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# FLUID MECHANICS RESEARCH REPORTS, BULLETINS, PAPERS, AND THESES

1948 THROUGH 1959

ENGINEERING RESEARCH  
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ENGINEERING RESEARCH  
COLORADO STATE UNIVERSITY  
FORT COLLINS, COLORADO

December 31,  
1959

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FLUID MECHANICS  
RESEARCH REPORTS, PAPERS, BULLETINS, AND THESES

Engineering Research  
Colorado State University

This Report

Prepared under the direction of  
A. R. Chamberlain  
Chief, Engineering Research

Research reports, papers, bulletins, circulars, and student theses are one measure of the productiveness of a University research team. Following are lists of the works of the Engineering Research Staff and students in fluid mechanics and related areas since 1948, including U. S. Government cooperators stationed in the University facilities. These are presented in the following order: (A) Reports for Sponsored Projects; (B) Papers, published or presented; (C) Bulletins and Circulars; and (D) Theses, Master's Reports and Dissertations.

Theses and Dissertations are available on inter-library loan by communication addressed to Director of Libraries, Colorado State University. Other references are usually available, either free or for a nominal charge. Loan copies of items other than Theses and Dissertations are available in nearly every case by writing to the Chief, Engineering Research, Colorado State University.

A. Reports for Sponsored Projects

1. Design of the Loup River Bed-Load Measurement Structure, by M. L. Albertson, prepared for U.S. Geological Survey, July, 1948.
2. Hydraulic Model Studies of Bhakra Dam, by M. L. Albertson, prepared for International Engineering Company, Inc., 1949. ✓
3. Hydraulic Model Studies of Hirakud Dam, by M. L. Albertson, prepared for International Engineering Company, Inc., 1950.
4. Hydraulic Model Studies of Rihand Dam, by M. L. Albertson, prepared for International Engineering Company, Inc., 1950.

5. A Comparative Study of Momentum Transfer, Heat Transfer, and Vapor Transfer, Part I, Forced Convection, Laminar Case, by C. S. Yih, prepared for Office of Naval Research, Contract No. N90nr 824(01), Report No. 1, September 1950.
6. A Comparative Study of Momentum Transfer, Heat Transfer, and Vapor Transfer, Part II, Forced Convection, Turbulent Case, by C. S. Yih, prepared for Office of Naval Research, Report No. 2, Contract No. N90nr 824(01), June 1951.
7. A Comparative Study of Momentum Transfer, Heat Transfer, and Vapor Transfer, Part III, Free Convection, by C. S. Yih, prepared for Office of Naval Research, Contract No. N9 onr 82401, Report No. 3, February 1951.
8. Problems in Making Rain in the West, by T. H. Evans, Public Works, July 1951.
9. Atmospheric Diffusion from a Point Source, by C. S. Yih, prepared for the Office of Naval Research, Contract No. N9 onr 82401, Report No. 4, August 1951.
10. Laminar Heat Convection in Pipes and Ducts, by C. S. Yih and Jack E. Cermak, prepared for the Office of Naval Research, Contract No. N9 onr 82401, Report No. 5, September 1951.
11. Natural Roughness in Artificial Channels, Report on Research completed under J. Waldo Smith Hydraulic Fellowship, by Arthur Willis Van't Hul, 1950-51. Rexographed.
12. Fluctuation Studies in Stilling Wells for Armco Metergate No. 101, by M. L. Albertson, prepared for Armco Drainage and Metal Products, Inc., 1951.
13. Atmospheric Diffusion from a Line and Point Source of Mass Above the Ground, by C. S. Yih, prepared for the Office of Naval Research, Contract No. N9 onr 82401, Report No. 6, April 1952.
14. Determination of Wind Chill on a Life-Sized Clothed Copper Man, by J. E. Cermak, R. K. Thomas, M. L. Albertson, prepared for Quartermaster Corps, U.S. Army, Contract No. DA44-109-gm-584, June 1952.
15. Laminar Free Convection Due to a Line Source of Heat, by C. S. Yih, prepared for the Office of Naval Research, Contract No. N9 onr 82401, Report No. 7, September 1952.

16. On the Asymptotic Behavior of any Fundamental Solution of the Equation of Atmospheric Diffusion and on a Particular Diffusion Problem, by C. S. Yih, prepared for the Office of Naval Research, Contract No. N9 onr 82401, Report No. 8, September 1952.
17. Temperature Distribution in the Boundary Layer of an Airplane Wing with a Line Source of Heat at the Stagnation Edge, Part 1, Symmetric Wing in Symmetric Flow, by C. S. Yih, J. E. Cermak and R. T. Shen, prepared for the Office of Naval Research, Contract No. NOnr-54401, October 1952.
18. Temperature, Seepage and Turbulence as Factors Affecting Suspended Sediment Concentration, by J. R. Barton, and M. L. Albertson, prepared for the Bureau of Reclamation, Contract No. 12 R-19126, June 1953.
19. Lake Hefner Model Studies of Wind Structure and Evaporation, Final Report, Part I, by J. E. Cermak and H. J. Koloseus, prepared for the Bureau of Ships, Navy Department, Contract NObsr 57053, November 1953.
20. Development of Basin for Investigation of the Seaworthiness of Model Seaplane Hulls, by E. F. Schulz, prepared for the Bureau of Aeronautics, Navy Department, Contract NOas 52-1077-c, March 1954.
21. Development of a Facility for Testing the Performance of Ship Hulls in Oblique Seas, by E. F. Schulz, prepared for the Bureau of Ships, Navy Department, Contract N9onr 82403, March 1954.
22. Tests of the Seaworthiness of Seaplane Hulls Having a High Length to Beam Ratio, by E. F. Schulz, prepared for the Bureau of Aeronautics, Navy Department, Contract NOas 52-1077-c, May 1954.
23. Lake Hefner Model Studies of Wind Structure and Evaporation, Final Report, Part II, by J. E. Cermak and H. J. Koloseus, prepared for the Bureau of Ships, Navy Department, Contract NObsr-57053, July 1954.
24. Development of a Constant-Force Bottom Contour for Seaplane Hulls, by E. F. Schulz, prepared for the Bureau of Aeronautics, Navy Department, Contract NOas 52-332-c, November 1954.
25. Vapor Transfer by Forced Convection from a Smooth, Plane Boundary, by J. E. Cermak and P. N. Lin, prepared for the Office of Naval Research, Contract N90nr 82401. Report No. 9, January 1955.

26. A Study of Transport of Sediment in Alluvial Channels, by J. R. Barton, prepared for the Corps of Engineers, Contract No. DA-25-075 Eng 2632, March 1955. CER55JRB2,
27. Effect of Boundary Form on Fine Sand Transport in Twelve-Inch Pipes, by A. R. Chamberlain, prepared for Armco Drainage and Metal Products, Inc., June 1955. CER55ARC6.
28. Report of Sediment Lining Investigations, Fiscal Years 1954 and 1955, by R. D. Dirmeyer, Jr., prepared for the Bureau of Reclamation, Contract No. 14-06-700-129, June 1955. CER55RDD7.
29. Turbulent Diffusion of Momentum and Heat from a Smooth, Plane Boundary with Zero Pressure Gradient, by A. C. Spengos, prepared for the Air Force Cambridge Research Center, Contract No. AF 19(604)-421, February 1956. Report No. 1. CER56ACS4.
30. Report of Sediment Lining Investigations, Fiscal Year 1956, by R. D. Dirmeyer, Jr., prepared for the U. S. Bureau of Reclamation, Contract No. 14-06-700-1157, August 1956. CER56RDD17.
31. Turbulent Diffusion of Momentum and Heat from a Smooth, Plane Boundary with Zero Pressure Gradient. Part I, Final Report, Experimental Equipment, by A. C. Spengos and J. E. Cermak, prepared for the Air Force Cambridge Research Center, Contract No. AF 19(604)-421, Report No. AFCRC-TN-56-273, August 1956. CER56ACS12.
32. Sediment Transport Through Pipes, by R. J. Garde, prepared for Armco Drainage and Metal Products, Inc., October 1956. CER56RJG19.
33. Turbulent Diffusion of Momentum and Heat from a Smooth, Plane Boundary with Zero Pressure Gradient, Part II, Final Report, Presentation of Data and Analysis, by J. E. Cermak and A. S. Spengos, prepared for the Air Force Cambridge Research Center, Contract No. AF 19(604)-421, Report No. AFCRC-TN-56-273, December 1956. CER56JEC22.
34. Model Tests to Predict the Seaworthiness of Seaplane Hulls, by E. F. Schulz, prepared for the Bureau of Aeronautics, Navy Department, Contract No. NOas 54-908-c, January 1957, CER57EFS1.
35. Model Tests with a Tanker in Oblique Seas, by E. F. Schulz, prepared for the David Taylor Model Basin, Navy Department, Contract No. N9onr 824 (03), January 1957. CER57EFS2.

