

# CONTENTS

Papers	Page
MOVEMENTS IN PIPE CONDUITS UNDER EARTH DAMS by Homer L. Cappleman, Jr. . . . .	1
EFFECT OF MOISTURE ON THE STRENGTH OF A CLEAN SAND by Kenneth L. Lee, H. Bolton Seed, and Peter Dunlop . . . . .	17
FINITE-ELEMENT ANALYSIS OF SEEPAGE THROUGH DAMS by W. D. Liam Finn . . . . .	41
CONSOLIDATION AND GEOCHEMISTRY OF SOME CLAYS by John P. Nielsen . . . . .	49
STRESS-CONTROLLED APPARATUS FOR TRIAXIAL TESTING by Adel S. Saada . . . . .	61
EMBANKMENT DRAINAGE AFTER INSTANTANEOUS DRAWDOWN by Charles W. Newlin and Stanley C. Rossier . . . . .	79
CLASSIFICATION AND IDENTIFICATION OF SHALES by Lloyd B. Underwood . . . . .	97
DRAINED STRENGTH CHARACTERISTICS OF SANDS by Kenneth L. Lee and H. Bolton Seed . . . . .	117
COMPARISON OF FOOTING VIBRATION TESTS WITH THEORY by F. E. Richart Jr. and R. V. Whitman . . . . .	143
DESIGN PROCEDURES FOR DYNAMICALLY LOADED FOUNDATIONS by R. V. Whitman and F. E. Richart, Jr. . . . .	169
EFFECT OF COMPACTION ON STRENGTH OF SOIL-CEMENT by Nagih M. El-Rawi, T. Allan Haliburton, and Robert L. Janes . . .	195

(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
FUNDAMENTAL ASPECTS OF ELECTRO-OSMOSIS IN SOILS by Donald H. Gray and James K. Mitchell . . . . .	209
SEISMIC FAILURES OF CHILEAN TAILINGS DAMS by Ricardo Dobry and Leonardo Alvarez . . . . .	237
SKIN FRICTION FOR STEEL PILES IN SAND by Harry M. Coyle and Ibrahim H. Sulaiman . . . . .	261
PILE-DRIVING FORMULAS FOR FRICTION PILES IN SAND by Roy E. Olson and Kaare S. Flaate . . . . .	279
VOLUME CHANGES IN TRIAXIAL AND PLANE STRAIN TESTS by W. D. Liam Finn, Neil H. Wade, and Kenneth L. Lee . . . . .	297
STRESS PATH METHOD by T. William Lambe . . . . .	309
UNDRAINED STRENGTH CHARACTERISTICS OF COHESIONLESS SOILS by H. Bolton Seed and Kenneth L. Lee . . . . .	333

---

DISCUSSION

Proc. Paper 5545

---

BEHAVIOR OF A SOIL MASS UNDER DYNAMIC LOADING, by Robert W. Sparrow and A. Colin Tory (May, 1966. Prior Discussion: Jan., Mar., 1967). closure . . . . .	363
CONSOLIDATION OF SLIGHTLY OVERCONSOLIDATED SOILS, by Gerald P. Raymond (Sept., 1966. Prior Discussion: Mar., May, 1967). closure . . . . .	365
ANISOTROPY AND STRESS REORIENTATION IN CLAY, by James M. Duncan and H. Bolton Seed (Sept., 1966. Prior Discussion: May, 1967). closure . . . . .	366
DIMENSIONLESS PARAMETERS FOR HOMOGENEOUS EARTH SLOPES <sup>a</sup> , by James M. Bell (Sept., 1966). by Nilmar Janbu . . . . .	367
DESIGN OF A DIFFERENTIAL PORE PRESSURE MANOMETER AND ITS TIME LAG CHARACTERISTICS, by Jagdish Narain and Bhawani Singh (Sept., 1966). closure . . . . .	374

---

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

	Page
SUBSOILS AND FOUNDATION DESIGN IN RICHMOND, VA., by Leo Casagrande (Sept., 1966. Prior Discussion: May, 1967). closure . . . . .	375
FOUNDATION CLAY SHRINKAGE CAUSED BY LARGE TREES, by Mark J. Hammer and Orville B. Thompson (Nov., 1966. Prior Discussion: May, 1967). closure . . . . .	376
STRENGTH VARIATION ALONG FAILURE SURFACES IN CLAY, by J. M. Duncan and H. Bolton Seed (Nov., 1966). errata . . . . .	376
SHEAR STRENGTH PROPERTIES OF TWO STRATIFIED CLAYS <sup>a</sup> , by Kwan Yee Lo and Victor Milligan (Jan., 1967. Prior Discussion: May, Sept., 1967). by A. Celine Matthai . . . . .	377
SUBGRADE STRESS AND DEFORMATION UNDER DYNAMIC LOAD <sup>a</sup> , by Stephen F. Brown and Peter S. Pell (Jan., 1967). by O. M. Christof Ehrler . . . . .	378
CONSTRUCTION PORE PRESSURES IN THREE EARTH DAMS <sup>a</sup> , by Chung Yuan Li (Mar., 1967). by J. MacNeil Turnbull . . . . .	379
	380
LARGE-SCALE TESTING OF ROCKFILL MATERIALS <sup>a</sup> , by Raúl J. Marsal (Mar., 1967). by Josef Brauns and Hans Leussink . . . . .	383
SEEPAGE UNDER A RECTANGULAR DAM <sup>a</sup> , by George J. W. King (Mar., 1967. Prior Discussion: Sept., 1967). by Suresh P. Brahma . . . . .	388
BEARING CAPACITY OF FOOTINGS ON LAYERED CLAYS <sup>a</sup> , by A. Silva Reddy and R. J. Srinivasan (Mar., 1967. Prior Discussion: Sept., 1967). by B. Ramanathan . . . . .	390
ELECTROKINETIC STABILIZATION OF AN ILLITIC CLAY <sup>a</sup> , by Melvin I. Esrig and John P. Gemeinhardt (May, 1967). by George V. Chilingar and Herman H. Rieke, III . . . . .	391
	392

---

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