Annotated Bibliography on Hydrology (1951-54) and Sedimentation (1950-54) United States and Canada: Supplement to the Annotated Bibliography on Hydrology (Notes on Hydrologic Activities, Bull. No. 5) and Annotated Bibliography on Sedimentation (Sedimentation Bull. No.2) (1956)

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Annotated Bibliography on Hydrology (1951-54) and Sedimentation (1950-54)

UNITED STATES AND CANADA

Supplement to the
Annotated Bibliography on Hydrology (Notes on Hydrologic Activities, Bull. No. 5) and Annotated Bibliography on Sedimentation (Sedimentation Bull. No. 2)

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Bureau of Public Roads
Coast and Geodetic Survey
Weather Bureau

DEPARTMENT OF INTERIOR
Bureau of Reclamation
Geological Survey
Bureau of Mines

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Public Health Service

FEDERAL POWER COMMISSION

TENNESSEE VALLEY AUTHORITY

PUBLICATIONS OF THE SUBCOMMITTEE ON HYDROLOGY

This Bulletin is part of two series issued by the agencies represented on the Subcommittee on Hydrology and the Subcommittee on Sedimentation, Inter-Agency Committee on Water Resources (successor to Federal Inter-Agency River Basin Committee). The numbers of series is intended as media for dissemination of the results of specific work projects of the Subcommittees, and for general information on work being undertaken in the hydrologic and sedimentation fields by the agencies of the Subcommittees.

Bulletins previously issued by the Subcommittees are given in the following lists. Where a price is noted, copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Other bulletins were reproduced in limited quantity for participating agency use and are not available for general distribution.

Bulletin	Name and date	Price
Publications of the Subcommittee on Hydrology		
1	Instructions for compilation of Unit Hydrograph Data, April 1948	....
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4	Inter-Agency Coordination of Drainage Area Data, November 1951	....
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..	River Basin Maps showing Hydrologic Stations, 1947 revised 1949	....
Publications of the Subcommittee on Sedimentation		
1	Inventory of Published and Unpublished Sediment Load Data in the United States, April 1949	....
2	Annotated Bibliography on Sedimentation, February 1950	$1.25
3	Preliminary Check List of Reservoir Sedimentation Surveys made in the United States to April 1, 1950, May 1950 (superseded by Bulletin No. 5)	....
4	Inventory of Published and Unpublished Sediment Load Data in the United States, Supplement 1946 to 1950, April 1952	....
5	Summary of Reservoir Sedimentation Surveys for the United States through 1950, August 1953 (under revision)	....
6	Reserved for a later publication	....
Joint Publication		
..	Adequacy of Basic Data in Hydrology and Sedimentation, July 1950	....

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Washington 25, D. C. - Price $ 1. 25

PREFACE

The Subcommittees on Hydrology and Sedimentation, Inter-Agency Committee on Water Resources, have sponsored this Bibliography as a guide to literature on hydrology and sedimentation for the use of Government agencies and the public. Every effort has been made to cover all such literature published in the United States and Canada during the periods indicated in the title.

This Bibliography is a supplement to the Annotated Bibliography on Hydrology for the period 1941-1950 which was published in June, 1952, under the sponsorship of the Subcommittee on Hydrology, Federal Inter-Agency River Basin Committee (predecessor to the Inter-Agency Committee on Water Resources). It also includes listings in the field of sedimentation and thus continues the Annotated Bibliography on Sedimentation published in 1950 under the auspices of the Subcommittee on Sedimentation, Federal Inter-Agency River Basin Committee, which included listings prior to 1950. The format of the present bibliography follows the pattern set by the earlier Bibliography on Hydrology, with listings alphabetically by author followed by a combined place and subject index.

The fields of hydrology and sedimentation are broad ones and it is difficult to draw sharp dividing lines between items to be included and those to be excluded from a bibliography. The compilation is largely the result of a shelf-by-shelf search of several large libraries with the decision as to inclusion of articles resting with the compiler. Every effort has been made to include all listings of significant technical value in these fields. Highly popularized articles or material which is of current news value only have generally been excluded. Since no library search can disclose all possible entries for a bibliography of this type more than one hundred letters were sent out to universities and state agencies doing work in the fields of hydrology and sedimentation. In addition Federal agencies furnished listings and annotations for most of the Federal publications. Despite all efforts it is likely that some material has been overlooked. The compiler will appreciate comments from the users of this bibliography which might aid in a more complete coverage if any further publication is undertaken.

In a few instances annotations are not given for some listings either because the title is self-explanatory, respondents did not supply annotations, or in some cases the item was located in an unannotated bibliography.

The index which follows the anonymous papers at the end of the bibliography covers both place and subject. In the United States and Canada the smallest geographical subdivision used are states and provinces respectively. Elsewhere geographical subdivision is by countries. For papers applying to areas larger than the smallest subdivisions, entries are listed under major river basins in the United States and by continents for the rest of the world.