36. **Fluid Mechanics Research Laboratory Facility Needs**, by Dean F. Peterson and A. R. Chamberlain, 1957, prepared for National Science Foundation. CER57DFP-ARC8.
37. **First Approximation to a Confused Sea on a Circular Model Basin**, by R. E. Glover, prepared for the David Taylor Model Basin under Contract No. NONr 1610(02), Technical Report No. 2, January 1957. CER57REG13.
38. **Brief Note on Mechanical Means of Generating a Confused Sea**, by R. E. Glover, prepared for the David Taylor Model Basin under Contract No. NONr 1610(02), Technical Report No. 3, January 1957. CER57REG14.
39. **Preliminary Model Tests of a Flume for Measuring Discharge of Steep Ephemeral Streams**, by A. R. Chamberlain, prepared for the Rocky Mountain Forest and Range Experiment Station, February 1957. CER57ARC12.
40. **Production of a Confused Sea in a Rectangular Model Basin**, by R. E. Glover, prepared for the David Taylor Model Basin under Contract No. NONr 1610(02), Technical Report No. 4, March 1957. CER57REG23.
41. **Scour and Energy Dissipation Below Culvert Outlets**, by George L. Smith, prepared for the Agricultural Research Service, Contract No. 12-14-100-464(41), April 1957. CER57GLS16.
42. **Description of Facilities for Seaworthiness Testing of Model Hulls at Colorado State University**, by E. F. Schulz, May 1957 (revised August, 1957). CER57EFS15.
43. **Theory and Design of Stable Channels in Alluvial Materials**, by Daryl B. Simons, prepared for the U.S. Bureau of Reclamation, (Thesis) Contract 63052, May 1957. CER57DBS17.
44. **Report on Laboratory Testing of the Sediment-Sealing Method. Part I. Sealing Effects of Dispersed and Flocculated Bentonite Suspensions in a Dune Sand**, by E. C. Newman, prepared for the U.S. Bureau of Reclamation, Contract 14-06-700-1157, August 1957. CER57ECN19.
45. **Report on Laboratory Testing of the Sediment-Sealing Method. Part II. Sealing Effects of Dispersed Bentonite Suspensions and Dispersant Solution on Greeley Fine Sandy Loam and Loveland Lake Sand**, by R. T. Shen, prepared for the U.S. Bureau of Reclamation, Contract 14-06-700-1157, August, 1957. CER57RTS20.

46. Estimates of Bending Moments and Pressures Due to Slamming, by R. E. Glover, prepared for the David Taylor Model Basin under Contract NOnr 1610(02), Technical Report No. 5, August 1957. CER57REG24.
47. Requirements for Production of a Replica Sea in a Model Basin, by R. E. Glover, prepared for the David Taylor Model Basin under Contract No. NOnr 1610(02), Technical Report No. 6, October 1957. CER57REG25.
48. Notes on the Generation of Complex Seas for Model Studies, by R. E. Glover, prepared for the David Taylor Model Basin under Contract No. NOnr 1610(02), October 1957. CER57REG27.
49. Interim Report on Model Studies for Bocono Dam, by Kersi Davar and A. R. Chamberlain, prepared for Tipton and Kalmbach, Inc., October 1957. CER57ARC28.
50. Field Trip Report Relating to Bentonite Sedimenting of Canals in Wheatland Irrigation District, by R. D. Dirmeyer, Jr., prepared for Wyoming Natural Resource Board and the Wheatland Irrigation District, October 1957. CER57RDD30.
51. Backwater Effects of Bridge Piers and Abutments, by H. K. Liu, J. N. Bradley, and E. O. Plate, prepared for the U. S. Bureau of Public Roads, Contract CPR 11-3298, October 1957. CER57HKL10.
52. On the Design of an Armorplated Stilling Basin for a Cantilevered Outlet on the Turkey Creek Watershed, Colorado, prepared for the Bureau of Public Roads, November 1957, by G. L. Smith. CER57GLS33.
53. Evaluation of Effect of Approach Tubing Size Upon The Calibration of 3/4 inch Turbine Flowmeters, prepared by Morton W. Bittinger, under Contract DEN 57-10195, for the Martin Company, November 1957. CER57MWB32.
54. Hydraulic Research - Summary of Research Projects, prepared by A. R. Chamberlain, for Hydraulic Research in the United States, National Bureau of Standards, December 1957. CER57ARC35.
55. Interaction of Ship and Wave Pressure Effects. Part I. Experimental Procedure for Studies prepared for DTMB December 1957 by E. F. Schulz. (Classified Report) ✓

56. Evaluation Procedures of Sediment Material for Canal Sealing, by R. T. Shen, revised January 1958. Prepared for A.R.S. CER58RTS4.
57. Use of a Capacitance Influence Probe for Measuring Wave Profiles, by E. F. Schulz, and J. E. Phillips, prepared for the DTMB, Navy Department Contract NOnr 1610(03). January 1958. CER58EFS3.
58. Annual Report 1957 - ARS Western Soil and Water Management Research Branch, Irrigation and Drainage Facilities Section (Confidential) prepared by A. R. Robinson, R. W. Nelson, R. H. Brooks and E. G. Kruse in February 1958. CER58ARR7.
59. Evaluation of the Effect of Viscosity on the Calibrations of Several Flowmeters, prepared by A. R. Chamberlain, and Fred Videon, for the Martin Company under Contract DEN 57-10195, February 1958. CER58ARC5.
60. A New Type of Wave Generator, by R. E. Glover, prepared for the DTMB under Contract NOnr 1610(02), Technical Report No. 7, March 1958. CER58REG8.
61. Engineering Aspects of Ground Water Conditions in Bijou Valley, Colorado, together with comments on Applicable Types of Legislation, by W. E. Code, W-42 Progress Report, 1958.
62. Interim Report on Bentonite Sediment Sealing Activities in Trans-Mountain Diversion System of the Twin Lakes Reservoir and Canal Company near Aspen, Colorado, prepared by R. D. Dirmeyer, April 1958. CER58RDD15.
63. Influence of Elbow Location and Dynamic Viscosity on Turbine Flowmeter Calibrations, prepared by A. R. Chamberlain, and Fred Videon for the Martin Company under Contract DEN 57-10195, May 1958. CER58ARC19.
64. Interim Report on Bentonite Sediment Sealing Activities in Lateral E-65-19.3 of the Central Nebraska Public Power and Irrigation District near Bertrand, Nebraska, prepared for A.R.S. by R. D. Dirmeyer, under terms of Contract 12-14-100-507(41), June 1958. CER58RDD23.
65. Final Report on Model Studies for Bocono Dam, Venezuela, South America, prepared for R. J. Tipton, Associate Engineers, Inc., by Kersi S. Davar, and M. Shaarawi Amin. CER58ARC24.

