

高等院校土建学科双语教材（中英文对照）

◆风景园林专业◆

# 水景设计

DESIGNING WITH WATER

[德] 阿克塞尔·洛雷尔 著

赵晓龙 朱 逊 译

张 波 校

BASICS

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# 中文部分目录

\\ 序 \_5

\\ 导言：水的多样性 \_79

\\ 流水——模型与实例 \_81

\\ 喷水 \_81

\\ 流水 \_82

\\ 静水 \_84

\\ 逐渐消逝的水 \_86

\\ 其他方面 \_87

\\ 设计方法 \_90

\\ 水景创作 \_90

\\ 场地独特性 \_92

\\ 功能要求 \_94

\\ 象征主义 \_98

\\ 感官体验 \_99

\\ 技术参数 \_104

\\ 水作为布景 \_104

\\ 池底垫层和水池 \_106

\\ 水岸设计 \_116

\\ 进水和泄水 \_118

\\ 水体流动 \_121

\\ 水泵和技术 \_124

\\ 照明 \_125

\\ 植物 \_126

\\ 水质 \_128

\\ 安全 \_129

\\ 冬季防护 \_129

\\ 成本效益 \_131

\\ 结论 \_133

\\ 附录 \_134

\\ 水生植物 \_134

\\ 参考文献 \_137

\\ 图片鸣谢 \_138

\\ 作者简介 \_139

# CONTENTS

\\Foreword _7
\\Introduction: the diversity of water _9
\\The flow of water – models and examples _11
\\Jetting water _11
\\Flowing water _13
\\Still-standing water _14
\\Disappearing water _16
\\Additional aspects _18
\\Design approaches _22
\\Designing water _22
\\Unique features of a site _25
\\Functions _28
\\Symbolism _31
\\Sensory experience _32
\\Technical parameters _37
\\Water as scenography _37
\\Liners and basins _39
\\Designing the perimeter _51
\\Water inflow and outflow _54
\\Movement _57
\\Pumps and technology _61
\\Lighting _63
\\Plants _63
\\Water quality _65
\\Safety _67
\\Winter protection _68
\\Cost effectiveness _69
\\In conclusion _72
\\Appendix _73
\\Aquatic plants _73
\\Literature _76
\\Picture credits _77
\\The author _78

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\\ 感官体验	_99
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\\ 水作为布景	_104
\\ 池底垫层和水池	_106
\\ 水岸设计	_116
\\ 进水和泄水	_118
\\ 水体流动	_121
\\ 水泵和技术	_124
\\ 照明	_125
\\ 植物	_126
\\ 水质	_128
\\ 安全	_129
\\ 冬季防护	_129
\\ 成本效益	_131
\\ 结论	_133
\\ 附录	_134
\\ 水生植物	_134
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# CONTENTS

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\\Picture credits _77	
\\The author _78	

我们长途跋涉，去尼亚加拉大瀑布，惊叹这个世界的自然奇观之一。抑或是为了去欣赏 Tivoli 附近生机勃勃的喷泉，我们对小溪小河追本溯源，翻越山岭高原，在喷泉之下伸出手臂感受清凉。有很多的方式可以来体验水的光谱。设计可以提供广泛的自然元素，以及人工或艺术水景。

近距离地审视经过设计的供水设施才能发现，它们通常是能给场所带来神来之笔，能反映文化植入，赋予场地特质，或者仅仅增添了一个娱乐的可能。

创建一个室外水景就是明确地在空间、功能、概念和技术建设上提出挑战。作为规划者，我们研究与水亲密接触的不同方式，思路和设计方案可以轻而易举地形成一个概念。但是，当它作为一个实际的规划时，空间比例的设计、材料的选择或负载能力和耐用性的计算，这些都直接挑战我们有限的知识。

以上这些足以成为我们推出该系列“高等院校土建学科双语教材”的风景园林书籍的理由。这一系列旨在对第一学期的学生直观地展现风景园林，用容易理解的方式呈现主题，突出基本要素，唤起学生了解更多知识的渴望。

作者围绕水这个主题以及它的设计可能性方面去引导读者。对水的迷恋，成了魔术、娱乐和技术挑战之间相互影响制约的一个基本要素。具体的场地、扩初设计、形式语言的确定、材料的选择，这些也有所讨论。技术的细节处理被放入“技术参数”一章中。章节都伴随着视觉示例和图表作为工具，来帮助我们发展设计方案。这本书提供了有用的技巧和注意事项，以便更好地理解主题和实际应用。这一切都会带领我们走向一个成功的设计！

编辑：Cornelia Bott



## FOREWORD

We travel far to marvel at Niagara Falls, one of the natural wonders of the world, or to admire the animated fountains near Tivoli. We follow brooks and creeks to their sources and, after a mountain hike, cool our arms in wooden fountains. There are many ways to experience the spectrum of water, and design can provide a wide range of nature-oriented elements as well as artificial or artistic waterscapes.