In general, listings in the index are primary. A paper describing the climate of an area is listed under that area only unless it also contributes to the techniques of climatology in which case it is listed under 'Climatology' or other suitable subject heading. Similarly a paper on ground-water resources is listed under that heading although it may contain incidental information on geology, rainfall, stream flow, etc. Secondary listings have been used only where a paper is of a scope clearly exceeding the one subject listing. Users of the index may therefore find it necessary to consult several allied headings to obtain references to all papers bearing directly or indirectly on any topic.

Acknowledgments--The following agencies of the United States Government, working through the Subcommittees on Hydrology and Sedimentation of the Inter-Agency Committee on Water Resources, have underwritten the cost of compiling and publishing this Bibliography, under contract with the National Academy of Sciences on behalf of the American Geophysical Union: Agricultural Research Service, Forest Service, Soil Conservation Service, Corps of Engineers, Bureau of Public Roads, Coast and Geodetic Survey, Weather Bureau, Bureau of Reclamation, Geological Survey,

ANNOTATED BIBLIOGRAPHY OF HYDROLOGY OF THE UNITED STATES OF AMERICA AND CANADA, 1951-1954

List of Organizations and Publications, and Their Abbreviations as Used in This Bibliography

*Sources not completely searched.
**Only contributions by United States and Canadian authors included.

Name	Abbreviation
Agricultural Engineering	Agr Eng
*Agricultural History	Agr Hist
Agronomy Journal	Agron J
Alabama Academy of Science	Ala Acad Sci
American Association of Petroleum Geologists	Amer Assn Pet Geol
American Forests	Amer Forests
American Geophysical Union	Amer Geophys Union
American Institute of Electrical Engineers	Amer Inst Elec Eng
American Institute of Mining and Metallurgical Engineers	Amer Inst Min Metal Eng
American Journal of Physics	Amer J Phys
American Journal of Psychical Research	Amer J Psychical Res
American Journal of Science	Amer J Sci
American Meteorological Society	Amer Met Soc
American Midland Naturalist	Amer Mid Nat
American Scientist	Amer Sci
American Society for Engineering Education	Amer Soc Eng Educ
American Society for Testing Materials	Amer Soc Test Mat
American Society of Agronomy	Amer Soc Agron
American Society of Civil Engineers	Amer Soc Civ Eng
*American Society of Farm Managers and Rural Appraisers	Amer Soc Farm Man Rural Appr
American Society of Heating and Ventilating Engineers	Amer Soc Heat Vent Eng
American Society of Mechanical Engineers	Amer Soc Mech Eng
American Standards Association	Amer Standards Assn
American Statistical Association	Amer Stat Assn
American Statistician	Amer Stat
American Water Works Association	Amer Water Works Assn
Annals of Mathematical Statistics	Ann Math Stat
Appalachia	Not abbreviated
Appalachian Forest Experiment Station	Appalachian For Exp Sta
Arctic	Not abbreviated
Arizona Agricultural Experiment Station	Ariz Agr Exp Sta
Arizona Land Department	Ariz Land Dept
Arizona State Water Commissioner	Ariz Water Comm
Arkansas Agricultural Experiment Station	Ark Agr Exp Sta
Arkansas Institute of Science and Technology	Ark Inst Sci Tech
Arkansas University Bureau of Research	Ark Univ Bur Res
Association of American Geographers	Assn Amer Geog
Association of Western State Engineers	Assn West State Eng
Astronomical Society of the Pacific	Astron Soc Pac
Atlantic Monthly	Atlantic Mon
Bell Laboratory Record	Bell Lab Rec
Bell Telephone Magazine	Bell Tel Mag
*Better Crops with Plant Food	Not abbreviated
*Better Farms	Not abbreviated
*Better Roads	Not abbreviated
Biometrics	Not abbreviated
Boston Society of Civil Engineers	Boston Soc Civ Eng
California Agricultural Experiment Station	Calif Agr Exp Sta
California Department of Natural Resources	Calif Dept Nat Res
California Division of Water Resources	Calif Div Water Res

