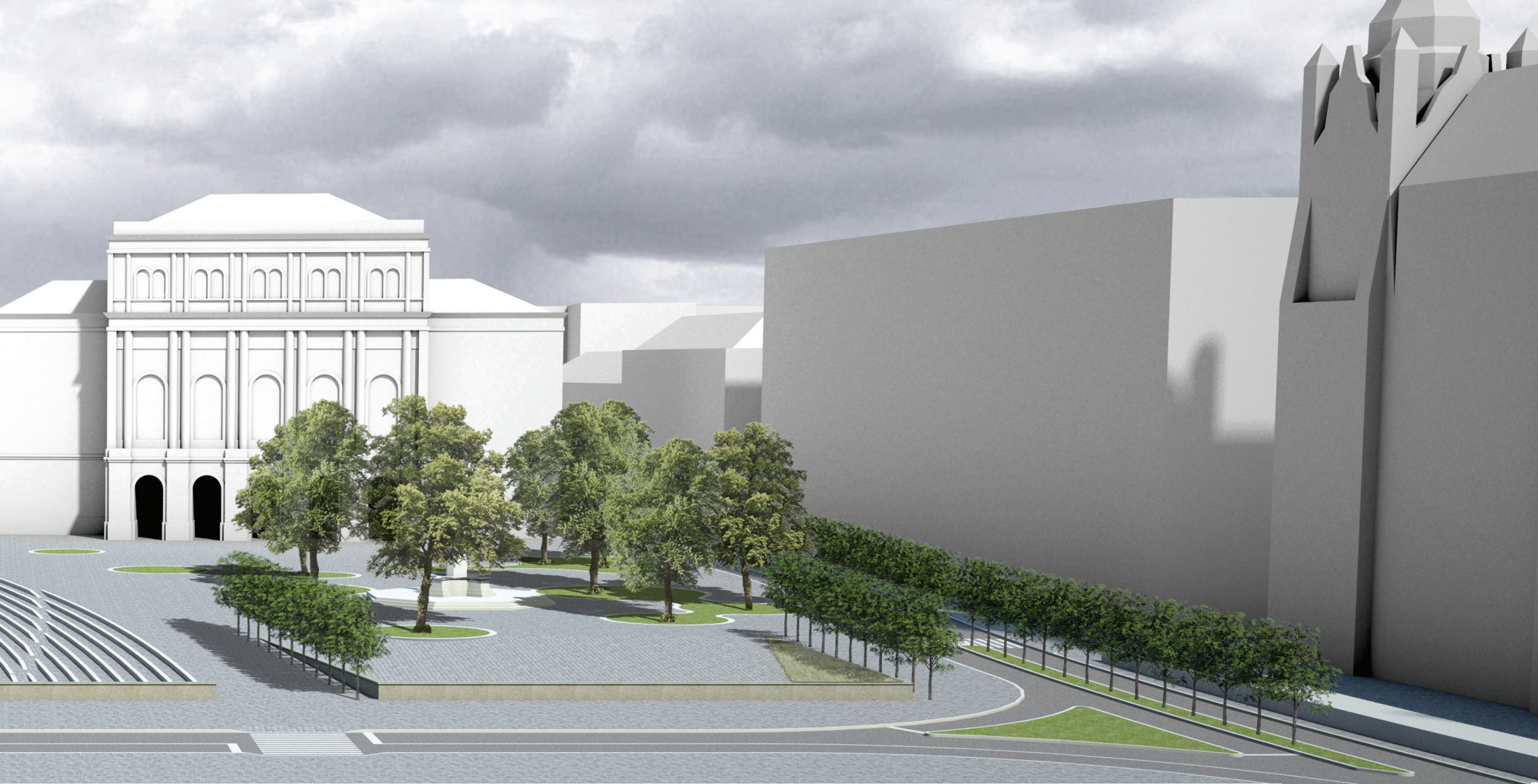
Market Boat

Existing Passageway

Reed Bed

North-South Highway

Renaturalized Area (Flood Plain)



Tunnel

Southbound Tram Platform

Northbound Tram Platform

Chain Bridge Road Underpass

Chain Bridge Road Underpass

Fig. 6.5. Section B-B



Existing Statue of Ferenc Déak

Access to North
Chain Bridge



Ground Tram Platform
Road Underpass

Existing Statue of Istvan Széchenyi

6.1 Accessibility

The lack of accessibility in approaching the riverfront is one of the most obvious deterrents when trying to revive the city's relationship with its river. Roads and tramways flank both sides of the Danube, and the sheer drop in elevation between the upper and lower wharves restrict the approach to sparsely spaced stairways. Széchenyi Square epitomizes this undesirable condition plaguing the embankments of Budapest. In addition, the Square is also the mediator between several arterial roads, creating an inhospitable environment for pedestrians. Consequently, the space that was once the most intrinsic gateway between the city and its river is now simply an intrusive barrier.

In order to provide easy-access to the river, the proposed design reconciles various means of circulation throughout the Square. Whether it be pedestrian, automotive, or rail, all modes of traffic are designated a space for uninterrupted travel. Although pedestrian circulation is given priority, vehicular and rail transportation also benefit from the proposed compromise.

In a move to calm motor-vehicle traffic, the link between the road on the lower-wharf and the feature roundabout is terminated. Effectively, drivers are prompted to access or exit the lower wharf at either Margaret Bridge to the south, or Kossuth Lajos Square to the north, where traffic congestion is less severe and pedestrian traffic has lower significance. This move significantly reduces the flow of traffic merging onto the roundabout and into the Square, allowing for an opportunity to radically alter the layout of roads accommodating motor-vehicle circulation. In turn, the roundabout is reduced in size and relocated to the southeastern corner of the Square, pushing most of the traffic to the eastern periphery. This shift necessitates the Square to be bisected by the road serving the Chain Bridge in order to allow for continuous movement between Deák Ferenc Square to the east, and Buda to the west.