66. Behavior of Experimental Current Meters in Still Water and Turbulent Flows, Administrative report prepared by A. R. Chamberlain, and C. B. Ham, for U. S. Geological Survey, July 1958.
67. Report on a Hydraulic Model Study of the By-Pass on the Cumbaya Project. Quito, Ecuador, by S. Karaki, and S. Ayoub. Prepared for R. J. Tipton Associate Engineers, Inc. CER58SSK30.
68. Hydraulic Model Study of the Makio Dam Spillway, Prepared for Erik Floor and Associates, Inc., by S. Karaki, and M. Shaarawi Amin. CER58SSK34.
69. Hydraulic Research at Colorado State University, Summary of Research Projects, prepared by A. R. Chamberlain, December 1958. CER58ARC38.
70. Deceleration During Impact of Seaplane Hulls on a Water Surface, prepared for the Department of the Navy, Bureau of Aeronautics under Contract NOas 55-394-c, by A. R. Chamberlain, and Bernard d'Utry. CER58ARC40.
71. Wind Tunnel for the Study of Turbulence in the Atmospheric Surface Layer, by J. E. Cermak, AFCRC-TR-58-287. CER58JEC42.
72. Method of Creating a Complex Seaway in a Model Basin, prepared for David Taylor Model Basin, Department of Navy, under Contract Nonr 1610(02), by R. E. Glover. CER58REG43.
73. Annular Jet Inducer, prepared for Cooley Gravel Company, by S. Karaki, December 1958. CER58SSK44.
74. Investigation of Flexible Conduit Type Structures for Atomic Shelter Purposes. A classified report prepared by R. Szilard for the Martin Company. 1958.
75. Trapezoidal Measuring Flumes for Determining Discharges in Steep Ephemeral Streams, prepared for the Rocky Mountain Forest and Range Experiment Station, by A. R. Robinson, February 1959. CER59ARR1.
76. Hydraulic Model Study of Spur Dikes for Highway Bridge Openings, prepared for the United States Department of Commerce, Bureau of Public Roads, by S. Karaki, January 1959. CER59SK2.

77. Annual Report - U. S. Department of Agriculture, Agricultural Research Service, Soil and Water Conservation Research Division, Western Soil and Water Management Research Branch, prepared by A. R. Robinson, R. H. Brooks, E. G. Kruse, and R. W. Nelson, March 1959. CER59ARR4.
78. Laboratory Observations of Scour at Bridge Abutments, prepared for the Highway Research Board, by H. K. Liu. CER59HKL6.
79. Restrained Model Tests in Head Seas, prepared for the David Taylor Model Basin under Contract No. Nonr 1610(04), by E. F. Schulz, April 1959. CER59EFS7.
80. Evaluation of the Performance of the Gulston Ultra-Sonic Gentile Tube and Potter Model - 6-424 GLMD-5 Flowmeters, prepared for the Martin Company, Denver Division, under Contract No. F8-51290, by Fred Videon, and G. L. Smith, April 1959. CER59FV11.
81. Hydraulic Model Study of the Morning Glory Spillway for Dillon Dam, prepared for Tipton and Kalmbach, Inc., by Susumu S. Karaki, June 1959. CER59SSK21.
82. Research Report - Calibration of Orifice Plates for Furrow Flow Measurement, prepared for the United States Department of Agriculture, Agricultural Research Service, Soil and Water Conservation Research Division, Western Soil and Water Management Research Branch. (for administrative use only) by R. D. Layton and A. R. Robinson. CER59ARR24.
83. Longitudinal Distribution of Virtual Mass and Damping Forces on a Pitching and Heaving Ship, prepared for the S-3 Panel of the Hull Structure Committee, Society of Naval Architects and Marine Engineers, by E. F. Schulz, 1959. CER59EFS28.
84. Synoptic Patterns Associated with Hail Occurrences in North-eastern Colorado, prepared for the National Science Foundation Research Participation, by Haden Hodges, 1959. CER59HH29.
85. Status Report on Colorado Cooperative Project in Climatology, prepared by R. A. Schleusener, Civil Engineering Section, Colorado Agricultural Experiment Station in Cooperation with the United States Weather Bureau and the United States Department of Agriculture, Soil Conservation Service. CER59RAS30.

86. Hydraulic Model Study of Spur Dikes for Highway Bridge Openings, prepared under the joint sponsorship of the State Highway Departments of Mississippi and Alabama in cooperation with the Hydraulics Research Division of United States Bureau of Public Roads, by Susumu Karaki, 1959. CER59SSK36.
87. Research Conducted Concurrently with the Hail Suppression Program of the Weather Modification Company, prepared for the Directors of the Northeast Colorado Hail Suppression Association, by R. A. Schleusener, 1959. CER59RAS37.
88. Preliminary Report on Magnitude and Frequency of Floods From Small Watersheds In Semi-Arid Areas, prepared for the United States Bureau of Public Roads, by R. A. Schleusener, George L. Smith, and Nobu Yotsukura. 1959. CER59RAS39.
89. Estimates of Runoff from Small Watersheds in Eastern Colorado, Western Kansas and Nebraska, and Southeastern Wyoming, prepared under the sponsorship of the Hydraulics Division of the United States Bureau of Public Roads, by R. A. Schleusener, and G. L. Smith. 1959. CER59RAS41.
90. Evaluation of the Performance of the Floating Rotor Design Flowmeter Manufactured by the Pottermeter Company, prepared for the Martin Company, Denver Division, by S. S. Karaki. 1959. CER59SSK45.
91. Ground Water Recharge in Prospect Valley, Colorado - Preliminary Progress Report, Colorado General Assembly Senate Bill No. 336, by R. E. Glover, 1959. CER59REG46.
92. Hydraulic Research at Colorado State University - Summary of Research Projects, prepared for National Bureau of Standards, by M. M. Skinner, December 1959. CER59MMS50.
93. Preliminary Analyses of Meteorological Parameters In The Upper Colorado River Basin, prepared for the State of Colorado Department of Natural Resources, by R. A. Schleusener, Dec. 1959. CER59RAS51.
94. Model Study of a Trapezoidal Flume for Measurement of Stream Discharge, prepared for the Rocky Mountain Forest and Range Experiment Station, by A. R. Robinson. 1959. CER59ARR57.

## B. Papers, Published or Presented

1. Geology and Irrigation Engineering, by R. D. Dirmeyer, Applied Geology Section, Mineral Resources in World Affairs, Colorado School of Mines, January 1950.
2. An Extension of Dehn's Theorem on the Approximation of a Function by a Power Series, by C. S. Yih, University of British Columbia, Vancouver, Canada, Journal of the Indian Mathematical Society, 1950.
3. Diffusion of Submerged Jets, by M. L. Albertson, Y. E. Dai, R. A. Jensen, and Hunter Rouse, Transactions, American Society of Civil Engineers, Volume 115. 1950. X
4. Diffusion from a Line Source in Laminar Flow over a Wedge and in Blasius Flow, C. S. Yih, Proceedings, First National Congress of Applied Mechanics, June 1950.
5. Design Characteristics of the Vortex-Tube Sand Trap, by G. L. Koonsman and M. L. Albertson, Proceedings of International Association for Hydraulic Research, 1950.
6. Evaporation from a Plane Boundary, by M. L. Albertson, Proceedings of Heat Transfer and Fluid Mechanics Institute, Stanford University, California, June 1951.
7. Analysis of Climatological Data for the Spring Cloud-Seeding Period Over North Central Colorado, by S. D. Resnick, prepared for Northern Colorado Natural Resources Association, June, 1952.
8. Dimensional Analysis as a Tool in Hydraulic Design and Research, by M. L. Albertson, Civil Engineering Bulletin, American Society for Engineering Education, February 1951.
9. Report of Rainmaking, by T. H. Evans, Colorado Rancher and Farmer, Volume 5, No. 19, October 1951.
10. Turbulence Flume to Measure Bed Load, by M. L. Albertson, Transactions, American Geophysical Union, Volume 32, December 1951.
11. On the Differential Equation of Atmospheric Diffusion, by C. S. Yih, Transactions, American Geophysical Union, Volume 33, No. 1, February 1952.