Examining designed water installations more closely shows that they are usually the element that lends flair to a site, that reflects cultural import, gives a site its prestigious character, or perhaps just provides a playful aspect.

Creating an outdoor water design presents specific challenges regarding space, function, concept, and technical construction. As planners, we study the different ways of dealing with water more closely. Ideas and design solutions can be easily integrated into a concept. However, when it comes to the actual planning, creating the design in proportion to the space, choosing materials, or calculating load capacity and durability, quickly challenge one's knowledge.

This was reason enough to launch the series of "Basics" books on landscape architecture with this subject. The series aims to present the topic to first-semester students of landscape architecture in a straightforward, easy-to-understand manner, to highlight the essential elements, and awaken the desire to know more.

The author guides readers through the entire range of the subject of water and its design possibilities. The fascination with water is presented as a basic element that oscillates between magic, recreation, and technical challenge. The specific approach to site, developing the design, finding the formal language, and correct materials are also discussed. Technical details are addressed in the chapter "Technical Parameters." The chapters are accompanied by visual examples and diagrams that serve as tools to help one develop a design solution. The book provides useful tips and notes for a better understanding of the topic, and for practical application. This all leads to a successful design!

Cornelia Bott, Editor



## INTRODUCTION: THE DIVERSITY OF WATER

Landscape architecture is a rich and complex discipline. As well as being capable of creating architectural forms and structures from natural elements, it also employs the almost infinite range and diversity of nature, which is associated with immanent mystical power and holds a deep-rooted fascination.

Water has a unique position among the natural elements. The relationship that humans have with water is complex, ambivalent, and ever oscillating between too much and too little. Water is the foundation of life. Its energy, healing qualities, light, and meditative inspiration is captivating for us all, yet water also contains an element of danger. It can instill fear and awe, and drought or floods can also kill.

Working with water as a design element has involved and always will involve this field of conflict, while still flirting with the evocations, memories, or technical possibilities that water brings.

Untamed  
nature

Water represents untamed nature and therefore absolute purity, freedom, and infinite power; it symbolizes the opposite of a world that is fettered by technology. These issues can be expressed dynamically in the form of roaring waterfalls, powerful animated fountains, or dense mist sculptures.

Magic

Water is both dead matter and the symbol of life. It is a fundamental part of mythology and the philosophy of nature. In many parts of the world, it plays a vital role, especially where human survival depends on solving problems of water. Images of water as a magic or animated element appear in legends, songs, or symbols and can be evoked conceptually in water designs, or by adding sculptural ornaments.

Purifying  
relaxation

Water is also related to cleanliness because of the role it plays in washing and bathing. This can be seen in many elements based on religion, such as baptismal fonts or the fountains located outside mosques. In small footbaths, natural swimming ponds, or ornate thermal baths, water is synonymous with relaxation, play, and sport.

Image and  
representations

Water is also the key to wealth and power, to the extent that it can even develop into a symbol of power above and beyond the design context – as demonstrated by the ornate fountains at the foot of Roman aqueducts, the great water axis in Versailles, or the imposing river dam project in

China today. Water can be prestigious or symbolic, depending on how it is applied as a design element. Market fountains define the center of a city; shopping centers lure customers with playful water features, and waterfalls cascading down the facades of office complexes signal the importance of the institutions within.

Developing solutions to technical challenges over the centuries, such as the basic water supply needed to build transportation routes or to prevent disasters, has led to a growing, substantiated knowledge of water management. Depending on the specific local challenge, there are natural aspects and site-specific technical resources, such as fountains, cisterns, or flood control structures, which can serve as technical models for designing with water.