Although this extended road seems intrusive, it allowed for a unique opportunity to reconcile the remaining forms of circulation. The tramway flanking the Danube descends into an underground tunnel at either end of the Square, eliminating two existing tram-stops located in roughly the same area as the tunnel's threshold. This requires the design to implement a new platform – one that is centrally located. The requirement also prompts an underground passageway that would not only allow access to the underground platform, but also provide a means for pedestrians to safely and efficiently traverse the road bisecting the Square. This results in a compact and efficient compromise that allows for unobstructed travel by any means.

Once the conflict between the various means of circulation is resolved, providing easy-access to the river is a much simpler task. The extravagant staircase, one of the feature elements of the proposal, provides this amenity very explicitly. While it conceals the tramway and roadway passing through beneath, it also provides a fluid and inviting descent to the riverfront for pedestrians arriving from any direction. With its introduction, the pedestrian approach to the river is simplified, and the gateway to the Danube is finally revived.

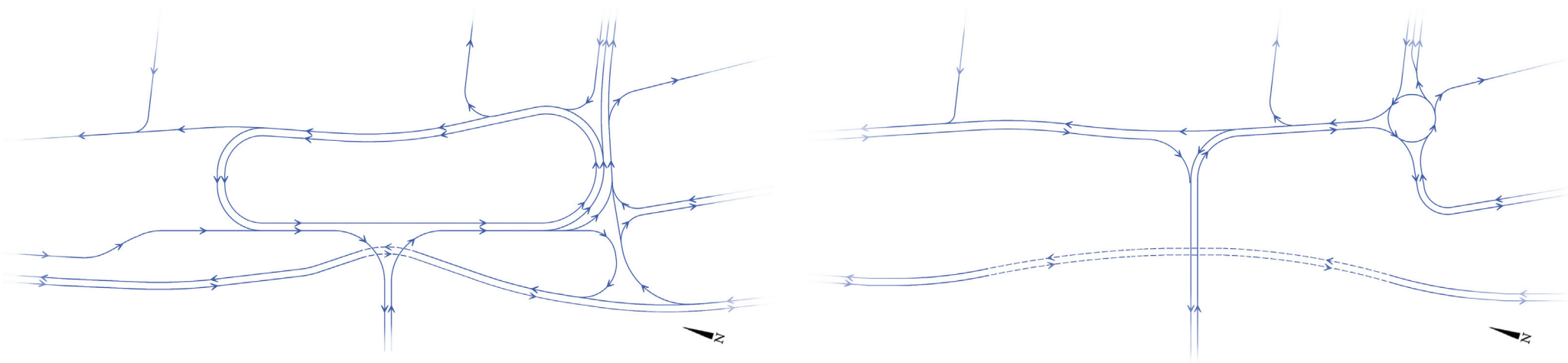


Fig. 6.7. (top-left) Existing automotive traffic circulation.
Fig. 6.8. (top-right) Proposed automotive traffic circulation
Fig. 6.9. (right) Proposed compromise between pedestrian (green), automotive (blue), and rail (red) traffic circulation.

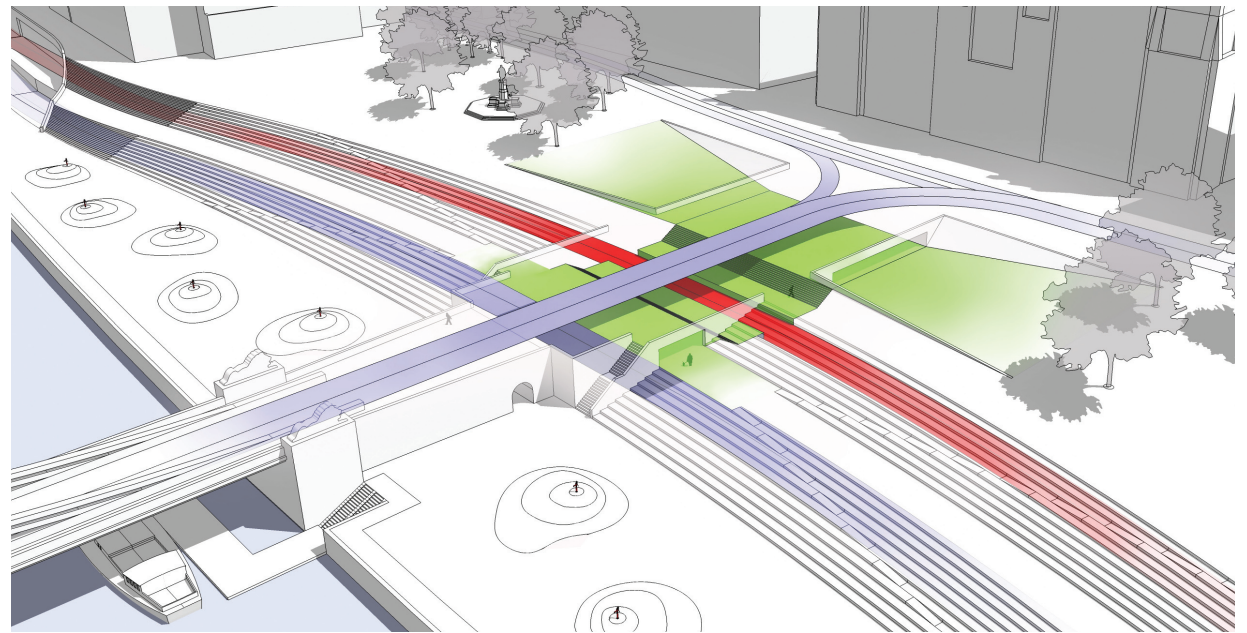






Fig. 6.10. Unobstructed River Access



6.2 Direct Utilization

Although many revitalization projects have attempted to rejuvenate the relationship between city dwellers and their rivers, their relative successes have been limited by their failure to provide opportunities for the individual to directly utilize the river for its resources. Projects such as the embankments of Lyon, France provide a visual and physical connection with the river, however, as Richard White points out, it is the physical labour demanded by the river that once established an intimate connection. Therefore, simply providing a means for a leisurely stroll along the embankment will only establish the river's significance as an exquisite backdrop. As such, the proposed Danube Square aspires to go one step further in its attempt to revive the riverfront, and reintroduces this concept of directly utilizing the river as

means to establish a more intimate experience.

