

# CONTENTS

## PAPERS

No.		PAGE
1105	<b>WATER-WORKS VALUATION AND FAIR RATES, IN THE LIGHT OF THE MAINE SUPREME COURT DECISIONS IN THE WATERVILLE AND BRUNSWICK CASES.</b>	
	By Leonard Metcalf.....	1
	Discussion :	
	By C. S. BURNS.....	75
	JAMES NISBET HAZLEHURST.....	81
	ALLEN HAZEN.....	85
	T. H. MCKENZIE.....	85
	L. L. TRIBUS.....	86
	GARDNER S. WILLIAMS.....	90
	LEONARD METCALF.....	92
1106	<b>THE PURIFICATION OF GROUND-WATERS CONTAINING IRON AND MANGANESE.</b>	
	By Robert Spurr Weston.....	112
	Discussion :	
	By WILLIAM C. LOUNSBURY.....	182
	ARTHUR L. TERRY, JR.....	185
	PHILIP BURGESS.....	188
	A. ELLIOTT KIMBERLY.....	193
	ALEXANDER POTTER.....	195
	H. F. DUNHAM.....	197
	E. KUICHLING.....	198
	J. W. ELLMS.....	199
	LANGDON PEARSE.....	201
	ROBERT SPURR WESTON.....	204
1107	<b>STRESSES IN MASONRY DAMS.</b>	
	By William Cain.....	208
	Discussion :	
	By E. G. WALKER.....	224
	WILLIAM CAIN.....	229
1108	<b>THE OPERATION OF PASSENGER ELEVATORS.</b>	
	By Reginald Pelham Bolton.....	231
	Discussion :	
	By F. LAVIS.....	242
	ROBERT BREWSTER STANTON.....	242
	WILLIAM J. BOUCHER.....	243
	REGINALD PELHAM BOLTON.....	245

IV

No.		PAGE
1109	<b>THE BONDING OF NEW TO OLD CONCRETE.</b>	
	By <b>E. P. Goodrich</b> .....	247
	Discussion:	
	By <b>H. R. BURROUGHS</b> .....	270
	THEODORE BELZNER.....	270
	JAMES L. DAVIS.....	271
	C. L. SLOCUM.....	272
	EUGENE W. STERN.....	275
	E. J. FORT.....	276
	MYRON H. LEWIS.....	276
	W. C. BRIGGS.....	280
	FREDERICK C. HARPER.....	280
	F. G. WALKER.....	281
	E. P. GOODRICH.....	283
1110	<b>NICKEL-STEEL EYE-BARS FOR BLACKWELL'S ISLAND BRIDGE.</b>	
	By <b>William R. Webster</b> .....	289
	Discussion:	
	By <b>GUSTAV LINDENTHAL</b> .....	302
	WILLIAM R. WEBSTER.....	302
1111	<b>THE MAXIMUM WEIGHTS OF SLOW FREIGHT TRAINS.</b>	
	By <b>C. S. Bissell</b> .....	303
	Discussion:	
	By <b>L. A. RILEY, 2d</b> .....	312
	C. S. BISSELL.....	316
1112	<b>THE ACTION OF FROST ON CEMENT AND CEMENT MORTAR, TOGETHER WITH OTHER EXPERIMENTS ON THESE MATERIALS.</b>	
	By <b>Ernest R. Matthews and James Watson</b> .....	320
	Discussion:	
	By <b>WILLIAM MAYO VENABLE</b> .....	333
	HERBERT W. HATTON.....	334
	JOHN C. WAIT.....	337
	JAMES L. DAVIS.....	337
	ROBERT BREWSTER STANTON.....	342
	EUGENE W. STERN.....	344
	EDWIN DURYEA, JR.....	345
	MYRON H. LEWIS.....	348
	THEODORE BELZNER.....	350
	ERNEST R. MATTHEWS and JAMES WATSON.....	350
1113	<b>SAMPITTIC SURFACING.</b>	
	By <b>Walter Wilson Crosby</b> .....	352
	Discussion:	
	By <b>L. W. PAGE</b> .....	359
	PREVOST HUBBARD.....	360
	ARTHUR H. BLANCHARD.....	363
	PHILIP P. SHARPLES.....	366
	H. W. CLARK.....	367
	C. E. GRUNSKY.....	370
	HENRY B. DROWNE.....	373
	FRANCIS P. SMITH.....	375
	J. W. HOWARD.....	382
	CLIFFORD RICHARDSON.....	384
	WALTER WILSON CROSBY.....	385

No.	PAGE
<b>1114 A SYSTEM OF COST KEEPING.</b>	
By <b>Myron S. Falk</b> .....	140
Discussion :	
By <b>P. L. REED</b> .....	410
<b>W. C. HAMMATT</b> .....	411
<b>EMILE LOW</b> .....	416
<b>RICHARD T. DANA</b> .....	421
<b>T. KENNARD THOMSON</b> .....	422
<b>F. H. NEWELL</b> .....	423
<b>WILLIAM MURRAY BLACK</b> .....	430
<b>GUY W. CULGIN</b> .....	431
<b>W. BOARDMAN REED</b> .....	432
<b>GEORGE HILL</b> .....	433
<b>WILLARD D. LOCKWOOD</b> .....	438
<b>MYRON S. FALK</b> .....	439
<b>1115 STEEL SHEETING AND SHEET-PILING.</b>	
By <b>L. R. Gifford</b> .....	441
Discussion :	
By <b>CHARLES W. SHERMAN</b> .....	452
<b>C. C. CONKLING</b> .....	452
<b>CHARLES H. HIGGINS</b> .....	457
<b>CHARLES EVAN FOWLER</b> .....	459
<b>J. C. MEEM</b> .....	460
<b>E. P. GOODRICH</b> .....	462
<b>FRANK W. SKINNER</b> .....	465
<b>R. B. WOODWORTH</b> .....	476
<b>L. R. GIFFORD</b> .....	519
<b>1116 THE DESIGN OF ELEVATED TANKS AND STAND-PIPES.</b>	
By <b>C. W. Birch-Nord</b> .....	526
Discussion :	
By <b>CHARLES B. BURDICK</b> .....	532
<b>O. E. SELBY</b> .....	532
<b>CHARLES C. HOPKINS</b> .....	536
<b>WILLIAM MURRAY BLACK</b> .....	539
<b>J. MADISON PORTER</b> .....	540
<b>E. G. WALKER</b> .....	543
<b>A. W. CARPENTER</b> .....	543
<b>C. W. BIRCH-NORD</b> .....	545
<b>1117 ADDRESS AT THE 41ST ANNUAL CONVENTION, BRETTON WOODS, NEW HAMPSHIRE, JULY 6TH, 1909.</b>	
By <b>Onward Bates</b> .....	567

---

## MEMOIRS OF DECEASED MEMBERS

<b>DANIEL DAWSON CAROTHERS, M. AM. SOC. C. E.</b> .....	581
<b>JOSEPH MARSHALL GRAHAM, M. AM. SOC. C. E.</b> .....	588
<b>RUTGER BLEECKER GREEN, M. AM. SOC. C. E.</b> .....	585
<b>CHARLES MACRITCHIE, M. AM. SOC. C. E.</b> .....	587
<b>CHARLES TARBELL DUDLEY, ASSOC. M. AM. SOC. C. E.</b> .....	588
<b>CLINTON GLENCAIRN WELLS, ASSOC. M. AM. SOC. C. E.</b> .....	590
<b>OLIN McCLINTOCK BOYLE, JR., JUN. AM. SOC. C. E.</b> .....	591