12. Use and Design Considerations of Sprinkler Systems in Colorado, by W. E. Code, paper presented to Colorado-Wyoming Academy of Science, Boulder, Colorado, May 1952.
13. Analysis of Results of Rainmaking Projects in the Western States, by S. D. Resnick, paper presented to American Geophysical Union, May 1952.
14. Influence of Particle Shapes on Their Fall Velocity, by E. F. Schulz, paper presented to Colorado-Wyoming Academy of Science, May, 1952, Boulder, Colorado.
15. An Evaluation of Surveying in the Civil Engineering Curriculum, by D. F. Peterson, Jr., Civil Engineering Journal, American Society for Engineering Education, Volume 18, No. 1, December, 1952.
16. Similarity Solution of a Specialized Diffusion Equation, by C. S. Yih, Transactions, American Geophysical Union, Volume 33, No. 3, June 1952.
17. Application of Model Techniques to Mass Transfer and Evaporation Studies, by J. E. Cermak, presented to Centennial of Engineering, Chicago, Illinois, September 1952.
18. Discussion by P. N. Lin of Rigorous, Simple Method of Measuring and Recording Particle Size Distribution in Dispersed Material, by M. Rim, Transactions, American Geophysical Union, Volume 33, pp 423-426, October 1952.
19. Discussion by P. N. Lin of "Turbulent Transfer Mechanism, and Suspended Sediment in Closed Channels, by Hassan M. Ismail," Transactions, American Society of Civil Engineers, Vol. 117, 1952.
20. On Tides in Estuaries and Around Small Islands, by C. S. Yih, Transactions, American Geophysical Union, Volume 34, No. 3, June 1953.
21. Total Sediment Load Measured in Turbulence Flume, by P. C. Benedict, M. L. Albertson and D. Q. Matejka, Proceedings, American Society of Civil Engineers, Separate No. 230, Volume 79, August 1953.

22. Scour From Jets, by D. Doddiah, M. L. Albertson, and R. K. Thomas, Proceedings, Minnesota International Hydraulics Convention, Minneapolis, Minnesota, September 1953.
23. Discussion by P. N. Lin of Numerical Analysis of Continuous Unsteady Flow in Open Channels, Transactions, American Geophysical Union, Volume 34, No. 6, October 1953.
24. Effect of Shape on the Fall Velocity of Gravel Particles, by M. L. Albertson, Proceedings, Fifth Hydraulics Conference, Iowa Institute of Hydraulic Research, State University of Iowa, June 1952.
25. Run-off Forecasts, 1954 Water Supply in the West, by C. E. Houston, and H. J. Stockwell, Western Construction, May 1954.
26. Factors Affecting the Supply of Graduate Students in Engineering, by D. F. Peterson, Jr., Journal of Engineering Education, November 1954.
27. Influence of Shape on the Fall Velocity of Sedimentary Particles, by E. F. Schulz, R. H. Wilde and M. L. Albertson, Corps of Engineers, MRD Sediment Series, No. 5, July 1954.
28. Hydraulic Head Loss at the Interface Between Uniform Sands of Different Sizes, by F. N. Leatherwood and D. F. Peterson, Jr., Transactions, American Geophysical Union, Volume 35, No. 4, August 1954.
29. Artificial Roughness Standard for Open Channels, by A. R. Robinson, and M. L. Albertson, Transactions, American Geophysical Union, Volume 35, No. 4, August 1954.
30. Experimental Study of Velocity Indicator, by Capt. J. E. Cermak, Ord. and Capt. H. J. Koloseus, 5568th Research and Development Group, Fort Collins, Colorado, unclassified report, Project No. Sig. C-131, prepared for Special Activities, Signal Corps Engineering Laboratories, Fort Monmouth, New Jersey, August 1954.
31. Equipment for Testing Model Ship and Seaplane Hulls in Oblique Seas, by E. F. Schulz, First Proceedings of Conference on Ships and Waves, October 1954.

32. Filters for Water Wells and Drain Pipe, by N. A. Evans, paper presented to American Society of Agricultural Engineers, Chicago, Illinois, December 1954.
33. Discussion by P. N. Lin of Analysis of Water Hammer by Characteristics, by C. A. M. Gray, Transactions, American Society of Civil Engineers, Volume 119, 1954.
34. Some Thoughts on the Design of Floodways, Why Not Reinforced Stone Construction, and the Need of a Study of Earthwork Construction Methods, by E. W. Lane, United Nations ECAFE Regional Technical Conference on Water Resources Development, Tokyo, 1954.
35. Design of Stable Channels, by E. W. Lane, Transactions, American Society of Civil Engineers, Volume 120, 1955.
36. Many Factors to Consider for Efficient Water Use, by D. F. Peterson, Jr., Colorado Rancher and Farmer, Volume 9, No. 6, March 1955.
37. Charge as a Factor in Stable Irrigation Canals, by E. W. Lane, Central Board of Irrigation and Power Journal, India, Volume 12, No. 2, April 1955.
38. Discussion of the Present Status of Research on Sediment Transport, by H. K. Liu, and Ning Chien, American Society of Civil Engineers, Proceedings paper 565, April 1955.
39. Hydraulics of Wells, by D. F. Peterson, Jr., Proceedings, American Society of Civil Engineers, Separate No. 708, June 1955.
40. Wells and Pumps for Irrigated Lands, by Carl Rohwer, in U.S. Department of Agriculture Yearbook for 1955 (titled Water.)
41. Measurement of Canal Seepage, by A. R. Robinson, and Carl Rhower, Proceedings, American Society of Civil Engineers, Separate No. 728, June 1955.
42. Some Mistakes in the Design of Flood Control Works, by E. W. Lane, United Nations ECAFE Flood Control Journal, June 1955.

43. Discussion by E. W. Lane of Graphic Design of Alluvial Channels, by Ning Chien, Transactions, American Society of Civil Engineers, Volume 121, 1956.
44. The Importance of Fluvial Morphology in Hydraulic Engineering, by E. W. Lane, Proceedings, American Society of Civil Engineers, Separate No. 745, July 1955.
45. Discussion by E. W. Lane of A Concept of Lacey's Regime Theory, by Ning Chien, Proceedings, American Society of Civil Engineers, Separate No. 808, September 1955.
46. Flow into a Well by Electric and Membrane Analogy, by Chong-Hung Zee, D. F. Peterson, Jr., and R. O. Bock, Proceedings, American Society of Civil Engineers, Separate No. 817, October 1955.
47. Discussion by Carl Rohwer of Flow into a Well by Electric and Membrane Analogy, by C. H. Zee, D. F. Peterson, Jr., and R. O. Bock, Proceedings, American Society of Civil Engineers, Separate No. 817, October 1955. X
48. Effect of Well Screens on Flow into Wells, by J. S. Petersen, Carl Rohwer and M. L. Albertson, Transactions, American Society of Civil Engineers, Volume 120, 1955. X
49. Discussion by D. F. Peterson, Jr., of Effect of Well Screens on Flow into Wells, by J. S. Petersen, Carl Rohwer, and M. L. Albertson, Transactions, American Society of Civil Engineers, Volume 120, 1955.
50. Proceedings Paper 982 - Discussion of "Riverbed Degradation Below Large Capacity Reservoirs by M. G. Mostafa, (Proc. Paper 788, A.S.C.E.)" by M. L. Albertson and H. K. Liu. January 1956. CER58MLA-HKL9.
51. Recent Developments in the Design of a Simple Overfall Drop Structure, by D. E. Hallmark and M. L. Albertson, Proceedings, Four-States Irrigation Council, Fifth Annual Meeting, Denver, Colorado, January 1956.
52. A Summary of Hydraulics Related to Wells, by D. F. Peterson, Jr., paper presented to American Society of Agricultural Engineers, Rocky Mountain Section, Las Cruces, New Mexico, March 1956.

