

TABLE OF CONTENTS

Preface	i
Acknowledgments	iii
A Note on Culverts	iv
List of Figures	ix
List of Plates	x
I. INTRODUCTION	1
II. MARYLAND TRANSPORTATION THROUGH FOUR CENTURIES	3
The Influence of Topography and Geology	3
The Early Transportation Network, 1631-1800	8
The Early and Continuing Importance of Waterways	8
Early Roadways, 1631-1700	9
Colonial and Early National Transportation, 1700-1800	10
Maryland Transportation Transformed, 1800-1900	16
Turnpikes and Turnpike Bridges	16
The National Road	20
Maryland's Canals: C&O and C&D	21
The B&O Railroad and Maryland's Bridges	22
The Road Network and the 1899 Report on Highways	25
Modern Transportation in Maryland, 1900-1960	27
State Aid and Creation of the State Roads Commission	27
Road Improvements, 1900-1960	29
Bridge Standardization and Roadway Planning Studies	32
III. TIMBER BRIDGES	35
Historical Development	35
Timber Bridges in Maryland	43
Conclusion	45

TABLE OF CONTENTS (continued)

IV. STONE ARCH BRIDGES	47
Historical Development	47
Stone Arch Bridges in Maryland	50
Stone Arch Roadway and Turnpike Bridges	54
Stone Arch Railroad Bridges	57
Other Significant Stone Arch Bridges	58
Conclusion	60
V. METAL TRUSS BRIDGES	62
Historical Development	62
The Pratt Truss	73
Double Intersection Pratt Truss	73
Pratt Half-Hip Truss	74
Parker Truss	74
Baltimore (Petit) Truss	74
Pennsylvania (Petit) Truss	75
Camelback Truss	75
The Warren Truss	75
The Bowstring Arch-Truss	83
The Bollman Truss	83
The Wichert Truss	84
Post-1900 Patterns in Truss Fabrication and Use	85
Metal Truss Bridges in Maryland	87
Conclusion	92
VI. MOVABLE BRIDGES	96
Historical Development	96
Swing Bridges	104
Bascule Bridges	105
Vertical Lift Bridges	107
Retractable Bridges	108
Pontoon Bridges	108
Movable Bridges in Maryland	109
Conclusion	113

TABLE OF CONTENTS (continued)

VII. METAL GIRDER BRIDGES	115
Historical Development	115
Metal Girder Bridges in Maryland	126
Conclusion	128
VIII. METAL SUSPENSION, ARCH, AND CANTILEVER BRIDGES	130
Historical Development: Metal Suspension Bridges	130
Metal Suspension Bridges in Maryland	135
Early Suspension Bridges	135
Swinging Footbridges.	137
The First Chesapeake Bay Bridge	138
Conclusion	139
Historical Development: Metal Arch Bridges	140
Metal Arch Bridges in Maryland	145
Conclusion	148
Cantilever Bridges: The Governor Harry W. Nice Memorial Bridge	149
Conclusion	151
IX. CONCRETE BRIDGES	152
Historical Development	152
Concrete Arch Bridges	157
Standardized Types: Concrete Slabs, Beams, Frames, and Culverts	160
Concrete Slab Bridges	161
Concrete Beam Bridges	165
Rigid Frame Bridges	166
Culverts	173

TABLE OF CONTENTS (continued)

Concrete Bridges in Maryland	173
The Advent of Concrete Bridges in Maryland	173
The Development of Standard Plans	178
Concrete Arch, Beam, Slab, and Rigid Frame Bridges in Maryland	181
Conclusion	184
X. BIBLIOGRAPHY	186

Appendix A:

Historic Timetable: Maryland Historic Bridges

Appendix B:

Bridge Builders Active in Maryland

Appendix C:

Identifying and Evaluating Maryland's Historic Bridges