

Contents

Preface	<i>page ix</i>
1. Introduction	i
2. Paconius and the Pedestal for Apollo: A Paradigm of Error in Conceptual Design	15
3. Vitruvius's Auger and Galileo's Bones: Paradigms of Limits to Size in Design	29
4. Galileo and the Marble Column: A Paradigm of a Design Change for the Worse	47
5. Galileo's Confirmation of a False Hypothesis: A Paradigm of Logical Error in Design	64
6. The Design and Collapse of the Dee Bridge: A Paradigm of Success Masking Error	81
7. The Britannia Tubular Bridge: A Paradigm of Tunnel Vision in Design	99
8. Failure as a Source of Engineering Judgment: John Roebling as a Paradigmatic Designer	121
9. The Design Climate for the Tacoma Narrows Bridge: A Paradigm of the Selective Use of History	144

10. Historic Bridge Failures and Caveats for Future Designs	166
11. Conclusion	180
Bibliography	187
Index	201