53. Ground-Water Legislation, by W. E. Code, paper presented to American Society of Agricultural Engineers, Rocky Mountain Section, Las Cruces, New Mexico, March, 1956.
54. Seepage Measurement and Its Relation to Drainage and Canal Lining Programs, by A. R. Robinson, Soil and Water Conservation Journal, March, 1956.
55. Modernizing the Surveying Curriculum, by M. E. Bender, paper presented to the American Society for Engineering Education, June, 1955, C. E. Bulletin, Volume 21, No. 3, April, 1956.
56. Heat Transfer by Forced Convection from a Horizontal Flat Plate into a Turbulent Boundary Layer, by A. C. Spengos and J. E. Cermak, Proceedings, Heat Transfer and Fluid Mechanics Institute, Stanford University, June 21-23, 1956.
57. Mechanics of Sediment-Ripple Formation, by H. K. Liu, Proceedings paper No. 1197, Vol. 83, No. HY2, American Society of Civil Engineers, Journal of Hydraulics Division. April 1957.
58. Some Aspects of Roughness in Alluvial Channels, by S. M. Ali, and M. L. Albertson, Paper presented to American Society of Civil Engineers, Madison, Wisconsin, August. 1956.
59. Discussion by E. W. Lane of Flood Erosion Protection for Highway Fills, by C. J. Posey, Proceedings, American Society of Civil Engineers, Separate No. 783, 1956.
60. Laboratory Investigations on Interceptor Drains, by A. R. Robinson, paper presented to the Joint ARS-SCS Drainage Conference, Colorado Springs, Colorado, January, 1957.
61. Research on Well Screens and Gravel Filters for Water Wells, by A. R. Robinson, paper presented to the Joint ARS-SCS Irrigation Drainage Conference, Colorado Springs, Colorado, January, 1957.
62. Principles of Energy Dissipation in Erosion Control Structures, by M. L. Albertson, and G. L. Smith, paper presented to the Joint ARS-SCS Irrigation Drainage Conference, Colorado Springs, Colorado, January, 1957.

63. Difficultues in Some Field Methods of Measuring Hydraulic Conductivity by R. William Nelson, prepared for presentation to the Joint ARS-SCS Irrigation Drainage Conference, Colorado Springs, Colorado, January 1957.
64. Transport of Sediment in Helical Corrugated Pipes, by A. R. Chamberlain, R. J. Garde, and M. L. Albertson, paper presented to American Society of Civil Engineers, Jackson, Mississippi, February 1957.
65. Use of Colloidal Clay Sediments in Sealing Irrigation Canals, by R. D. Dirmeyer, prepared for the 3rd Congress of the International Commission on Irrigation and Drainage, San Francisco, California, May 1957.
66. Mesasurement of Canal Seepage by A. R. Robinson, and Carl Rohwer, Proceedings Separate No. 728, Irrigation Drainage Division of American Society of Civil Engineers, Volume 81. June 1955.
67. Theory of Drainage by Pumping From Wells, by D. F. Peterson, Jr., Section 4, Chapter II, Drainage of Agricultural Lands, Monograph on Drainage, American Society of Agronomy, Volume VII, James N. Luthin editor. July 1957.
68. Measurement of Canal Seepage, by A. R. Robinson, Jr., and Carl Rohwer, Paper No. 2865, American Society of Civil Engineers Transactions, Vol. 122, p. 347. 1957.
69. Surveys Point Up Ground Water Problem, by I. F. Davis, E. J. Farmer and W. E. Code, prepared for Farm and Home Colorado Research, January-February, 1957.
70. Means of Making Watertight the Beds and Dikes of Navigable Canals and Rivers, prepared by R. D. Dirmeyer, Jr., for XIX International Navigation Congress, London, July 1957.
71. Symposium on Arch Dams, reprinted from Journal of the Power Division, Proceedings of the American Society of Civil Engineers, September 1957. CER57REG18.
72. Research Reports, Published Papers, Bulletins and Theses - 1948 to October 1957, by A. R. Chamberlain, October 1957. CER57ARC21.

73. Mechanics of Sediment Ripple Formation, ASCE Proceedings Paper No. 1197, by H. K. Liu, April 1957.
74. Arch Dams - Review of Experience, by R. E. Glover, ASCE Proceedings Paper No. 1217, April 1957.
75. Discussion of Paper, "Drainage in the Mississippi River Valley," by Louis W. Herndon, ASCE Proceedings Paper No. 1363, Vol. 83, by R. T. Shen and C. P. Cass, September 1957.
76. Drainage Research in Colorado, by A. R. Robinson, American Society of Agricultural Engineers, Winter Meeting, December 1957.
77. Progress Report on Research and Development Project on Sedimenting Methods of Sealing Irrigation Canals, by R. D. Dirmeyer, Jr., prepared for the Seventh Annual Meeting of Four States Irrigation Council, January 10, 1958.
78. Discussion on Proceedings Paper No. 1331, "Systematic Changes in the Beds of Alluvial Rivers by W. C. Carey, and M. Dean Keller", by H. K. Liu, March 1958.
79. Use of Wind Tunnels in the Study of Atmospheric Phenomenon, for Air Pollution Control Association Annual Meeting, prepared by J. E. Cermak, and M. L. Albertson, May 26-29, 1958. Philadelphia, Penn. CER58JEC18.
80. A Switching Arrangement for Automatic, Remote Temperature Recording, by R. A. Schleusener, Agricultural Engineering Volume 40, No. 1, pp 32-33, January 1959. CER58RAS22.
81. Model Study of Tile Interceptor Drains, prepared by A. R. Robinson and Jack Keller for ASCE, Portland, Oregon, June 1958.
82. Discussion of Sediment-Ripple Formation, by H. K. Liu, presented at Annual Meeting of ASAE, Chicago, Illinois, December 1958.
83. The Role of Hysteresis in Reducing Evaporation from Soils in Contact with a Water Table, by R. A. Schleusener and A. T. Corey, Journal of Geophysical Research, 1958. CER58RAS26.

84. Pressure Distribution During Steady Flow in Unsaturated Sands, by V. H. Scott, and A. T. Corey. A paper presented to SSSA and prepared for publication. 1958.
85. Leaky Reservoir Aids Water Table, by W. E. Code, prepared for the Colorado Farm and Home Research, Vol. 9, No. 1, pp 3-4, Summer 1958.
86. Theory and Design of Stable Channels in Alluvial Materials, prepared by M. L. Albertson, and D. B. Simons and presented at ASCE Hydraulics Conference, Atlanta, Georgia, August 20, 1958. CER58MLA31.
87. Evaporativity and Evaporation from Soils in Contact with a Water Table, prepared by R. A. Schleusener, and presented at American Meteorological Society Conference on Practical Problems of Meteorology, September 22-24, 1958. CER58RAS27.
88. Study of Evaporation from Soil Surfaces in Terms of Soil and Micrometeorological Factors of the Western Regional Research Project W-32, Progress Report No. 4, prepared by A. T. Corey for the Technical Committee Meeting held in Pullman, Washington, October 1958. Report
89. Trapezoidal Flumes for Open Channel Flow Measurement, by A. R. Robinson, and A. R. Chamberlain, prepared for presentation at Annual Meeting of ASAE, Chicago, Illinois. December 1958. CER58ARR39.
90. A Note on the Differential Equation of Study, Gradually Non-uniform Flow in Open Channels, by H. K. Liu, American Geophysical Union Transaction, Vol. 39, No. 5. October 1958. CER58HKL41.
91. Discussion of "Mechanics of Streams with Movable Beds of Fine Sand, by Norman H. Brooks; Paper No. 2931, from ASCE Transactions, Volume 123. P. 526"; by H. K. Liu, 1958. CER58HKL46.
92. A Study of Roughness in Alluvial Channels, prepared by D. B. Simons, and E. V. Richardson and presented to ASCE for publication November, 1958.