The newly introduced water pumps achieve this in several ways. Located at the apex of the ten mounds distributed along the lower embankment, the water pumps allow visitors to extract potable water from the aquifer below, while maintaining a clear connection to the water's source - the river. The manually extracted water can then be used for various purposes, including drinking and freshening up on a hot summer day, cooking during organized events such as the widely popular Halászlé Fesztivál (Fish-Soup Festival), washing and cleaning the area afterwards, and etc. The reward for pumping the water is instant, and the energy expended immediately translates into an intimate engagement with the river.

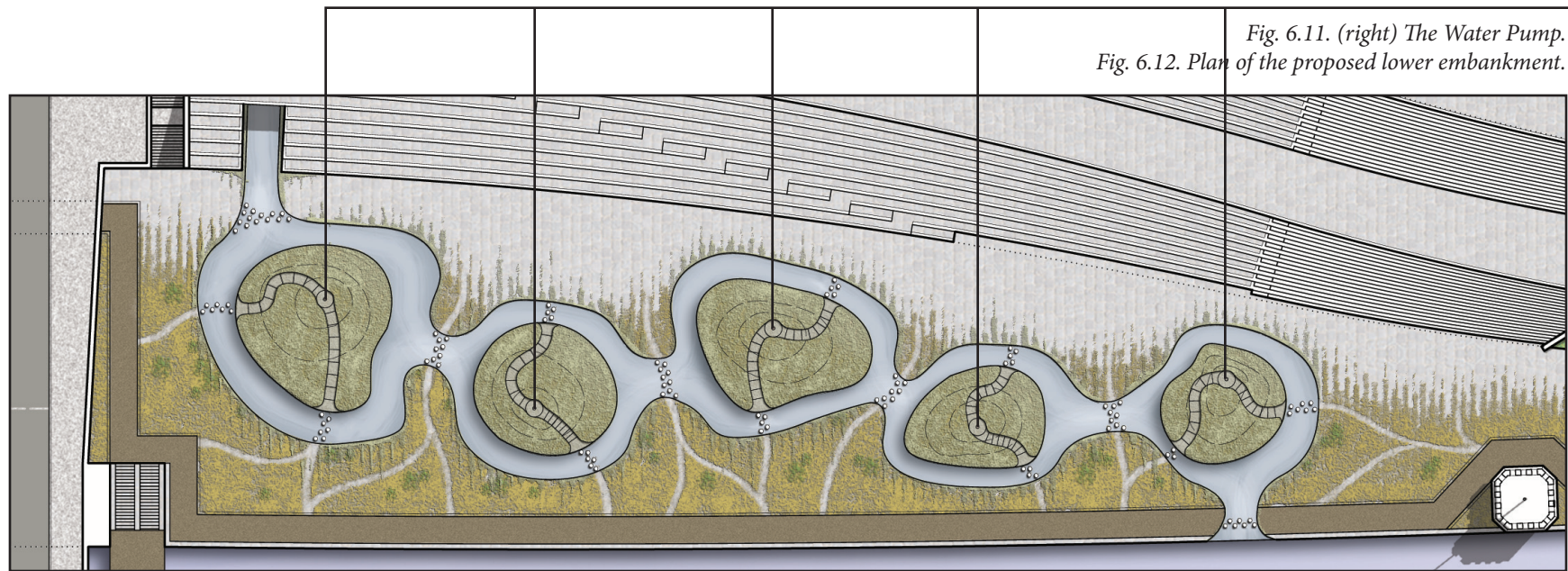


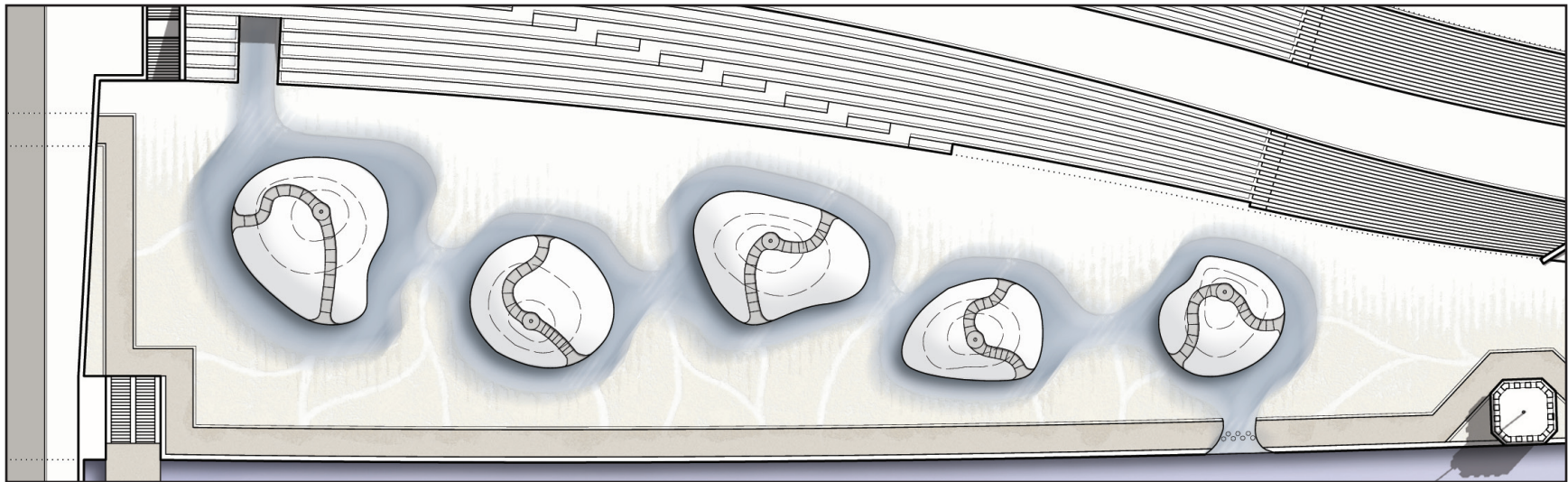
Fig. 6.11. (right) The Water Pump.
Fig. 6.12. Plan of the proposed lower embankment.