California Engineer	Calif Eng
California Forest and Range Experiment Station	Calif For Range Exp Sta
California Highways and Public Works	Calif Hwy Pub Works
*California Monthly	Calif Mon
California, University of (Berkeley)	Calif Univ
California Water Pollution Control Board	Calif Water Poll Control Bd
California Water Resources Board	Calif Water Res Bd
Canadian Engineer	Can Eng
Canadian Geographical Journal	Can Geog J
Canadian Journal of Agricultural Science	Can J Agr Sci
Canadian Journal of Physics	Can J Phys
Canadian Journal of Research	Can J Res
Canadian Mining Journal	Can Min J
Canadian Mining and Metallurgical Bulletin	Can Min Metal Bul
Canadian National Research Council	Can Nat Res Coun
Canadian Royal Astronomical Society	Can R Astron Soc
Carnegie Institution of Washington	Carnegie Inst Wash
Chicago, University of	Chicago Univ
Civil Engineering	Civ Eng
Colorado Agricultural and Mechanical College	Colo Agr Mech Coll
Colorado Agricultural Experiment Station	Colo Agr Exp Sta
Colorado School of Mines	Colo Sch Mines
Colorado, University of	Colo Univ
Colorado Water Conservation Board	Colo Water Cons Bd
Communication on Applied Mathematics	Commun App Math
Connecticut Agricultural Experiment Station	Conn Agr Exp Sta
Cornell University Agricultural Experiment Station	Cornell Univ Agr Exp Sta
Delaware Geological Survey	Del Geol Surv
Earth Science Digest	Earth Sci Digest
Ecological Monographs	Ecol Mono
Ecology	Not abbreviated
Economic Geography	Econ Geog
Economic Geology	Econ Geol
Edison Electric Institute	Edison Elec Inst
Electrical Engineering	Elec Eng
Electrical West	Elec West
Electronics	Not abbreviated
Engineering and Mining Journal	Eng Min J
Engineering and Science Monthly	Eng Sci Mon
Engineering Journal	Eng J
Engineering News-Record	Eng News-Rec
Florida Academy of Science	Fla Acad Sci
Florida Agricultural Experiment Station	Fla Agr Exp Sta
Florida Division of Water Survey and Research	Fla Div Water Surv Res
Florida Engineering and Industrial Experiment Station	Fla Eng Ind Exp Sta
Florida Geological Survey	Fla Geol Surv
Franklin Institute	Franklin Inst
General Electric Review	Gen Elec Rev
Geographic Review	Geog Rev
Geological Society of America	Geol Soc Amer
Geophysical Prospecting	Geophys Prosp
Geophysics	Not abbreviated
Georgia Department of Conservation	Ga Dept Cons
Georgia Department of Mines, Minerals, and Geology	Ga Dept Mines Min Geol
Georgia Geological Survey	Ga Geol Surv
Harvard University Soil Mechanics Series	Harvard Univ Soil Mech Ser
Hawaii, University of	Haw Univ
Hawaiian Division of Hydrography	Haw Div Hydrog
Hawaiian Planter's Record	Haw Plant Rec
Heating and Ventilating	Heat Vent
Heating, Piping, and Air Conditioning	Heat, Piping, Air Cond
Highway Research Board	Hwy Res Bd
Hilgardia	Not abbreviated

Illinois Agricultural Experiment Station	Ill Agr Exp Sta
Illinois Division of Waterways	Ill Div Waterways
Illinois Geological Survey	Ill Geol Surv
Illinois State Water Survey	Ill Water Surv
Illinois University Engineering Experiment Station	Ill Univ Eng Exp Sta
Indiana Academy of Science	Ind Acad Sci
Indiana Department of Conservation	Ind Dept Cons
Indiana Division of Water Resources	Ind Div Water Res
Indiana Flood Control and Water Resources Commission	Ind Flood Cont Water Res Comm
Indiana State Board of Health	Ind Bd Health
Industrial and Engineering Chemistry	Ind Eng Chem
Instrumentation	Not abbreviated
Instruments	Instrum
Intermountain Forest and Range Experiment Station	Intermountain For Range Exp Sta
**International Association of Scientific Hydrology	Int Assn Sci Hydrol
**International Congress of Soil Science	Int Cong Soil Sci
Iowa Academy of Science	Iowa Acad Sci
Iowa Horticultural Society	Iowa Hort Soc
Iowa State College	Iowa State Coll
Iowa State College Journal of Science	Iowa J Sci
Iowa, University of	Iowa Univ
Johns Hopkins University	Johns Hopkins Univ
Johnson National Drillers' Journal	Johnson Nat Drillers' J
Journal of the Aeronautical Sciences	J Aero Sci
Journal of Agricultural Research	J Agr Res
Journal of Applied Mechanics	J App Mech
Journal of Applied Physics	J App Phys
Journal of Chemistry and Physics	J Chem Phys
Journal of Engineering Education	J Eng Educ
Journal of Forestry	J Forestry
Journal of Geology	J Geol
Journal of Geophysical Research	J Geophys Res
Journal of Mathematics and Physics	J Math Phys
Journal of Meteorology	J Met
Journal of Petroleum Technology	J Pet Tech
Journal of Physical Chemistry	J Phys Chem
Journal of Range Management	J Range Man
Journal of Research	J Res
Journal of the Royal Astronomical Society of Canada	J R Astron Soc Can
Journal of Sedimentary Petrology	J Sed Pet
Journal of Soil Science	J Soil Sci
Journal of Soil and Water Conservation	J Soil Water Cons
Kansas Academy of Science	Kans Acad Sci
Kansas Agricultural Experiment Station	Kans Agr Exp Sta
Kansas State Board of Agriculture	Kans Bd Agr
Kansas State College	Kans State Coll
Kansas State Geological Survey	Kans Geol Surv
Kentucky Academy of Science	Ky Acad Sci
Kentucky Department of Mines and Minerals	Ky Dept Mines Min
Kentucky University Engineering Experiment Station	Ky Univ Eng Exp Sta
Land (The)	Not abbreviated
*Land Economics	Land Econ
Louisiana Academy of Science	La Acad Sci
Louisiana Department of Conservation	La Dept Cons
Louisiana Department of Highways	La Dept Hwy
Louisiana Department of Public Works	La Dept Pub Works
Louisiana State University	La Univ
Maine Development Commission	Me Dev Comm
Maine Technology Experiment Station	Me Tech Exp Sta
Maryland Department of Geology, Mines, and Water Resources	Md Dept Geol Mines Water Res
Massachusetts Agricultural Experiment Station	Mass Agr Exp Sta
Massachusetts Institute of Technology	Mass Inst Tech
Massachusetts State College	Mass State Coll

