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CIVIL ENGINEERING

RESEARCH REPORTS, PUBLISHED PAPERS,  
BULLETINS AND THESES

1948 THROUGH OCTOBER 1957



ENGINEERING RESEARCH  
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CIVIL ENGINEERING SECTION  
COLORADO STATE UNIVERSITY  
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RESEARCH REPORTS, PUBLISHED PAPERS, BULLETINS AND THESES

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Sponsored project reports, published papers, bulletins, circulars, and student theses are a measure of the productiveness of a research team. Following are lists of the works of the Civil Engineering staff and students since 1948. These are presented in the following order: (A) Reports for Sponsored Projects, (B) Published Papers, (C) Bulletins and Circulars, and (D) Theses, Master's Reports and Dissertations. Classified research reports are omitted.

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. N9onr 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. N9onr 824(01), June, 1951.



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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 NO as 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 N9nnr 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 No. as 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 No. 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 No. 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 No. 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.
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.
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.

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.
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.
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. ARCRC-TN-56-273, August, 1956.
32. Sediment Transport Through Pipes, by R. J. Garde, prepared for Armco Drainage and Metal Products, Inc., October, 1956.
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. AF(RC-TN-56-273), December, 1956.
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. Proposal to National Science Foundation for Fluid Mechanics Research Laboratory Facilities, by Dean F. Peterson and A. R. Chamberlain, 1957. 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(O2), 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). CER57BFS15.
43. Theory and Design of Stable Channels in Alluvial Materials, by Daryl B. Simons, prepared for the U. S. Bureau of Reclamation, 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. CER57BCN19.
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. Symposium on Arch Dams, reprinted from Journal of the Power Division, Proceedings of the American Society of Civil Engineers, September, 1957. CER57REG18.
47. Research Reports, Published Papers, Bulletins and Theses - 1948 to October 1957, by A. R. Chamberlain, October, 1957. CER57ARC21.
48. Estimates of Bending Moments and Pressures Due to Slamming, by R. E. Glover, prepared for the David Taylor Model Basin under Contract Nonr 1610(O2), Technical Report No. 5, August, 1957. CER57REG24.
49. 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(O2), Technical Report No. 6, October, 1957. CER57REG25.
50. 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(O2), October, 1957. CER57REG27.
51. Interim Report on Model Studies for Bocono Dam, by Kersi Davar and A. R. Chamberlain, prepared for Tipton and Kalmbach, Inc., October, 1957. CER57ARC28.

52. 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.
53. 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. CER57 HKL10.

## B. Published Papers

1. Geology and Irrigation Engineering, by R. D. Dirmeyer, Applied Geology Section, Mineral Resources in World Affairs, Colorado School of Mine, 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.
4. Diffusion from a Line Source in Laminar Flow over a Wedge and in Blasius Flow, by 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 a Differential Equation of Atmospheric Diffusion, 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, Transactions, American Society of Civil Engineers, Volume 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. La mécanique de l'évaporation by M. L. Albertson, Thèse, presented to the Faculté de Sciences de l'Université de Grenoble, France, 1954.
35. 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.
36. Design of Stable Channels, by E. W. Lane, Transactions, American Society of Civil Engineers, Volume 120, 1955.

37. Many Factors to Consider for Efficient Water Use, by D. F. Peterson, Jr., Colorado Rancher and Farmer, Volume 9, No. 6, March, 1955.
38. 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.
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 Rohwer, 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.
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.
49. Measurement of Canal Seepage, by A. R. Robinson, and Carl Rohwer, USDA-ARS report (publication pending).

50. 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.
51. Discussion by M. L. Albertson, and H. K. Liu of Riverbed Degradation Below Large Capacity Reservoirs, by M. Gamal Mostafa, Proceedings, American Society of Civil Engineers, Separate No. 788, January, 1956.
52. 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.
53. A Summary of Hydraulic 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.
54. Ground-Water Legislation, by W. E. Code, paper presented to American Society of Agricultural Engineers, Rocky Mountain Section, Las Cruces, New Mexico, March, 1956.
55. Seepage Measurement and Its Relation to Drainage and Canal Lining Programs, by A. R. Robinson, Soil and Water Conservation Journal, March, 1956.
56. 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.
57. 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.
58. Mechanics of Sediment-Ripple Formation, by H. K. Liu, paper presented to American Society of Civil Engineers, Knoxville, Tennessee, June, 1956
59. 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.
60. 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.

61. Laboratory Investigations on Interceptor Drains, by A. R. Robinson, paper presented to the Joint ARS-SCS Drainage Conference, Colorado Springs, Colorado, January, 1957.
62. 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.
63. 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.
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. Methods of Sealing Irrigation Canals in the United States, by R. D. Dirmeyer, prepared for the XIX International Navigation Congress, London, England, July, 1957.
67. The Theory of Drainage as Related to Wells, by D. F. Peterson, Jr., Chapter V, Monograph on Drainage, American Society of Agronomy, James N. Luthin, editor, (publication pending).
68. Difficulties 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.
69. Measurement of Canal Seepage by A. R. Robinson, Jr. and Carl Rohwer, Paper No. 2865, reprinted from Transactions, Vol. 122, 1956, p. 347.
70. 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.
71. Drainage Research in Colorado, by A. R. Robinson and N. A. Evans prepared for ASAE meeting in Chicago, held December 1957, October 1957.
72. Model Study of Tile Interceptor Drains, by Jack Keller and A. R. Robinson, prepared for ASCE meeting in Portland, Oregon, held June 1958, October 1957.

### 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.

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.
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