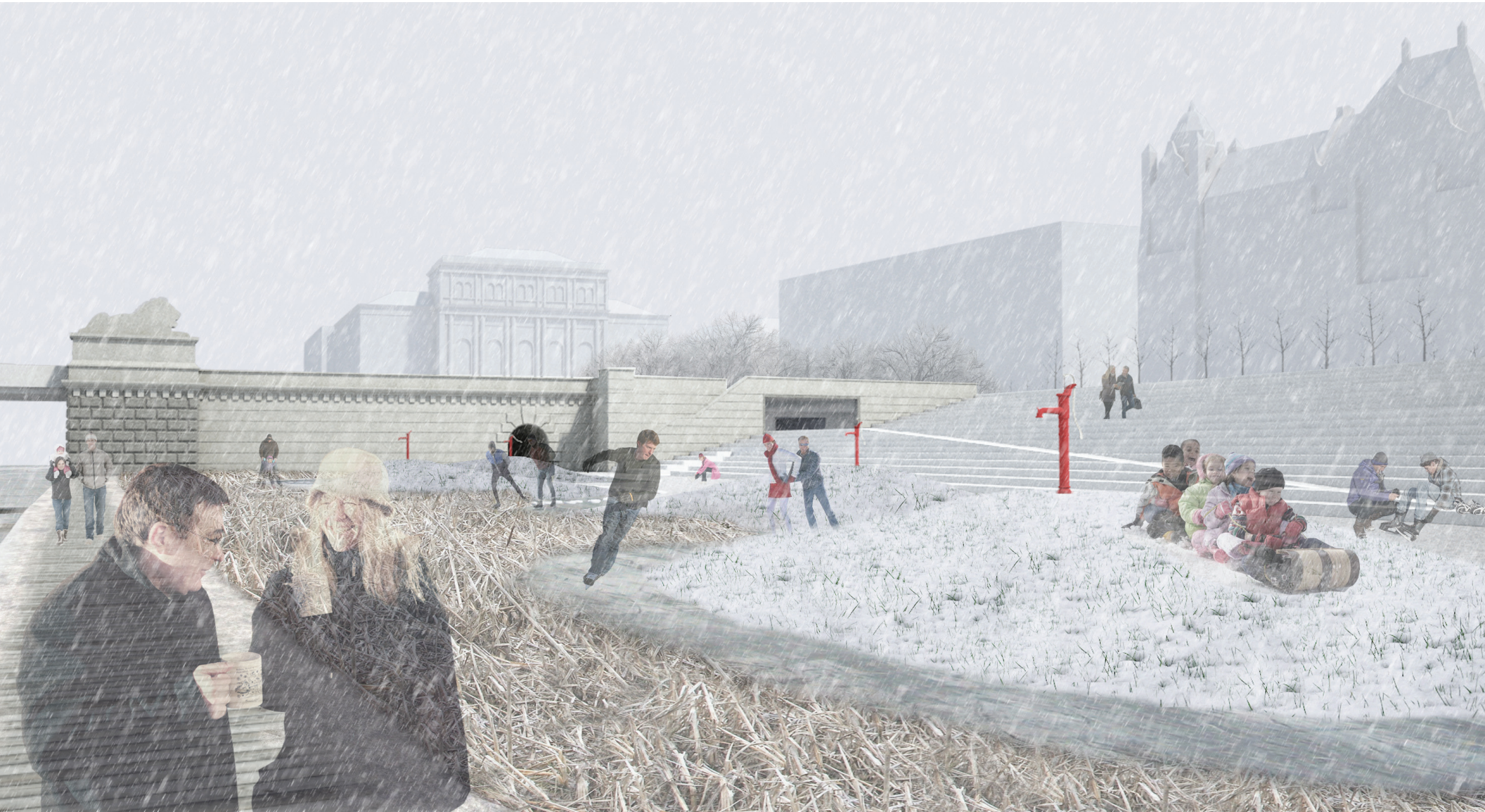


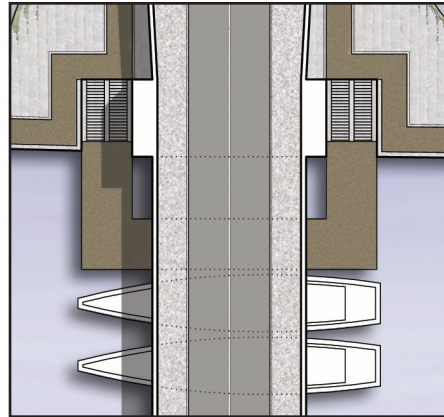
One of the most charming assets that were lost as a result of the Danube's regulation was the river's ability to lend itself to wintertime activities. Before the river was constricted by floodwalls the slow moving current allowed for the river to freeze over completely, offering the inhabitants of Pest and Buda a luxurious skating surface. Today, this romantic scene has moved inland by pumping water from riverside wells to numerous indoor and outdoor skating rinks via the city's water-supply system. Once again, the population is granted another way to utilize the river's resources without having to give any consideration to the river itself. Therefore, the proposed Danube Square brings a skating surface back to the riverfront, creating a visual connection with the natural resource that provides the city with the means to create such skating venues in the first place.

Fig. 6.13. (right) The Skating Surface.

Fig. 6.14. (below) Plan of the lower embankment during Winter.







