

# CONTENTS

## PAPERS

No.		PAGE
1118	<b>CAISSON DISEASE AND ITS PREVENTION.</b>	
	By <b>Henry Japp</b> .....	1
	Discussion:	
	By <b>J. S. HALDANE</b> .....	24
	<b>FREDERICK L. KEAYS</b> .....	26
	<b>ALBERT J. LOOMIS</b> .....	29
	<b>WILLIAM L. SAUNDERS</b> .....	30
	<b>WALTON I. AIMS</b> .....	32
	<b>SEWARD ERDMAN</b> .....	32
	<b>T. KENNARD THOMSON</b> .....	33
	<b>HENRY JAPP</b> .....	34
1119	<b>COPYRIGHT IN DRAWINGS OF A TECHNICAL CHARACTER.</b>	
	By <b>D. A. Usina</b> .....	38
1120	<b>THE SIXTH STREET VIADUCT, KANSAS CITY.</b>	
	By <b>E. E. Howard</b> .....	42
	Discussion:	
	By <b>DANIEL BONTECOU</b> .....	95
	<b>VICTOR H. COCHRANE</b> .....	96
	<b>O. E. MOGENSEN</b> .....	98
	<b>N. T. BLACKBURN</b> .....	100
	<b>GEORGE H. PEGRAM</b> .....	101
	<b>E. E. HOWARD</b> .....	101
1121	<b>SOME EXTENSIVE RAILROAD SURVEYS, AND THEIR COST PER MILE.</b>	
	By <b>W. S. McFetridge</b> .....	105
	Discussion:	
	By <b>CLINTON S. BISSELL</b> .....	131
	<b>F. LAVIS</b> .....	133
	<b>E. W. LEWIS</b> .....	142
	<b>GEORGE L. DILLMAN</b> .....	143
	<b>W. S. MCFETRIDGE</b> .....	144
1122	<b>COMPUTATION OF STRESSES IN OPEN-WEBBED ARCHES WITHOUT HINGES.</b>	
	By <b>C. W. Hudson</b> .....	145
1123	<b>HYDRO-ELECTRIC POWER IN CANADA.</b>	
	By <b>Cecil B. Smith</b> .....	154
	Discussion:	
	By <b>H. HOLGATE</b> .....	194
	<b>E. J. BEUGLER</b> .....	199
	<b>CECIL B. SMITH</b> .....	200

IV

No.		PAGE
1124	<b>TESTS OF BUILT-UP STEEL AND WROUGHT-IRON COMPRESSION PIECES.</b>	
	By <b>Arthur N. Talbot and Herbert F. Moore</b> .....	202
	Discussion:	
	By <b>JOHN C. MOSES</b> .....	246
	<b>ARTHUR N. TALBOT and HERBERT F. MOORE</b> .....	247
1125	<b>IMPURITIES IN SAND FOR CONCRETE: AN INFORMAL DISCUSSION.</b>	
	By <b>SANFORD E. THOMPSON</b> .....	250
	<b>R. W. LESLEY</b> .....	258
	<b>C. P. HOWARD</b> .....	260
	<b>RICHARD L. HUMPHREY</b> .....	260
	<b>G. S. DAVISON</b> .....	262
	<b>S. WHINERY</b> .....	262
	<b>CHARLES M. MILLS</b> .....	263
	<b>T. F. RICHARDSON</b> .....	265
	<b>E. G. HAINES</b> .....	267
	<b>SANFORD E. THOMPSON</b> .....	271
1126	<b>FIRE-RESISTANT CONSTRUCTION OF BUILDINGS: AN INFORMAL DISCUSSION.</b>	
	By <b>HERBERT M. WILSON</b> .....	274
	<b>R. W. LESLEY</b> .....	290
	<b>RICHARD L. HUMPHREY</b> .....	291
	<b>S. WHINERY</b> .....	293
1127	<b>THE SEWER SYSTEM OF SAN FRANCISCO, AND A SOLUTION OF THE STORM-WATER FLOW PROBLEM.</b>	
	By <b>C. E. Grunsky</b> .....	294
	Discussion:	
	By <b>W. C. HAMMATT</b> .....	385
	<b>ROBERT G. DIECK</b> .....	385
	<b>CHARLES E. GREGORY</b> .....	390
	<b>E. KUICHLING</b> .....	395
	<b>KENNETH ALLEN</b> .....	400
	<b>WALTER N. FRICKSTAD</b> .....	405
	<b>C. E. GRUNSKY</b> .....	412
1128	<b>WALNUT LANE BRIDGE, PHILADELPHIA.</b>	
	By <b>George S. Webster and Henry H. Quimby</b> .....	423
1129	<b>HAS EXPERIENCE DEMONSTRATED THAT THE OILING OF ROADS IS THE MOST SATISFACTORY OR ECONOMICAL METHOD OF PREVENTING DUST AND PRESERVING THE ROAD SURFACE? AN INFORMAL DISCUSSION.</b>	
	By <b>S. WHINERY</b> .....	462
	<b>G. S. DAVISON</b> .....	466

