Journal of the

HYDRAULICS DIVISION

Proceedings of the American Society of Civil Engineers

HYDRAULICS DIVISION EXECUTIVE COMMITTEE Herbert S. Riesbol, Chairman; Arno T. Lenz, Vice-Chairman; Eugene P. Fortson, Jr.; Harold K. Pratt; Donald R. F. Harlemen, Secretary Samuel I. Zack, Board Contact Member

> COMMITTEE ON PUBLICATIONS James R. Villemonte, Chairman; Francis G. Christian Donald R. F. Harleman, Herbert S. Riesbol

CONTENTS

March, 1963

Papers

Page

Extension of Rating Curves by Field Surveys by Walter T. Sittner	1
Securing More Nearly True Precipitation Measurements by Leonard L. Weiss	11
Shear Measurement Technique for Rough Surfaces by Li-San Hwang and Emmett M. Laursen	19
Valve Stroking to Control Water Hammer by Victor L. Streeter	39

Copyright 1963 by the American Society of Civil Engineers.

Note.-Part 2 of this Journal is the 1963-11 Newsletter of the Hydraulics Division.

The three preceding issues of this Journal are dated September 1962, November 1962, and January 1963.

P	age
---	-----

Dispersion-Permeability Correlation in Porous Media by D. R. F. Harleman, P. F. Mehlhorn, and R. R. Rumer, Jr	67
Channel Stability in Undisturbed Cohesive Soils by Elliott M. Flaxman	87
Friction Factors in Open Channels Progress Report of the Task Force on Friction Factors in Open Channels of the Committee on Hydromechanics of the Hydraulics Division	97

DISCUSSION

Calculation of Potential Flows with Free Streamline, by G. Birkhoff. (November, 1961. Prior discussion: March, May, July, 1962. Discussion closed.) by G. Birkhoff (closure)	147
Cyclical Variations in World-Wide Hydrologic Data, by Gordon R. Williams. (November, 1961. Prior discussion: May, July, 1962. Discussion closed.) by Richard S. Goodridge	149
Hydrologic Design of Culverts, by Ven Te Chow. (March, 1962. Prior discussion: July, September, November, 1962. Discussion closed.) by Ven Te Chow (closure)	161
Back Scour During Floods Above Pits and Basins, by Paul Baumann. (March, 1962. Prior discussion: September, November, 1962. Discussion closed.) by Paul Baumann (closure)	163
General Solution of the Hydraulic Jump in Sloping Channels, by Praxitelis A. Argyropoulos. (July, 1962. Prior discussion: January, 1963. Discussion closed.) by Richard Brock	165
Sediment Transportation Mechanics: Introduction and Properties of Sediment, Progress Report of the Task Committee on Preparation of Sedimentation Manual of the Committee on Sedimentation of the Hydraulics Division (July, 1962. Prior discussion: November, 1962, January, 1963. Discussion closed.)	
by John F. Kennedy and Robert C. Y. Koh	171

Sediment Transportation Mechanics: Erosion of Sediment, Progress Report of the Task Committee on Preparation of Sedimentation Manual of the Committee on Sedimentation of the Hydraulics Division. (July, 1962. Prior discussion: January, 1963. Discussion closed.) by T. Blench	175
 Studies of Severe Rainstorms in Illinois, by G. E. Stout and F. A. Huff. (July, 1962. Prior discussion: January, 1963. Discussion closed.) by G. E. Stout and F. A. Huff (closure)	177
Basic Considerations in Water Resources Planning, Progress Report of the Committee on Water Resources Planning of the Hydraulics Division. (September, 1962. Prior discussion: None. Discussion closed.) by Nathan Buras	181
 Depth-Discharge Relations in Alluvial Channels, by D. B. Simons, E. V. Richardson, and W. L. Haushild. (September, 1962. Prior discussion: None. Discussion closed.) by H. A. Berdenis van Berlekom	183
Boundary Stresses in Curved Trapezoidal Channels, by A. T. Ippen and P. A. Drinker. (September, 1962. Prior discussion: None. Discussion closed.) by E. Silberman by Fred W. Blaisdell	189 190
Flow of Ground Water to Collector Wells, by M. Hantush and I. Papadulos. (September, 1962. Prior discussion: None. Discussion closed.) by Miloje Milojevic	193
Characteristics of the Inlet Hydrograph, by Warren Viessman, Jr., and John C. Geyer. (September, 1962. Prior discussion: None. Discussion closed.) by M. B. McPherson, M. Joseph Willis, and J. V. Radziul	195
Brink Depth for Circular Channels, by C. D. Smith. (November, 1962. Prior discussion: None. Discussion closed April 1, 1963.) by M. H. Diskin	203
	200