Designing with water is always set before a diverse and complex backdrop. It references a broad range of forms, movements, and techniques, and plays with phenomena, myths, and images, thus allowing fantasy and creativity to flourish. However, the end result is ultimately what matters, that is, how well it functions as an architectural element and how it manifests the diversity and fascination of water.

Tab.1:  
Examples of water elements

Type	Free elements	Recurring elements
Jetting water	Spring	Fountain
	Geyser	Water jet
	Waterfall	Cascade
Flowing water	River	Canal
	Brook	Ditch
	Runlet	Channel
Still water	Lake	Basin
	Pond	Sink
	Pool	Trough
	Puddle	Bird baths

Water is a much-loved design element, which can be developed in a variety of ways. This is demonstrated by an almost infinite number of designs and realized examples that reflect either the inspiration of natural landscape or artificial technological methods.

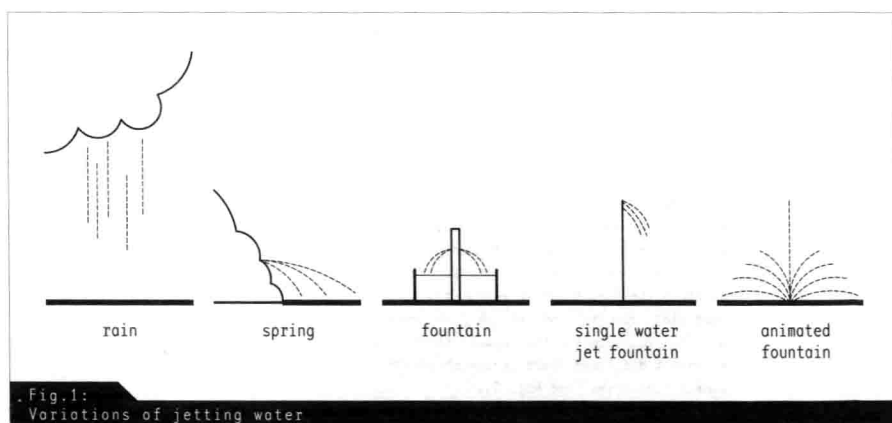
Water is in constant natural flow. Water elements can be typologically classified and their possible applications best clarified by defining various types of flow according to their character – jetting, flowing, still, and disappearing. > Tab. 1

### JETTING WATER

Jetting water can be designed in a natural manner in the form of springs, geysers, mist fountains, or waterfalls. For a more artificial approach, walled fountains or large animated fountains can be used. > Figs 1, 2 and 3

The amount of jetting water is an essential part of any design concept. Other vital aspects include

- \_ the amount of jetting water pressure (for example a trickling runlet or powerful geyser);
- \_ the volume of water (a narrow pipe or rushing waterfall) and the number and direction of the sources (the single, straight line of a jet of water, or an animated fountain that covers a larger area);



. Fig.1:  
Variations of jetting water

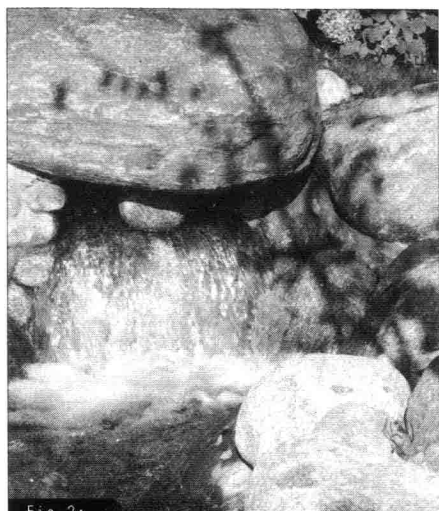


Fig.2:  
Water gushes in a natural manner from  
between two stones



Fig.3:  
Jetting water with ground-level foun-  
tains and timed movement intervals

- \_ the outlet's design (a small slit between stones or a beautifully forged fountain pipe), and the direct environment of the spring's source (a water source with plants or an artistically designed basin);
- \_ the planned intervals (a constant flow or a timed, rhythmic accented appearance).



#### \\Example:

One example for a minimalist design using jetting water is ground-level fountains without aboveground water basins and no visible components when not in operation. Stauffenegger + Stutz used this principle to design a water sculpture for a previously empty square in front of the Bundeshaus in Bern. Each of its fountains represents one of the Swiss cantons, and the sculpture's lithe, upward stream-like movements and timed dance sequences create impressive images (see Fig. 3).