Mazama	Not abbreviated
Mechanical Engineering	Mech Eng
Michigan Academy of Arts, Sciences, and Letters	Mich Acad Arts, Sci, Let
Michigan Agricultural Experiment Station	Mich Agr Exp Sta
Michigan College of Mining and Technology	Mich Coll Min Tech
Michigan Geological Survey	Mich Geol Surv
Michigan State College	Mich State Coll
Midwest Engineer	Midwest Eng
Military Engineer	Mil Eng
Mines Magazine	Mines Mag
Mining Congress Journal	Min Cong J
Mining Engineering	Min Eng
Mining and Metallurgy	Min Metal
Minnesota Division of Water	Minn Div Water
Minnesota Geological Survey	Minn Geol Surv
Minnesota International Hydraulics Convention	Minn Int Hydr Conv
Minnesota, University of	Minn Univ
Mississippi Geological Survey	Miss Geol Surv
Missouri Division of Resources and Development	Mo Div Res Dev
Missouri Geological Survey	Mo Geol Surv
Missouri School of Mines	Mo Sch Mines
Missouri, University of	Mo Univ
Missouri Water and Sewage Conference	Mo Water Sewage Conf
Montana Academy of Science	Mont Acad Sci
Montana Agricultural Experiment Station	Mont Agr Exp Sta
Montana Forest and Range Experiment Station	Mont For Range Exp Sta
Monthly Weather Review	Mon Wea Rev
National Academy of Science	Nat Acad Sci
National Geographic Magazine	Nat Geog
National Reclamation Association	Nat Recl Assn
National Speleological Society	Nat Spel Soc
Natural History	Nat Hist
Nebraska Agricultural Experiment Station	Nebr Agr Exp Sta
Nebraska Water Survey	Nebr Water Surv
Nevada Agricultural Experiment Station	Nev Agr Exp Sta
Nevada State Engineer Water Resources Bulletin	Nev Water Res Bul
New England Water Works Association	N E Water Works Assn
New Jersey Agricultural Experiment Station	N J Agr Exp Sta
New Jersey Department of Conservation and Economic Development	N J Dept Cons Econ Dev
New Mexico Agricultural Experiment Station	N M Agr Exp Sta
New Mexico Bureau of Mines and Mineral Resources	N M Bur Mins Min Res
New Mexico University	N M Univ
New York Academy of Science	N Y Acad Sci
New York Department of Conservation	N Y Dept Cons
New York Water Power and Control Commission	N Y Water Power Control Comm
North American Wildlife Conference	N Amer Wildlife Conf
North Carolina Agricultural Experiment Station	N C Agr Exp Sta
North Carolina Department of Conservation and Development	N C Dept Cons Dev
North Carolina Division of Water Resources and Engineering	N C Div Water Res Eng
North Carolina State College	N C State Coll
North Dakota Agricultural Experiment Station	N D Agr Exp Sta
North Dakota Geological Survey	N D Geol Surv
Northwest Science	Northwest Sci
Ohio Agricultural Experiment Station	Ohio Agr Exp Sta
Ohio Division of Water	Ohio Div Water
Ohio State University Engineering Experiment Station	Ohio Univ Eng Exp Sta
Ohio University Journal of Science	Ohio J Sci
Ohio Water Resources Board	Ohio Water Res Bd
*Oil and Gas Journal	Oil Gas J
Oklahoma Academy of Science	Okla Acad Sci
Oklahoma Agricultural Experiment Station	Okla Agr Exp Sta
Oklahoma Agricultural and Mechanical College	Okla Agr Mech Coll