Another way the proposal provides an opportunity to directly utilize the river is by introducing a buoyant fishing dock that also provides a continuous passageway between the south and north side of the bridgehead. The dock anchors itself to guiding tracks embedded into the existing steps on either side of the bridgehead, allowing for free vertical and horizontal movement as the water level rises or falls. With a platform that constantly remains at water level, fishermen can easily and comfortably utilize the river, even within its urban setting.

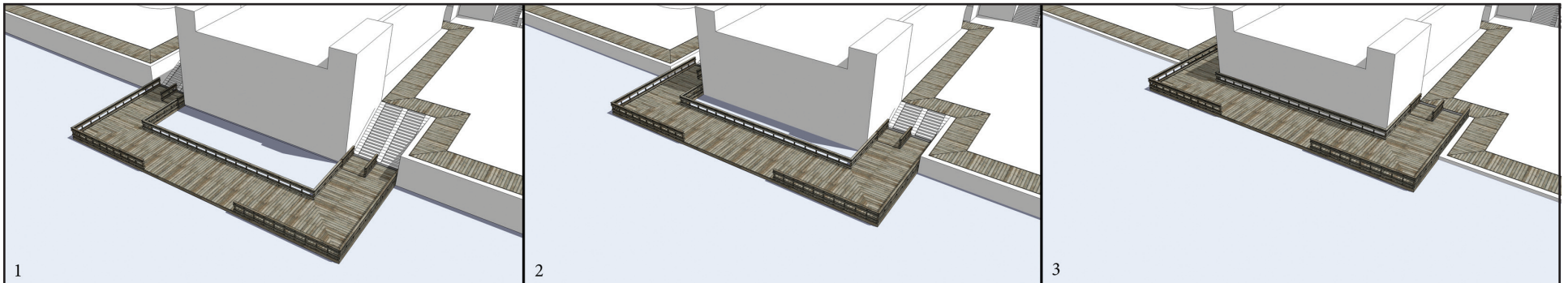
Fig. 6.15. (far-left) The guiding track.

Fig. 6.16. (top) Plan of the proposed fishing dock.

Fig. 6.17. (centre) Connection detail.

Fig. 6.18. (below) Progression diagram illustrating dock buoyancy.

Fig. 6.19 (right) The Fishing Dock.





6.3 Transparent Exploitation

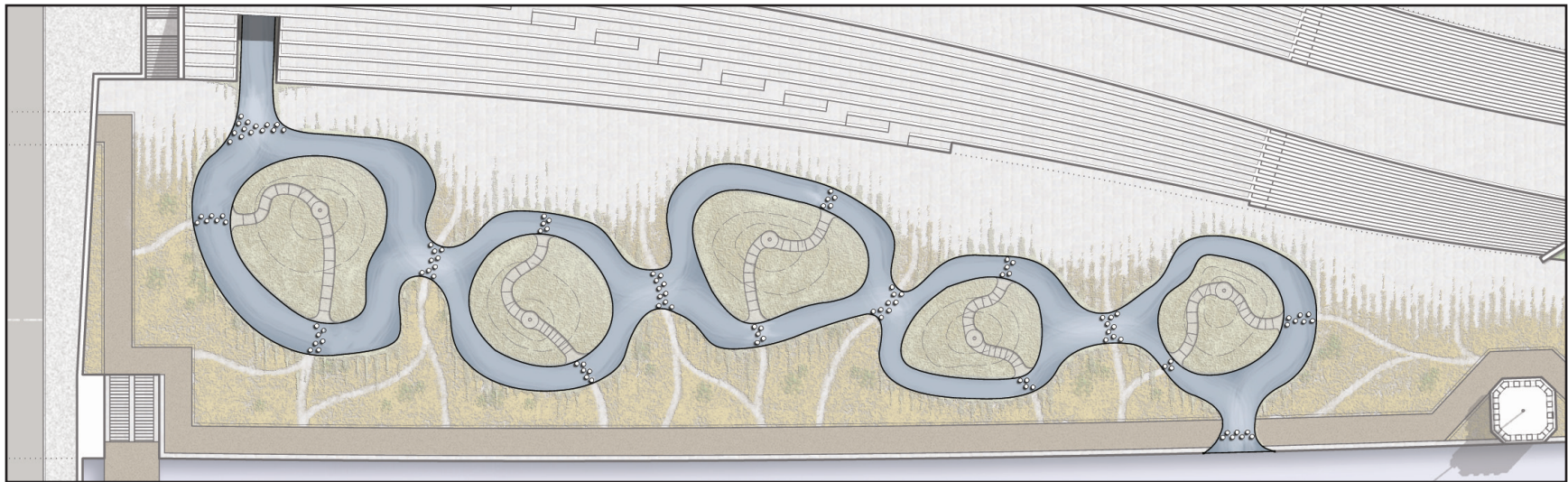
Another revitalization strategy that is unique to this proposal is one that reminds visitors of the extent to which the river is unwittingly utilized on a daily basis. Offering explicit and tangible examples of such collective exploits will reaffirm the river's role as the lifeline of the city - instilling the population with a greater sense of the river's significance.

The clearest gesture in the proposal's design that is aspiring to achieve this is the incorporation of the two stormwater outlets embedded into the sitting steps on either side of the bridge. Rather than managing the stormwater of the Square by some underground and out-of-sight pipelines, the proposal very explicitly showcases the river's role as the main collector of the city's drainage system. It does so by

expelling stormwater runoff directly onto the lower embankment and into river, in plain sight for all to see. In addition, as the stormwater meanders around the water pump mounds, it becomes suggested that the city's treatment of its effluent - and consequently its river - will ultimately also have an effect on the quality of its water supply.

Fig. 6.20. (right) The Stormwater Outlet.

Fig. 6.21. (below) Plan of the stormwater runoff channel.

