Contents

Preface: Buildings and Trees

Sonja Dümpelmann → p. 6

1 Introduction

Archetypes of growing architecture → p. 10
Living bridges → p. 10
Dance linden trees → p. 14
Aspects of living architecture → p. 17
Baubotanik—a new field of research → p. 18
The chances and challenges of growing
architecture → p. 19
About this book → p. 23

2 Botanical Foundations

The capacity and contribution of trees \rightarrow p. 27 Limits of tree growth \rightarrow p. 28 Formation and functions of the basic organs of a tree \rightarrow p. 29 Formation of the tree shape \rightarrow p. 38 Trees and their context \rightarrow p. 40 Regeneration \rightarrow p. 41 Biomechanics \rightarrow p. 43 Water transport \rightarrow p. 47 Arrangement of the shoots \rightarrow p. 49 Light \rightarrow p. 51 Wound healing \rightarrow p. 52 Overgrowth of non-living elements \rightarrow p. 55 Intergrowth \rightarrow p. 58

3 Techniques and Tree Species

Long-term intergrowth studies → p. 63 Tree species selection in Baubotanik → p. 88

4 Fusion of Trees and Buildings

Integrating trees in buildings → p. 99
Integrating buildings in trees → p. 103
Baubotanik — a fusion of building and tree → p. 108

5 How Living Structures Interact with Their Environment

Microclimate → p. 112 Water balance and material cycles → p. 117

6 Designing with Trees and Time

Design strategies → p. 122

Design examples → p. 126

Living root bridge, Wah Thyllong → p. 128

Dance linden tree, Peesten → p. 132

Ash Dome → p. 136

Wacholderpark Pergolas → p. 138

Cattedrale Vegetale → p. 140

Torre Verde → p. 142

Baubotanik Footbridge → p. 144

Bird Watching Station, Waldkirchen → p. 150

Steveraue Platform → p. 152

Village de Gîtes les Tropes → p. 154

Baubotanik Tower → p. 158

Plane Tree Cube, Nagold → p. 162

Green Living Room, Ludwigsburg → p. 170

7 Utopias and Visions: Living Architecture between Science and Fiction

Arthur Wiechula's living wooden houses → p. 174
The Forest Garden Village by Konstantin
Kirsch → p. 177
The Tree Circus by Axel Erlandson in California
→ p. 179
The Vegetal City by Luc Schuiten
→ p. 181
Mark Primack's Botanic Architecture → p. 183
Baubotanik — between science and vision
→ p. 186

8 Vers une Arbotecture: Towards a Future Tree Architecture

A new interplay between trees and people → p. 189 Designing new tree architecture → p. 198

Appendix

References \rightarrow p. 210 About the Authors \rightarrow p. 218 Acknowledgements \rightarrow p. 219 Illustration Credits \rightarrow p. 220 Index \rightarrow p. 222