Oklahoma Planning and Resources Board	Okla Plan Res Bd
Oklahoma State Engineer	Okla State Eng
Oregon Agricultural Experiment Station	Ore Agr Exp Sta
Oregon State Engineer	Ore State Eng
Pacific Discovery	Pac Disc
Pacific Science	Pac Sci
Pacific Northwest Forest and Range Experiment Station	Pac N W For Range Exp Sta
Pennsylvania Academy of Science	Pa Acad Sci
Pennsylvania Agricultural Experiment Station	Pa Agr Exp Sta
Pennsylvania Department of Forests and Waters	Pa Dept For Waters
Pennsylvania Electric Association	Pa Elec Assn
Pennsylvania State College Engineering Experiment Station	Pa State Coll Eng Exp Sta
Pennsylvania Topographic and Geologic Survey	Pa Topog Geol Surv
Pennsylvania, University of	Pa Univ
Petroleum Engineering	Pet Eng
Petroleum Technology	Pet Tech
Photogrammetric Engineering	Photo Eng
Plateau	Not abbreviated
Popular Mechanics	Pop Mech
Puerto Rico Journal of Agriculture	P R J Agr
Power	Not abbreviated
Power Plant Engineering	Pow Plant Eng
Public Roads	Pub Roads
Public Works	Pub Works
Purdue University	Purdue Univ
Quarterly of Applied Mathematics	Q App Math
*Rancher and Farmer	Rancher Farmer
Reclamation Era	Recl Era
Review of Modern Physics	Rev Modern Phys
Review of Scientific Instruments	Rev Sci Inst
Rhode Island Agricultural Experiment Station	R I Agr Exp Sta
Rhode Island Development Council	R I Dev Coun
Roads and Bridges	Not abbreviated
Roads and Streets	Not abbreviated
Rochester Academy of Science	Rochester Acd Sci
Rocky Mountain Forest and Range Experiment Station	Rocky Mt For Range Exp Sta
Royal Canadian Institute	R Can Inst
Royal Society of Canada	R Soc Can
Science	Sci
Scientific Agriculture	Sci Agr
Scientific American	Sci Amer
Scientific Monthly	Sci Mon
Sewage and Industrial Waste	Sewage Ind Waste
Sewage Works Engineering	Sewage Works Eng
Sewage Works Journal	Sewage Works J
*Sheep and Goat Raiser	Sheep, Goat Raiser
Sierra Club Bulletin	Sierra Club Bul
Smithsonian Institution Miscellaneous Collection	Smith Inst Misc Coll
Soil Conservation	Soil Cons
Soil Science	Soil Sci
Soil Science Society of America	Soil Sci Soc Amer
South Carolina Agricultural Experiment Station	S C Agr Exp Sta
South Carolina Planning, Research and Development Board	S C Plan Res Dev Bd
South Dakota Academy of Science	S D Acad Sci
South Dakota Agricultural Experiment Station	S D Agr Exp Sta
South Dakota Geological Survey	S D Geol Surv
Southeastern Forest Experiment Station	S E For Exp Sta
Southern Forest Experiment Station	South For Exp Sta
Southwestern Forest and Range Experiment Station	S W For Range Exp Sta
Stanford University	Stanford Univ
Surveying and Mapping	Survey Mapping
**Tellus	Not abbreviated
Tennessee Academy of Science	Tenn Acad Sci

Tennessee Department of Conservation	Tenn Dept Cons
Tennessee, University of	Tenn Univ
Texas Agricultural Experiment Station	Tex Agr Exp Sta
Texas Agricultural and Mechanical College	Tex Agr Mech Coll
Texas Journal of Science	Tex J Sci
Texas State Board of Water Engineers	Tex Bd Water Eng
Texas, University of	Tex Univ
Tree-Ring Bulletin	Tree-Ring Bul
U. S. Air Force Cambridge Research Laboratory	U S Cambridge Res Lab
U. S. Beach Erosion Board	U S Beach Eros Bd
U. S. Bureau of Public Roads	U S Bur Pub Roads
U. S. Bureau of Reclamation	U S Bur Recl
U. S. Civil Aeronautics Administration	U S Civ Aero Adm
U. S. Coast and Geodetic Survey	U S C and G S
U. S. Corps of Engineers	U S Corps Eng
U. S. Department of Agriculture	U S Dept Agr
U. S. Forest Service	U S For Serv
U. S. Geological Survey	U S Geol Surv
U. S. House of Representatives	U S House Rep
U. S. National Bureau of Standards	U S Nat Bur Standards
U. S. Navy	U S Navy
U. S. Public Health Service	U S Pub Health Serv
U. S. Soil Conservation Service	U S Soil Cons Serv
U. S. Tennessee Valley Authority	U S TVA
U. S. Waterways Experiment Station	U S Waterways Exp Sta
U. S. Weather Bureau	U S Wea Bur
Utah Academy of Science, Arts, and Letters	Utah Acad Sci, Arts, Let
Utah Agricultural Experiment Station	Utah Agr Exp Sta
Utah State Engineer	Utah State Eng
Vermont Agricultural Experiment Station	Vt Agr Exp Sta
Virginia Agricultural Experiment Station	Va Agr Exp Sta
Virginia Conservation Commission	Va Cons Comm
Virginia Division of Planning and Economic Development	Va Div Plan Econ Dev
Virginia Engineering Experiment Station	Va Eng Exp Sta
Virginia Geological Survey	Va Geol Surv
Virginia Polytechnic Institute	Va Poly Inst
Washington (D. C.) Academy of Science	Wash Acad Sci
Washington Agricultural Experiment Station	Wash Agr Exp Sta
Washington Division of Water Resources	Wash Div Water Res
Washington State College Experiment Station	Wash State Coll Exp Sta
Washington State University	Wash State Univ
Water and Sewage Works	Water, Sewage Works
Water Works Engineering	Water Works Eng
Weatherwise	Not abbreviated
Western City	West City
Western Construction	West Const
Western Industry	West Ind
Western Snow Conference	West Snow Conf
Western Society of Engineers	West Soc Eng
Western State Engineers Conference	West State Eng Conf
West Virginia Academy of Science	W Va Acad Sci
West Virginia Geological Survey	W Va Geol Surv
West Virginia University	W Va Univ
*What's New in Crops and Soils	What's New Crops Soils
Wisconsin Academy of Science, Arts, and Letters	Wisc Acad Sci, Arts, Let
Wisconsin Agricultural Experiment Station	Wisc Agr Exp Sta
Wisconsin, University of	Wisc Univ
Wyoming Geological Survey	Wyo Geol Surv
Wyoming, University of	Wyo Univ