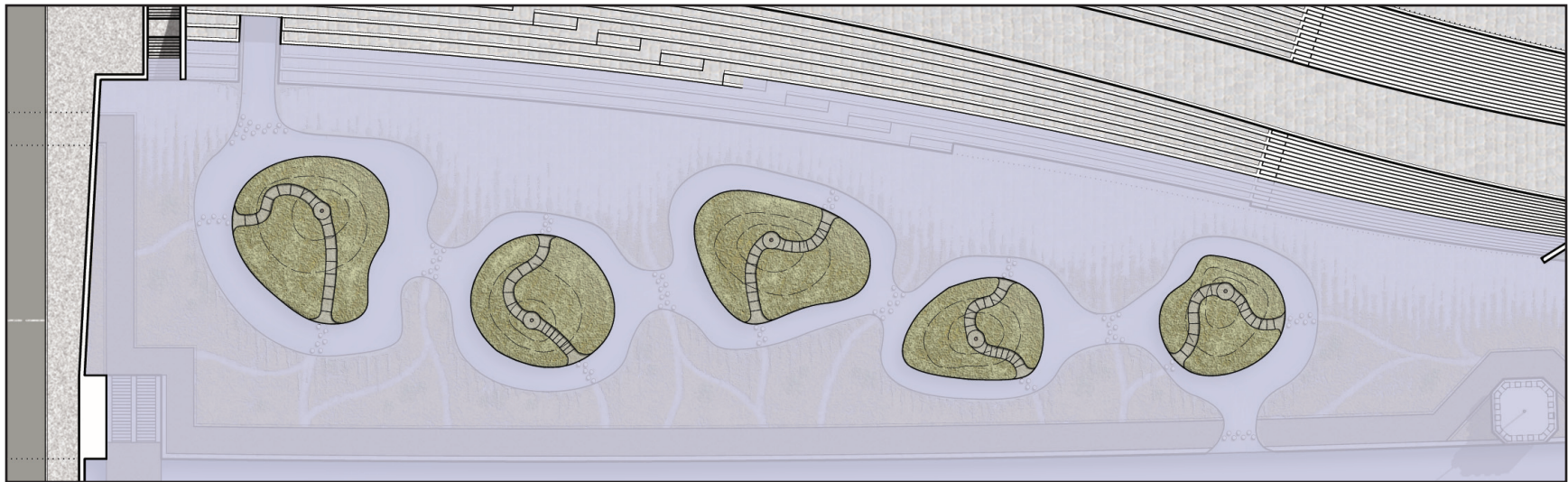


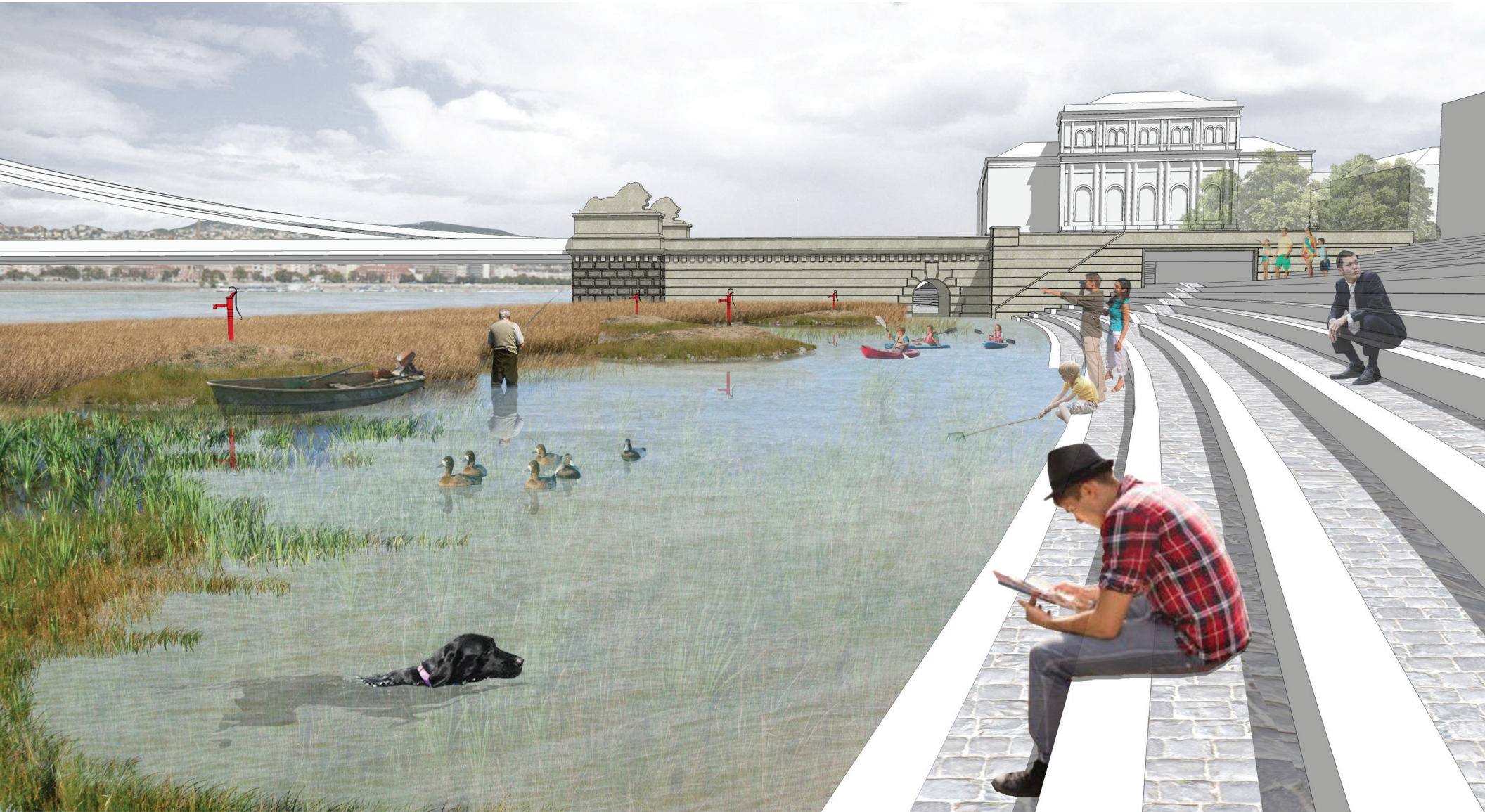


Although the mounds play a practical role in filtering the stormwater runoff, they are also meant to raise awareness of the city's collective exploits. However, its message only becomes clear during the event of a flood. As seasonal flooding sprawls over the lower embankment, the mounds remain exposed, keeping the water pumps above the water-line. In such an event, the water pumps seem to sprout directly from the river, and the dependency of the city's water supply on the Danube is visually conveyed. Although this gesture is mainly symbolic, it can effectively remind visitors of the river's crucial role in sustaining the city's water demand.

Fig. 6.22. (right) The Flood Mounds.

Fig. 6.23. (below) Plan of the lower embankment during seasonal flooding.





Besides supplying numerous cities with a means to meet their water demand, as well as to expel their effluent, the Danube is widely utilized as a transportation corridor. Although some have had the pleasure of embarking on a river cruise, the Danube is not the first thing people are reminded of when buying goods at the supermarket, the shopping mall, or even the car dealership. And yet, the Danube is increasingly utilized as a shipping route for many of the items found at such places, providing a more efficient alternative to transporting goods on land.

The idea behind the proposed river market is to remind visitors of the intrinsic role that the river plays in transporting necessities and luxuries along the nearly 3,000 km stretch of the Danube corridor. The lower embankment of the proposed Danube Square would regularly host a farmer's market in which the participants utilize the river to transport their goods.