93. A Discharge Formula for Flow in Straight Alluvial Channels, prepared by H. K. Liu, and S. Y. Hwang, Published as Proceedings No. 2260, Journal of Hydraulic Division of the ASCE. CER58HKL45.
94. Tractive Resistance of Cohesive Channels, by Irving S. Dunn. Proceedings Separate No. 2062 of the Soil Mechanics and Foundation Division of ASCE, June 1959. CER58ISD33.
95. The Most Efficient Stable Channel for Comparatively Clear Water in Non-Cohesive Materials, prepared for the Colorado State University, by H. K. Liu. CER59HKL5.
96. Source Material for a Course in Transient Ground Water Hydraulics, by R. E. Glover, and M. W. Bittinger. May 1959. CER59REG16.
97. Pressure Distribution During Steady Flow in Unsaturated Sands, by V. H. Scott, and A. T. Corey. June 1959. CER59VHS17.
98. An Energy Method of Measuring Hail Intensity, by R. A. Schleusener, and Paul C. Jennings, American Meteorological Society Bulletin. 1960. CER59RAS25.
99. Effect of Roughness Spacing in Rigid Open Channels, by W. W. Sayre, and M. L. Albertson. CER59WWS31.
100. The Characteristics of Alluvial Channels, by D. B. Simons, prepared for Technical Training School Quality of Water Branch, Austin, Texas. CER59DBS40.
101. Elements of Open Channel Flow and Sediment Transport, by D. B. Simons, and R. B. Vice. Prepared for Technical Training School Quality of Water Branch, Austin, Texas. CER59DBS44.
102. Laboratory Study of Backwater Caused by Bridge Abutments and Piers, by H. K. Liu and H. N. Bradley. Presented at ASCE National Conference February 1958, at Chicago, Illinois. Submitted to ASCE for Publication. CER59HKL3.

103. A Review of Development of the Bentonite Sedimenting Method of Sealing Irrigation Canals, by R. D. Dirmeyer, and R. T. Shen, Paper presented at Conference of Rocky Mountain Section of A.S.A.E. April 3, 1959, Logan, Utah. CER59RDD8.
104. Characteristics of Bed Forms and Regimes of Flow in Alluvial Channels by R. J. Garde, and M. L. Albertson. Presented at the I.H.A.R. Conference at Montreal, Canada, August 1959. CER59RJG9.
105. Design of Underground Structures for Atomic Blast Loads by R. Szilard, April 1959. Presented at American Society of Testing Materials, University of Utah, Salt Lake City, Utah. In press for Bulletin of Experiment Station of University of Utah. CER59RS<sub>z</sub>10.
106. Vortex Tube Sand Trap. Paper prepared for the Cleveland A.S.C.E. meeting, May 1959, by A. R. Robinson. CER59ARR13.
107. Concept of Total Potential and Its Limitations, by A. T. Corey, and W. D. Kemper. Presented at meeting of Western Soil Science Society, San Diego, California, June 1959.
108. Status of Research and Research Needs for Water Supply, Storage, Diversion Conveyance, and Distribution as Related to Irrigation and Drainage, by M. L. Albertson, and Harry F. Blaney, Jr. Presented at the A.S.C.E. Drainage Division Conference at Cleveland, Ohio, May 1959. CER59MLA15.
109. Apparatus for Repeated Load Tests on Soils by H. B. Seed, and J. W. N. Fead. 1959 Preprint for discussion. To be published in American Society for Testing Materials. CER59JWNF18.
110. Drawdown Produced by Pumping a Well in an Unconfined Aquifer, by R. E. Glover, and M. W. Bittinger. Submitted to Hyd. Div. A.S.C.E. for publication 1960. CER59MWB19.
111. Significance and Application of Froude and Reynolds Numbers as Criteria for Similitude, by H. K. Liu, and M. L. Albertson. Presented at the A.S.C.E. Hyd. Conference, July 1959, Fort Collins, Colo. Submitted to A.S.C.E. for publication. CER59HKL20.

112. Discussion of Impact of Modern Technology on American Water Development, by R. A. Schleusener, Paper prepared for Western Resources Conference, Boulder, Colorado. July 1959. CER59RAS22.
113. Discussion of H. E. Thomas' Paper "Essentials for Optimum Use of Ground-Water Resources", by W. E. Code, Paper prepared for Western Resources Conference, Boulder, Colorado. July 1959. CER59WEC23.
114. Introductory Remarks on Bed Forms, by H. K. Liu, prepared for the Sediment Seminar of the I.A.H.R. meeting in Montreal, Canada, August, 1959. CER59HKL27.
115. Discussion of "Resistance Properties of Sediment-Laden Streams, by Vito A. Vanoni, and George N. Nomicos," by D. B. Simons, and E. V. Richardson, Published in the Journal of Hyd. Div., Vol. 85 No. HY12, Dec. 1959. CER59DBS32.
116. Some General Equations for Structures, by J. W. N. Fead. Submitted for publication to the A.S.C.E. Structural Division. CER59JWNF33.
117. A Study of Rapidly Varying Flow in Alluvial Channels, by D. B. Simons, and E. V. Richardson. Presented at the Advanced Fluid Transport School U.S.G.S., July 1959, Fort Collins, Colo. Submitted for publication as a U.S.G.S. Water Supply Paper. CER59DBS34.
118. Forms of Bed Roughness in Alluvial Channels, by D. B. Simons, Submitted for publication A.S.C.E. Hyd. Div. January 1960. CER59DBS38.
119. Summary of an Analytical Approach to Two--and Three--Dimensional Scour Problems, by G. L. Smith. CER59GLS42.
120. Self-Sustaining Station for the Moon, by Rudolph Szilard (A.S.C.E. Civil Engineering, October, 1959.) CER59RS<sub>z</sub>43.
121. A Study of Resistance to Flow in Alluvial Channels, by D. B. Simons, and E. V. Richardson. Presented at the New York A.S.C.E. Convention, October 1958. Submitted to Hyd. Div. of A.S.C.E. for publication. CER59DBS48.

122. A New Type of Stilling Basin for Control of Cantilevered Culvert Outflow, by G. L. Smith. December 1959. Presented to the 39th Annual Meeting of Highway Research Board, Washington, D. C., January 11 - 15, 1960. CER59GLS49.
123. Design of Prestressed Composite Steel Structures, by Rudolph Szilard. Published in Proceedings of ASCE, November 1959. CER59RS<sub>z</sub>53.
124. Laboratory Study of Spur Dikes for Highway Bridge Protection, by Susumu Karaki. Presented to the 39th Annual Meeting of Highway Research Board, Washington, D. C., January 11 - 15, 1960. CER59SSK54.
125. Wind Induced Oscillations in a Stock Water Tank, by A. R. Chamberlain, submitted for publication to American Meteorological Society. 1959. CER59ARC55.
126. Friction Factors in Corrugated Metal Pipe. A Discussion by A. R. Chamberlain, of ASCE Proceedings Paper No. 2148, by M. J. Webster, and L. R. Metcalf. September 1959. CER59ARC56.
127. Drainage Research in Colorado, by N. A. Evans, Paper presented at Annual Meeting, ASAE. December 1957.
128. Influence of Stratigraphy on Yield of Tile Drains in Northeast Colorado, by N. A. Evans. Paper for Annual Meeting, ASAE, December 16, 1959. Chicago, Illinois.