Miscellaneous Abbreviations

abst	abstract
agr	agriculture
an	annals
ann	annual
bul	bulletin
chap	chapter
circ	circular
coll	college, collection
com	committee
comm	commission
cong	congress
cons	conservation
cont	contribution
dept	department
div	division
doc	document
ed	edition or editor
eng	engineer
gen	general
hydr	hydraulics
hydrol	hydrologic
hydrog	hydrographic
hydromet	hydrometeorological
inf	information
inv	investigation
j	journal
mem	memorandum
misc	miscellaneous
mono	monograph
occ	occasional
off	office
p	page
pp	pages
proc	proceedings
prog	progress
proj	project
prtg	printing
pt	part
pub	publication
Q	quarterly
rep	report
repr	reprint
res	resources, research
rev	revised
sci	science
sec	section
sep	separate
Sep	September
ser	series
serv	service
sess	session
spec	special
sup	supplement
symp	symposium
tech	technical
trans	transactions
v	volume

ABBEY, R. J. See Warnick, C. C., 2

ABDULLAH, ABDUL J.

1. A note on the periodicity of some frontal precipitation. J Met, v 10, pp 228-230, 1953
   Radar photographs of frontal precipitation show more or less parallel, periodic bands. The author suggests that these are the result of wave action.

ACKERMANN, WILLIAM C.

1. Report of the Research Committee on Precipitation (1951-1952). Trans Amer Geophys Union, v 34, p 133, 1953
   A brief report of current activities dealing with research on precipitation in the U. S.

ADEN, A. L.

1. Microwave reflection from water spheres. Amer J Phys, v 19, pp 163-167, 1951
   An experimental study of the back-scattering from water drops. Pertinent to measurement of rainfall by radar.

AHLMANN, H. W: SON

1. Glacier variations and climatic fluctuations. Amer Geog Soc, 51 pp, New York, 1953
   Recent glaciological evidence is reviewed and interpreted in terms of its significance as indicating climatic trends. The mechanics of the ice budget of glaciers is discussed.

AKIN, P. D. See also Aranow, S., 1, 2

1. Ground water in the Mohall area, Bottineau, and Renville Counties, North Dakota. N Dak Geol Surv Ground-Water Study 17, 76 pp, 1952
2. Ground-water studies in the Litchville area, Barnes County, North Dakota. N Dak Geol Surv Ground-Water Study 18, 51 pp, 1952
   A progress report on investigations in the area.
3. (and JONES, J. R.) Geology and ground-water resources of the Cloquet area, Carlton County, Minn. Minn Div Water Bul 6, 63 pp, 1952

ALBERT, F. A.

1. Good land-use practices cut turbidity in river water. Eng News-Rec, v 146, pp 40-41, 43, Feb 8, 1951
   Turbidity of Chattahoochee R. at Atlanta, Ga., water-supply intake has declined from 400 to 125 ppm in 20 yr as a result of conservation measures in the watershed. Data on the cost of protection is given.

