## **CONTENTS**

Papers	Page
COMPUTER SYSTEM FOR ANALYSIS OF LARGE FRAMEWORKS by David F. Brooks and Derick M. Brotton	1
SHAKEDOWN ANALYSIS OF NONPRISMATIC BEAMS by A. F. M. Roushan A. Ghani	25
EARTHQUAKE FORCES IN REINFORCED CONCRETE CHIMNEYS by Wadi S. Rumman	55
FINITE-ELEMENT ELASTIC BUCKLING ANALYSIS by Gardner W. Hicks, Jr	71
BEHAVIOR OF PRESTRESSED COMPOSITE BEAMS by Ronald S. Reagan and Nat W. Krahl	87
DESIGN OF STEEL FRAMES FOR MINIMUM WEIGHT by Richard H. Bigelow and Edwin H. Gaylord	109
CIRCULAR-ARC I-TYPE GIRDERS by G. Clinton Brookhart	133
MULTIBEAM BRIDGES WITH ELEMENTS OF CHANNEL SECTION by Narbey Khachaturian, Arthur R. Robinson, and	
Richard B. Pool	
by Carl J. Turkstra (over)	189

This Journal is published bi-monthly by the American Society of Civil Engineers. Publications office is at 2500 South State Street, Ann Arbor, Michigan, 48104. Editorial and General Offices are at 345 East 47th Street, New York, N. Y. 10017. Subscription price is \$8.00 per year with discounts to members and libraries. Second-class postage paid at Ann Arbor, Michigan. EM, HY, SA, SM, ST.

Pa	age
BOLTED JOINTS WITH PLATES OF DIFFERENT	
THICKNESS by Desi D. Vasarhelyi and Chi-Ching Chen	201
TORSION IN SECTIONS WITH OPEN AND CLOSED PARTS	213
DISCUSSION	
Proc. Paper 5624	
FINITE BEAMS ON ELASTIC FOUNDATIONS, by Constancio Miranda and Keshaven Nair (Apr., 1966. Prior Discussion: Feb., Apr., 1967). closure	231
THEORETICAL ANALYSIS OF SUSPENSION BRIDGES, by Saafan A. Saafan (Aug., 1966. Prior Discussion: Apr., 1967).	232
FACTORS EFFECTING SEISMIC DESIGN OF WATER TOWERS, by B. K. Ramiah and D. S. Rajata Mohana Gupta (Aug., 1966, Prior Discussion: Apr., 1967).	233
DESIGN DATA FOR HIGH-YIELD-STRENGTH ALLOY STEEL, by Geerhard Haaijer (Aug., 1966. Prior Discussion: Apr., 1967).	233
PLASTIC HINGING IN REINFORCED CONCRETE, by Ned H. Burns and Chester P. Siess (Oct., 1966. Prior Discussion: June, 1967).	234
WIND LOADS ON DOME-CYLINDER AND DOME-CONE SHAPES, by Francis J. Maher (Oct., 1966. Prior Discussion: June, 1967).	235
ANALYSIS OF VIERENDEEL TRUSS WITH INCLINED CHORDS, by Hsien-San Tsang (Oct., 1966. Prior Discussion: June, 1967).	236
DENTING OF CIRCULAR BINS WITH ECCENTRIC DRAWPOINTS <sup>a</sup> , by Andrew W. Jenike (Feb., 1967. Prior Discussion: Oct., 1967).	
by Pranshanker C. Dave	237

a Discussion period closed for this paper. Any other discussion received during this discussion period will be published in subsequent Journals.

	Page
LIMIT-DESIGN SOLUTIONS FOR CONCRETE STRUCTURES <sup>2</sup> , by M. Z. Cohn (Feb., 1967. Prior Discussion: Oct., 1967). by Milík Tichý	239
PONDING OF RAINWATER ON FLEXIBLE ROOF SYSTEMS <sup>a</sup> , by Donald A. Sawyer (Feb., 1967. Prior Discussion: Oct., 1967).	
by James Chinn and Abdulwahab H. Mansouri  INELASTIC BEAMS UNDER MOMENT GRADIENT <sup>a</sup> , by Maxwell G. Lay and Theodore V. Galambos (Feb., 1967.  Prior Discussion: Oct., 1967).	240
by Herbert A. Sawyer	243
DISTRIBUTION OF CRANE FORCES IN MILL BUILDINGS <sup>a</sup> , by Martin Preston (Apr., 1967). by William Bertwell by Anatol A. Eremin by Pranshanker C. Dave	250 254 254
NEW METHOD FOR EXACT ANALYSIS OF FOLDED PLATES <sup>a</sup> , by Paul E. Mast (Apr., 1967).  by Alfred Mehmel	256

a Discussion period closed for this paper. Any other discussion received during this discussion period will be published in subsequent Journals.