Budapest does not have a highway that reaches its centre, and its traffic-ridden roads are an agonizing way for the farmer's to reach their customers. Therefore, the proposal suggests two pick-up points for commuting farmers where they can pool their cargo onto a boat for

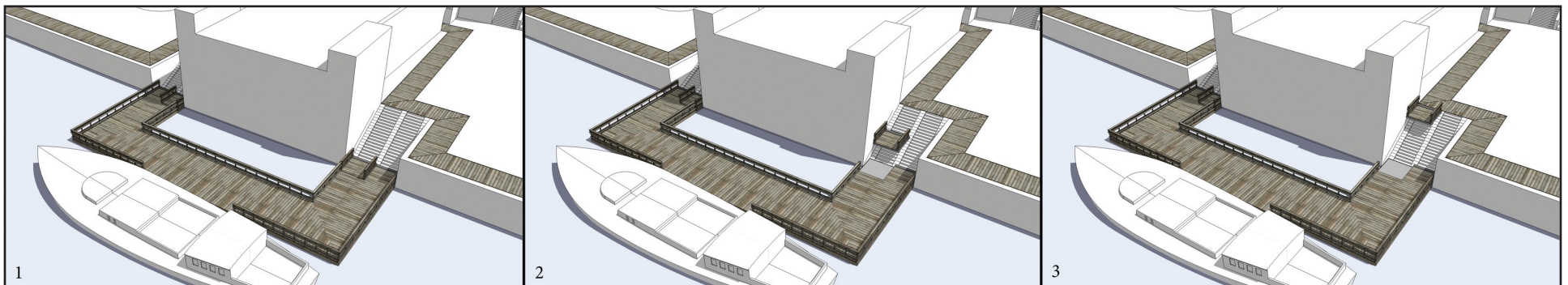
further conveyance - one on the northern, and one on the southern periphery of the city. These are strategically placed to be located near the intersection of the Danube River and the circumambulating M0 highway (see Fig. 6.24). Once the goods are stowed, the boats can ship its contents along with the farmers to Danube Square for unloading.

The proposed fishing docks, therefore, have a secondary role. On the day of the market, it is utilized exclusively for unloading the market boats and moving the goods up to the lower embankment. To aid this process, the dock is equipped with two lift systems that move independently from the rest of the structure (see Fig. 6.25). These can be utilized while moving heavier items as well as to resolve any accessibility issues.

This theatrical process of unloading cargo from undulating boats can consequently become a visual reminder for the market-goer that the river is an invaluable resource - not only as an exquisite element in the city's pomp and grandeur, but as Budapest's most critical lifeline.

Fig. 6.24. (right) The proposed market boat route.

Fig. 6.25. (below) Progression diagram illustrating the dock's lift mechanism.