ALBERTSON, MAURICE L. See also Barton, J. R., 1; Benedict, P. C., 2; Doddiah, D., 1; Peterson, J. S., 1; Robinson, A. R., 1; Schulz, E. F., 1

1. Turbulence flume to measure bed load. Colo Agr Mech Coll Dept Civ Eng, 8 pp, 1951
   Using artificial bottom roughness a flume is developed which forces bed load into suspension so that it may be sampled by conventional methods for sampling suspended sediment. The performance of a model and the prototype is reported.
2. Effect of shape on the fall velocity of gravel particles. Proc 5th Hyd Conf, Iowa Univ Studies in Eng Bul 34, pp 243-261, 1953
   Experimental data from various sources are analyzed. A shape factor for describing the shape of gravel particles is proposed and curves showing the drag coefficient for various values of Reynolds number and shape factor are presented.
3. La mecanique de l'evaporation. Dr Phys Sci thesis, Grenoble (France) Univ, 74 pp, June 1954
   A review of work on evaporation performed over a period of 10 yr under the author's supervision.

ALBRECHT, WILLIAM A.

1. Drainage ditches can be erosive too. Soil Cons, v 16, pp 141-142, 1951
   Describes bank erosion along a ditch on the West Fk., Grand R., Mo., which is beginning the meander.

ALDERFER, R. B. See Robinson, R. R., 1

ALDOUS, W. M.

1. (and LAWTON, WARREN L., AND MAINFORT, ROBERT C.) The measurement of soil moisture by heat diffusion. U S Civ Aero Adm Tech Dev Rep 165, 17 pp, 1952
   Reports tests on more than 50 different types of moisture cells to determine their utility for field measurement of soil moisture. The limitations and range of usefulness of the more effective types are summarized.

ALDRICH, R. C.
1. Accuracy of land use classifications and area estimates using aerial photographs. J Forestry, v 51, pp 12-15, 1953
Photographs are generally found to be adequate but the accuracy depends on the skill of the interpreter, age of the photograph, and time of year when taken.

ALLEN, WILLIAM B. See also Cushman, R. V., 1
1. Technical investigation of additional ground-water supplies in Rhode Island. J N E Water Works Assn, v 66, pp 211-216, 1951
A description of the program of field studies being conducted in the state.
2. Ground-water survey--Report for 1951. R I Dev Coun Water Res Mem 1, 8 pp, 1952
3. Ground-water studies in Rhode Island. J N E Water Works Assn, v 67, pp 96-113, 1953
Describes the investigations in progress and presents preliminary conclusions as to ground-water occurrence in map form. Includes some general discussion of ground water.
4. (and KINNISON, H. B.) Rhode Island: Ground-water resources--a reconnaisance. R I Dev Coun Geol Bul 6, 1953

ALLIS, JOHN A.
1. The story of two watersheds. J Soil Water Cons, v 7, pp 243-245, 1952
An analysis of the effects of soil and water conservation measures on the flood of July 1951 on the Kansas R.
2. Runoff from conservation and non-conservation watersheds. Agr Eng, v 34, pp 766-768, 1953
Small experimental watersheds at Hastings, Neb., are compared to illustrate the methods of analysis and the effects of conservation methods.

ALLRED, E. R.
2. (and CHEN, ROBERT) Evaluating irrigation needs in humid areas. Agr Eng, v 34, pp 611-615, 619, 1953
Day-to-day computations of soil moisture deficiency are used to determine need for irrigation. The Blaney-Criddle method is employed for estimates of evapotranspiration. Punched-card analysis permits study of long periods and a frequency analysis of the results.

ALMOND, HY See Lakin, H. W., 1

AMERICAN METEOROLOGICAL SOCIETY
1. Compendium of meteorology. Amer Met Soc, 1334 pp, 1951
Edited by T. J. MALONE this compendium covers almost the entire field of meteorology. It contains 108 chapters, each by a specialist in the field. The general subdividions include: Composition of the atmosphere, Radiation, Optics, Atmospheric electricity, Cloud physics, Upper atmosphere, Dynamics of the atmosphere, General circulation, Pressure systems, Local circulations, Observations, Forecasting, Tropical and Polar meteorology, Climatology, Hydrometeorology, Marine meteorology, Atmospheric pollution, Clouds, Fog, Instruments, Laboratory investigations, Radiometeorology, and Microseisms. Those sections most pertinent to hydrology are listed by author in this bibliography.

AMERICAN SOCIETY OF CIVIL ENGINEERS
1. Review of flood frequency methods. Final report of the subcommittee of the joint division Committee on Floods. Trans Amer Soc Civ Eng, v 118, pp 1220-1230, 1953
Summarizes the current methods of flood frequency computation, discusses the factors affecting the accuracy of such studies, and indicates the limitations on the computed results.
2. Master library list of fluid mechanics and hydraulic engineering titles. Proc Amer Soc Civ Eng sep 380, 10 pp, Jan 1954
Prepared by the Committee on Research of the Hydraulics Division, this paper lists author, title, publisher, edition, and year of the main books in these fields, both English and foreign language. Key periodicals are also listed.