### C. Bulletins and Circulars

1. Reclamation of Saline-Alkali Soils by Leaching, Delta Area, Utah, by R. C. Reeve, L. E. Allison, and D. F. Peterson, Jr., Bulletin 335, Utah Agriculture Experiment Station in Cooperation with the U.S. Regional Salinity Laboratory, December, 1948.
2. Measuring Water in Irrigation Channels with Parshall Flumes and Small Weirs, by Ralph L. Parshall, Soil Conservation Service Circular No. 843, May, 1950.
3. Friction Losses in Selected Valves and Fittings for Irrigation Pumping Plants, by Carl Rohwer, USDA, SCS, Colorado Agriculture Experiment Station in cooperation with the Soil Conservation Service, Fort Collins, Colorado, Technical Bulletin 41, May, 1950.
4. When to Use Sprinkler Irrigation in Colorado, by W. E. Code, and A. J. Hamman, Colorado Agriculture Experiment Station, Fort Collins, Colorado, Bulletin 405-A, June, 1950.
5. Direct Solution for Apron Elevation, by M. L. Albertson, February, 1951. Rexographed.
6. Effectiveness of Gravity Drains and Experimental Pumping for Drainage Delta Area, Utah, by O. W. Israelsen, D. F. Peterson, Jr., R. C. Reeve, Utah Agriculture Experiment Station, in cooperation with the U. S. Regional Salinity and Rubidoux Laboratories, Bulletin No. 345, February, 1951.
7. Stilling Basins, by David Navon, December, 1951. Rexographed.
8. Some Remarks on the Hydraulics of Steady-State Wells in Unconfined Media, by D. F. Peterson, Jr., 1951.
9. Hydraulics of Wells, by D. F. Peterson, Jr., O. W. Israelsen, and V. E. Hansen, Utah State Agriculture Experiment Station, Logan, Utah, Bulletin 351, March, 1952.
10. Effect of Well Screens and Gravel Envelopes on Flow of Sand into Wells, by Carl Rohwer, and F. N. Leatherwood, August, 1952.
11. Parshall Flumes of Large Size, by R. L. Parshall, Colorado Agriculture Experiment Station, Bulletin 386, reprinted as Bulletin 426-A, March, 1953.

12. Study of Seepage Losses from Irrigation Channels, by A. R. Robinson, and Carl Rohwer, April. 1953, progress report.
13. An Irrigation Guide for Colorado, by A. J. Hamman, and W. E. Code, Colorado Agriculture Experiment Station, Bulletin No. 432-A, April. 1954.
14. Ground Water Hydrology and Hydraulics, by R. B. Hickok, W. V. Morris, and D. B. Simons, June, 1954, Mimeographed.
15. Colorado Needs Ground-Water Legislation, by W. E. Code, Colorado Agriculture Experiment Station, General Series Paper No. 560, October, 1954.
16. Selection of Gravel Pack for Water Wells in Fine, Uniform, Unconsolidated Aquifers, Progress Report on Performance of Well Screens by J. R. Lockman, and Carl Rohwer, December 1954.
17. Parshall Flumes of Small Sizes, by A. R. Robinson, Colorado Agriculture Experiment Station, Technical Bulletin No. 61, January 1957.
18. Farm Irrigation Structures, by W. E. Code, Colorado Agriculture Experiment Station, Bulletin 496-S, February 1957.
19. Upper Colorado River Basin Investigation Soil, Water and Crop Studies, by N. A. Evans. Colorado Agricultural Experiment Station Gen. Series Paper No. 669. July 1957.
20. Snow Report Bulletins, published on 10th of each month following the regular snow report dates of February 1, and March 1, prepared by Homer Stockwell.
21. Water Table Fluctuations in Eastern Colorado, by W. E. Code, Colorado State University Agricultural Experiment Station Bulletin 500-S, 34 pp, August 1958. CER58WEC29.
22. Sealing Sandy Ditches with the Bentonite Dispersion Method, by R. T. Shen, Colorado State University Agr. Ext. Ser. Circular No. 202A (Wyoming University Agricultural Extension Service Circular 158). April 1959.

23. Sealing Rocky Ditches with the Bentonite Multiple-Dam Method, by R. T. Shen, Colorado State University Agricultural Extension Service Circular 203A (Wyoming University Agricultural Extension Service, Circular 159). May 1959.
24. Mixing Bentonite for Sealing Purposes, by R. T. Shen, Colorado State University Agricultural Extension Service, Circular 204A, (Wyoming University Agricultural Extension Service Circular 160). June 1959.
25. Soil Reclamation and Cropping Studies in the Grand Valley, by N. A. Evans, Colorado Agricultural Experiment Station Gen. Series Paper No. 710, July 1959.
26. Filters and Screens for Irrigation Wells, United States Department of Agriculture Leaflet No. 446, prepared by A. R. Robinson, April 1959.
27. Stratum Survey Techniques for Drainage Investigation on Irrigated Lands, by N. A. Evans, Colorado Agricultural Experiment Station Technical Bulletin No. 67, 1958.
28. Note on Hailstones of Irregular Shape, prepared by R. A. Schleusener, for Bulletin of American Meteorological Society 40(1):29, January 1959.
29. Design of Underground Structures for Atomic Blast Load, prepared by R. Szilard for Bulletin of Engineering Experiment Station, University of Utah, 1959 (in press).
30. Colorado's Ground-Water Problems, by M. W. Bittinger, Colorado Experiment Station Bulletin No. 504-S. 1959. CER59MWB35.
31. Measuring Seepage from Irrigation Channels, by A. R. Robinson. Agricultural Research Service, U. S. Department of Agriculture in cooperation with the Colorado Agriculture Experiment Station and the Bureau of Reclamation, U. S. Department of the Interior, Technical Bulletin No. 1203. CER59ARR47.

32. Sealing Farm Ponds and Reservoirs with Bentonite, by R. T. Shen, Colorado State University Agricultural Extension Service, Circular 206-A (Wyo. University Agricultural Extension Service, Circular 162). July 1959.
33. Testing Bentonite for Sealing Purposes, by R. T. Shen, Colorado State University Agricultural Extension Service Circular 205-A (Wyo. University Agricultural Extension Service, Circular 161) August 1959.

#### D. Theses, Master's Reports and Dissertations

1. Sedimentation Diameter and Sieve Diameter, by E. F. Serr, March, 1948, Master's Thesis.
2. Forecasting Maximum Probable Precipitation, by Saranjit Singh, 1948, Master's Report.
3. Energy Losses Through Conical Diffusers, by J. E. Cermak, 1948, Master's Thesis.
4. Cavitation and Pitting in Hydraulic Structures, by A. N. Harkauli, February, 1949, Master's Report.
5. Wave Action in Relation to the Design of Hydraulic Structures, by Lucien Hirschberg, May, 1949, Master's Report.
6. Design of Stable Channels in Erodible Material by King Yu, June, 1949, Master's Report.
7. Forecasting Seasonal Water Yield in the Upper Snake River Basin, Idaho and Wyoming, by W. U. Garstka, May, 1949, Master's Thesis.
8. Practical Effect of the Small Particles in a Soil on Its Compacted Strength, by B. B. Gerhardt, June, 1949, Master's Thesis.
9. Hydraulic Properties of Well Screens, by G. L. Corey, June, 1949, Master's Thesis.
10. Influence of Shape on the Fall Velocity of Sand Grains, by A. T. Corey, December, 1949, Master's Thesis.
11. Control of Meandering of Alluvial Rivers, by S. S. Lambda, August, 1949, Master's Report.
12. Irrigation Developments in the Republican River Valley of Nebraska, by L. B. Shrode, July, 1949, Master's Report.
13. Correlation of Precipitation with Tree Rings, by Satnarayan Singh, July, 1949, Master's Report.
14. Comparison of Scour Caused by Hollow and Solid Jets of Water, by D. Doddiah, December, 1949, Master's Thesis.

15. Effects of Pier Shape on Backwater Total Head Loss, and Water-Surface Profile, by D. Q. Matejka, July. 1950, Master's Thesis.
16. Efficiency of a Vortex-Tube Sand Trap, by G. L. Koonsman, June. 1950, Master's Thesis.
17. Artificial Roughness in Open Channels, by A. R. Robinson, November 1950, Master's Thesis.
18. Comparison of Flood Routing Methods as Applied to the Osage River Basin, by Jesudasan Walter, January. 1951, Master's Report.
19. The Effect of the Size and Spacing of Floor Blocks in the Control of a Hydraulic Jump, by L. F. Weide, March. 1951, Master's Thesis.
20. Effect of Well Screens on Flow into Wells, by J. S. Peterson, August. 1951, Master's Thesis.
21. Nappe Characteristics for Flow over Sharp Crested Weirs, by D. A. Thorson, August. 1951, Master's Thesis.
22. Discharge Characteristics of Submerged Spillways, by H. J. Koloseus, December. 1951, Master's Thesis.
23. Natural Roughness in Open Channels, by A. W. Van't Hul, November, 1951, Master's Thesis.
24. Possibility of Effecting Economies in Construction of Gravity Type Dams, by Eduardo Lieras, June. 1952, Master's Report.
25. Turbine for Use in Integrating Flow Meter, by H. H. Schweizer, March. 1952, Master's Thesis.
26. Hydraulic Head Loss at the Interface Between Porous Media of Different Sizes, by F. N. Leatherwood, May, 1952, Master's Thesis.
27. Laminar Flow Between a Stationary Disk and a Rotating Disk, by A. D. Farmanfarma, June. 1952, Master's Thesis.
28. Triaxial Compression Tests of a Remolded Partially-Saturated Clay Soil, by David Navon, August, 1952, Master's Thesis.