No.		PAGE
1130	<b>CONCRETE PILES.</b>	
	By Howard J. Cole.....	467
	Discussion:	
	By MORTON L. TOWER.....	488
	L. J. MENSCH.....	489
	CHARLES H. HIGGINS.....	491
	MAXWELL M. UPSON.....	494
	THOMAS C. DESMOND.....	498
	R. D. COOMBS.....	502
	HOMER A. REID.....	503
	HUNLEY ABBOTT.....	507
	HOWARD J. COLE.....	509

## MEMOIRS OF DECEASED MEMBERS

GEORGE ADGATE, M. AM. SOC. C. E.....	514
WILLIAM PRICE CRAIGHILL, PAST-PRESIDENT, AM. SOC. C. E.....	517
CHARLES HERMANY, PAST-PRESIDENT, AM. SOC. C. E.....	525
CABELL BRECKINRIDGE, M. AM. SOC. C. E.....	529
WALTER LORTON DUSENBERRY, JUN. AM. SOC. C. E.....	538

## P L A T E S

PLATE		PAPER	PAGE
I.	Portions of Profile and Plan, Sixth Street Viaduct, Kansas City...	1120	45
II.	Views of Sixth Street Viaduct and Kaw River Bridge.....	1120	53
III.	Concrete Piles, and Pile Drivers.....	1120	59
IV.	Pedestal, and Tower Span, etc., Sixth Street Viaduct.....	1120	61
V.	Detail of Pier 2, Kaw River Bridge.....	1120	67
VI.	Details of Columns and Bracing, Sixth Street Viaduct.....	1120	71
VII.	Gallows Frame for Erection of Long Girders; and Concrete Floor, Sixth Street Viaduct.....	1120	77
VIII.	Concrete Plant for Laying Floor of Sixth Street Viaduct; and Finished Floor of Approaches.....	1120	81
IX.	Map Showing Lines of Little Kanawha R. R., in West Virginia....	1121	109
X.	Map of the Dominion of Canada.....	1123	157
XI.	Map of Part of the Province of Quebec.....	1123	199
XII.	Application of Instruments for Measuring Stresses, etc., in Com- pression Pieces; and Test Train on White Heath Bridge.....	1124	209
XIII.	Plan of Part of San Francisco, Cal., Showing North Point Main Relief Outlets.....	1127	371
XIV.	Walnut Lane Bridge, Philadelphia.....	1128	427
XV.	General Plan and Elevation of Walnut Lane Bridge and Ap- proaches.....	1128	429
XVI.	Falsework and Main Arch Centering, Walnut Lane Bridge.....	1128	431
XVII.	Plan and Elevation, and Arch Details, Walnut Lane Bridge.....	1128	433
XVIII.	Construction of Arches, Walnut Lane Bridge.....	1128	435
XIX.	Cross-Sections, Walnut Lane Bridge.....	1128	437
XX.	Moving Centering, and View of Voussoirs, Walnut Lane Bridge...	1128	441
XXI.	East Abutment, Walnut Lane Bridge.....	1128	445
XXII.	Floor Details, Walnut Lane Bridge.....	1128	447
XXIII.	Brackets and Piers, Walnut Lane Bridge.....	1128	449