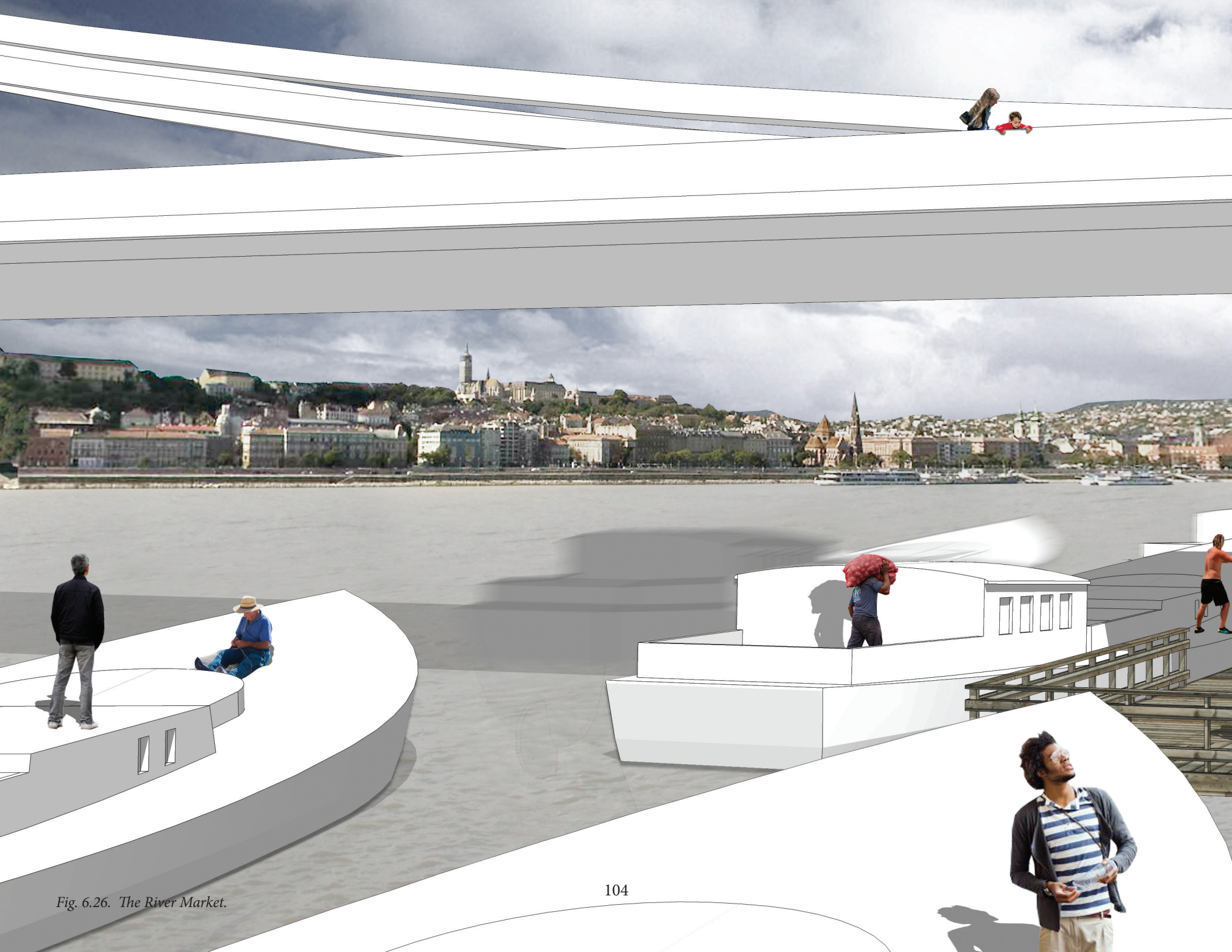


Fig. 6.26. *The River Market.*



In Conclusion...



Fig. c.1. The Flood

Budapest

Fig. c.2. The Farmer

St. Stephen's Basilica



Fig. c.3. The Fisherman

Váci Street





Fig. c.4. The Hunter



Heroes' Square





Bibliography

Bart, István. *Budapest Krónikája: A Kezdetektől Napjainkig [Chronicle of Budapest: From the Beginnings to Our Day]*. Budapest: Corvina Kiadó, 2007.

Biehl, Janet. *The Murray Bookchin Reader*. London: Casell, 1997.

Braverman, Harry. *Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century*. New York: Monthly Review Press, 1974.

Buza, Péter. *Bridges of the Danube*. Translated by József Pálffy. Budapest: Sík Kiadó, 1999.

Dickens, Peter. *Reconstructing Nature: Alienation, Emancipation and the Division of Labour*. New York: Routledge, 1996.

Eliot, T. S. *The Complete Poems and Plays 1909–1950*. New York: Harcourt Brace & Company, 1980.

Forbes, Robert James. *The Conquest of Nature*. New York: Frederic A. Praeger Inc., 1968.

Hajós, György. *A Roosevelt Tér [Roosevelt Square]*. Budapest: Építésügyi Tájékoztatói Központ Kft., 2003.

Holy Bible: King James Version. Grand Rapids: Zondervan, 2002.

Kaufman, Jerry, and Martin Bailkey. *Farming Inside Cities: Entrepreneurial Urban Agriculture in the United States*. Cambridge: Lincoln Institute of Land Policy, 2000.

Kelman, Ari. *A River and Its City: The Nature of Landscape in New Orleans*. Berkeley: University of California Press, 2006.

Kline, Benjamin. *A Brief History of the U.S. Environmental Movement*. Maryland: Rowman & Littlefield Publishers Inc., 2007.

Preisich, Gábor. *Budapest Városépítésének Története [The History of the Construction of Budapest]*. Budapest: TERC Kft, 2004.

White, Lynn Jr. “The Historical Roots of our Ecological Crisis.” *Science* 155 (1967): 1203-1207.

White, Richard. *The Organic Machine: The Remaking of the Columbia River*. New York: Hill and Wang, 1995.

Electronic References:

Budapest City. *A Duna Szabályozása [The Regulation of the Danube]*. Accessed September 2011. <http://budapestcity.org/02-tortenet/1870-a-duna-szabalyozasa/index-hu.htm>

Budapest City. *A Nagy Pesti Árviz [The Great Flood of Pest]*. Accessed September, 2011. <http://budapestcity.org/02-tortenet/1838-arviz/index-hu.htm>

Budapest City. *Budapest Vizellátásának Története [The History of the Budapest Water Supply]*. Accessed September, 2011. <http://budapestcity.org/02-tortenet/Budapest-vizellatasanak-tortenete/index-hu.htm>

Budapest Sewage Works Ltd. *The History of the Sewage of Budapest*. Accessed August, 2011. <http://www.fcsm.hu/en/content/index.php/69>

Puget Sound Floating Markets. *What is a Floating Market?* Accessed July, 2011. <http://www.farmboat.org/about/floating-market-concept.php>

Via Donau. *History of Danube Navigation*. Accessed September, 2011. http://www.donauschiffahrt.info/en/facts_figures/the_danube_as_a_major_route_of_transport/history/

Film:

Ereira, Alan. (Director). *From the Heart of the World: The Elder Brothers' Warning*. [TV Documentary]. UK: British Broadcasting Corporation. (1990).

