CONTENTS

Papers	Page
FOREWORD by Committee on Electronic Computation, John S. Archer, Chairman	1
ELECTRONIC COMPUTATION: PAST, PRESENT, POTENTIAL by Elwyn H. King	3
OPTIMUM DESIGN OF MIXED STEEL COMPOSITE GIRDERS by George G. Goble and Philip V. DeSantis	25
AUTOSPEC: AUTOMATED PREPARATION OF SPECIFICATIONS by G. Neil Harper	45
COMPUTER DESIGN OF 100-STORY JOHN HANCOCK CENTER by Fazlur R. Khan, Srinivasa H. Iyengar, and Joseph P. Colaco	55
COMPUTERS AND THE DESIGN OF THE WORLD TRADE CENTER by Richard E. Taylor	75
COMPUTER ANALYSIS OF UNDERGROUND FRAMES by Albert M. Lount and W. F. Smyth	93
TWO COMPUTER APPROACHES TO SUBWAY DESIGN by Winfield O. Salter	117
COMPUTER-AIDED BRIDGE DESIGN by Gerald M. Sturman, Leland C. Albertson, Jr., C. Allin Cornell, and Jose M. Roesset	141
ENVIRONMENT FOR PROBLEM-ORIENTED LANGUAGES by Edward L. Murphree, John W. Melin, and Steven J. Fenves	167
(over)	

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.

	Page
POST: PROBLEM-ORIENTED SUBROUTINE TRANSLATOR by John W. Mellin	179
STRUDL—A COMPUTER SYSTEM FOR STRUCTURAL DESIGN by Robert D. Logcher and Gerald M. Sturman	191
DATALINK: A STRUCTURAL LABORATORY ON-LINE LANGUAGE by Kenneth F. Reinschmidt	213
BUILDING DESIGN USING LINEAR PROGRAMMING by Moshe F. Rubinstein and John Karagozian	223
AUTOMATED OPTIMUM COST BUILDING DESIGN by Louis A. Hill, Jr	247
OPTIMUM DESIGN-MINIMUM WEIGHT VERSUS FULLY STRESSED	
by Thomas P. Kicher	265
by Kenneth F. Reinschmidt, C. Allin Cornell, and John F. Brotchie	281
STRUCTURAL OPTIMIZATION BY NONLINEAR PROGRAMMING by Daniel M. Brown and Alfredo HS. Ang	319
COMPUTER DESIGN OF A TOWER AND CABLE SYSTEM by Robert A. Williamson, Herman F. Stevenson, and Peter W. Van der Pas	341
COMPUTER ANALYSIS OF TOWER VERIFIED BY TESTING by Charles F. Beck and Max Zar	361
THREE-DIMENSIONAL ANALYSIS OF TIER BUILDINGS by William Weaver, Jr., and Mark F. Nelson	385
COMPUTER ANALYSIS OF THE F-111 WING ASSEMBLY by Joseph Antebi, Edwin C. Rossow, Indravadan K. Shah, and Jayant M. Shah	405
SYNTHESIS OF A SPACE TRUSS BASED ON DYNAMIC CRITERIA by J. William Young, Jr., and Henry N. Christiansen	425
ILL-CONDITIONED STIFFNESS MATRICES by Jayant M. Shah	443
FINITE DIFFERENCE ACCURACY IN STRUCTURAL ANALYSIS by Nancy Jane Cyrus and Robert E. Fulton	459
TABULAR DECISION LOGIC FOR STRUCTURAL DESIGN by Steven J. Fenves	473
ARTIFICIAL INTELLIGENCE AND STRUCTURAL DESIGN by William R. Spillers	491
HEURISTIC GAMES FOR STRUCTURAL DESIGN by Tung Au	499