29. Effect of Shape on the Fall-Velocity of Gravel-Sized Particles, by R. H. Wilde, August 1952, Master's Thesis.
30. Salinity and Alkalinity Problems in the Punjab, by F. K. Malik, June, 1953, Master's Report.
31. Scour in a Gravel Bed at the Base of a Free Overfall, by R. K. Thomas, May 1953, Master's Thesis.
32. Reynolds Number for Flow Through Porous Media, by F. W. Kiefer, June, 1953, Master's Thesis.
33. Influence of Shape Factor on the Fall Velocity of Small Sand Grains, by E. F. Schulz, June 1953, Master's Thesis.
34. Some Aspects of Roughness in Alluvial Channels, by Said M. Ali, August, 1953, Master's Thesis.
35. Development of Plan for Utilization of Water Resources of the Upper Tigris River within the Boundaries of Iraq, by Mowafaf Al-Badry, June, 1954, Master's Report.
36. Model Study of Seepage Flow from a Canal to A Shallow Water Table, by Susumu Karaki, June, 1954, Master's Thesis.
37. Longitudinally Prestressed Concrete Pipeline Bridge, by R. T. Shen, August, 1954, Master's Thesis.
38. Analysis of Unsteady Flow in Open Channels, by Komain Unhanand, June, 1954, Master's Thesis.
39. Selection of Gravel Pack for Water Wells in Fine, Uniform, Unconsolidated Aquifers, by J. R. Lockman, August, 1954, Master's Thesis.
40. Forecasting Snowmelt Run-off, by W. V. Morris, September, 1954, Master's Thesis.
41. Preliminary Study of Sediment Sampling Efficiency, by D. J. Sadar, November 1954. Master's Thesis.
42. La mécanique de l'évaporation by M. L. Albertson, Thèse, presented to the Faculté de Sciences de l'Université de Grenoble, France, 1954.
43. Correlation of Regime Theory and Tractive Force Theories of Stable Channel Design, by B. C. Raju, March 1955, Master's Report.

44. Lining of Irrigation Canals, by B. C. Raju, March 1955, Master's Report.
45. Water Spreading for Ground Water Replenishment and Recommendations for its Adaption to Anamur Valley, by H. K. Furtun, May 1955.
46. Effect of Boundary Form on Fine Sand Transport in Twelve-Inch Pipes, by A. R. Chamberlain, June 1955, Ph.D. Dissertation.
47. Seepage Flow from a Canal to a Shallow Water Table by Electrical Analogue, by P. V. Djanjigian, June 1955, Master's Thesis.
48. Design of Gravel Filters for Water Wells in Fine, Unconsolidated Aquifers, by A. D. Halderman, August 1955, Master's Thesis.
49. Influence of Particle Size Gradation on Scour at Base of Free Overfall, by D. E. Hallmark, August 1955, Master's Thesis.
50. Penetration and Retention of Bentonite Suspensions in Porous Media, by R. B. Curry, August 1955, Master's Thesis.
51. Model Study of Interceptor Drains, by J. Keller, September 1955, Master's Thesis.
52. Effect of Rim Height on the Rate of Evaporation from Pans, by W. W. McFarland, November 1955, Master's Thesis.
53. Suspended Sediment Transport in Alluvial Irrigation Channels, by D. L. Bender, December 1955, Master's Thesis.
54. The Potential Drainability of Grand Valley, by Al-Khafaji, March 1956, Master's Thesis.
55. Piping Under Masonry Dams on Earth Foundations, by R. S. Sanghavi, August 1956, Master's Report.
56. The Penetration of Dispersed and Flocculated Bentonite Suspensions in a Dune Sand, by E. C. Newman, August, 1956, Master's Thesis.
57. Sediment Transport Through Pipes, by R. J. Garde, October 1956, Master's Thesis.

58. Methods of Hydraulic Energy Dissipation, by Christopher S. Donabedian, September 1956, Master's Report.
59. Effect of Wash Load on Suspension of Bed Material Load, by A. Hasan Makarechina, November 1956, Master's Thesis.
60. Stabilization of Thompson Lake Outlet Channel, by Theodore T. Williams, December 1956, Master's Thesis.
61. Artificial Roughness Patterns in Open Channels, by William W. Sayre, March 1957, Master's Thesis.
62. Laboratory Study of a Manifold Stilling Basin, by Gene R. Fiala, May 1957, Master's Thesis.
63. Theory and Design of Stable Channels in Alluvial Materials, by Daryl B. Simons, May 1957, Ph.D. Dissertation.
64. Some Characteristics of an Artesian Aquifer in the Grand Valley of Colorado, by Maurice M. Hastings, June 1957, Master's Thesis.
65. Laboratory Studies on the Beginning of Sediment Ripple Formation in an Alluvial Channel, by Erich J. Plate, June 1957, Master's Thesis.
66. An Analysis of Scour Below Culvert Outlets, by George L. Smith, June 1957, Master's Thesis.
67. Multi-Purpose Project Planning for Undeveloped Regions, by Muhammad Athallah, August 1957, Master's Report.
68. Role of Forecasting in Flood Control, by Kersi Davar, August 1957, Master's Report.
69. The Effect of Shape of a Plane, Smooth Saturated Surface on Evaporation Rate, by Duane F. Nelson, August 1957, Master's Thesis.
70. Declaration During Impact of Seaplane Hulls on a Water Surface, by Bernard d'Utruy, August 1957, Master's Thesis.
71. Effect of Wind Velocity and Depth of Water Table on Evaporation From Fine Sand, by Robert W. Staley, October 1957, Master's Thesis.

72. Turbulent Boundary Layer over Heated and Unheated Plane, Rough Surfaces, Ph.D. Dissertation by Benoyendra Chanda, May, 1958, CER58BC21
73. Secondary Circulation in Open Channels, Master's Thesis, by Y. W. Wang, Colorado State University, May, 1958.
74. Meandering Characteristics of Alluvial Rivers, Master's Thesis by H. Nagabushaniah, Colorado State University, May 1958.
75. Factors Affecting Evaporation from Soils in Contact With A Water Table, Ph.D. Dissertation by R. A. Schleusener, Colorado State University, June 1958.
76. Analytical Study of the Roughness of Alluvial Channels, M. S. Thesis, by S. Y. Hwang, Colorado State University, August 1958.
77. Total Sediment Transport in Alluvial Channels, Ph. D. Dissertation by R. J. Garde, Project 740, January 1959.
78. The Turbulent Boundary Layer at Low Reynolds Number with Unstable Density Stratification Produced by Heating, Ph. D. Dissertation Graduate School by J. E. Cermak, Cornell University, March 1959. Project 778.
79. Flow Characteristics of a Circular Submerged Jet Impinging Normally on a Smooth Boundary, by Michael Poreh, Master's Thesis, March 1959.
80. The Measurement of Permeability in Non-Homogeneous Media Through an Analysis of the Steady Potential Distribution, Master's Thesis by R. William Nelson, May 1959.
81. Pressure Distribution in Porous Media During Unsaturated Flow, Ph. D. Dissertation, by Verne H. Scott, June 1959.
82. Properties of the Hydraulic Jump in Sloping Circular Conduits, Master's Thesis, by Suieiman A. Ibrahim Ayoub, July 24, 1959.