AMERICAN SOCIETY FOR TESTING MATERIALS
1. Symposium on radioactive isotopes in soil investigations. Amer Soc Test Mat, 1952
A number of papers discuss various applications including measurement of moisture and density.
2. Identification and classification of soils. Amer Soc Test Mat Pub STP 113, 1952
Describes the most commonly used methods of identifying and classifying soil for engineering purposes. Attempts to bring the views of the agriculturist and the engineer together.
3. Report of Committee D-19 on industrial water. Amer Soc Test Mat preprint, 48 pp, 1953
A presentation of proposed standard tests for odor, pH, solids, oxygen demand, residual chlorine, nitrite ion, sulfides, hardness, and general analysis.

AMERICAN STANDARDS ASSOCIATION
1. American standard letter symbols for meteorology. Amer Standards Assn ASA 10.10-1953, 11 pp, New York, 1953
A compilation of standard symbols for use in technical writing.

AMSDEN, THOMAS W.

1. (and OVERBECK, ROBERT M., and MARTIN, ROBERT O. R.) Geology and water resources of Garrett County. Md Dept Geol Mines Water Res Bul 13, 349 pp, 1954
   A detailed summary of water resources both surface and underground for a county in western Maryland.

ANDERSON, ALVIN G. See Straub, L. G., 2

ANDERSON, E. W.

1. (and PRITCHARD, D. W.) Physical limnology of Lake Mead. U S Navy Elec Lab Rep 258, 153 pp, 1951
   A report of surveys of the salinity, temperature, and circulation in Lake Mead associated with studies of sedimentation in and evaporation from the lake. Contains a fairly complete summary of field data, discussion of methods of analysis, and indication of the significance of the results.

ANDERSON, H. O.

1. (and McNALL, P. E., and HAYS, O. E.) Soil conservation pays--effects of specific practices on yields and on costs. Wisc Univ Agr Econ 1, 1951
   A bulletin stressing the need for conservation practices and demonstrating how benefits can be compared with costs.
2. (and McNALL, P. E.) Soil conservation in southwestern Wisconsin. Wisc Univ Agr Econ 11, 1951
   A history of soil erosion problems and conservations measures employed in the area. Gives recommendations on additional conservation practices required.

ANDERSON, HENRY W.

1. Physical characteristics of soils related to erosion. J Soil Water Cons, v 6, pp 129-133, 1951
   Stresses the importance of relating erodibility to the soil characteristics as a basis for planning erosion control operations.
2. Suspended sediment discharge as related to stream flow, topography, soil, and land use. Trans Amer Geophys Union, v 35, pp 268-281, 1954
   Suspended sediment data for 29 watersheds in western Oregon are correlated with stream flow, soil type, and topographic variables. The relation is used to predict erosion potential and to estimate the effect of land use practices on erosion.

ANDERSON, L. J. See Bellaire, F. R., 1

ANDREWS, L. A. See Hamilton, E. R., 1, 2

ANTEVS, ERNST

1. Arroyo cutting and filling. J Geol, v 60, pp 375-385, 1952
   Arroyo changes are mainly controlled by vegetation which is in turn affected by drought and grazing. Paper is a general review of trends in cutting and filling and the probable causes of these trends.

APPEL, D. W.

1. An instrument for rapid size-frequency analysis of sediments. Proc 5th Hydr Conf Univ Iowa Studies in Eng Bul 34, 15 pp, 1953
   Describes instrument based on an improved method of producing stratified suspensions, a means of making a differential pressure traverse of a suspension which permits direct measurement of the size-frequency of the sediment, and an electrical pressure transducer for measurement of very small differential pressures.

ARANOW, SAUL

1. (and DENNIS, P. E., and AKIN, P. D.) Geology and ground-water resources of the Minnewaukan area, Benson County, North Dakota. N D Geol Surv Ground-Water Study 19, 125 pp, 1953
   A progress report on an extensive ground-water investigation of Benson County. This report covers an area of about 150 sq mi around Minnewauka.
2. (and DENNIS, P. E., and AKIN, P. D.) Geology and ground-water resources of the Michigan City area, Nelson County, North Dakota. N D Geol Surv Ground-Water Study 21, 125 pp, 1953
   A progress report on an extensive study of Nelson County.

ARCHIBALD, RALPH S. See Thomas, H. A., Jr., 2

ARCTIC INSTITUTE OF NORTH AMERICA

1. Arctic bibliography. 4478 pp, 3 v, Supt Doc, Washington, D. C., 1953
   A comprehensive bibliography listing more than 20,000 items available in the U. S. and Canada. Covers all subjects and all fields of science related to the Arctic. Foreign language papers are listed with annotations.

ARMSTRONG, J. M.

1. Colorado's avalanche control program. Pub Works, v 83, pp 50-51, 1952
   Describes methods used for forecasting avalanche probability, and techniques for triggering avalanches for protective purposes.

ARNDT, ROBERT H.

1. Radioactivity of rivers and lakes in parts of Garland and Hot Springs Counties, Arkansas. Econ Geol, v 48, pp 551-560, 1953
   Describes the geology of the region and the data collected on radioactivity. A wide range of radon content was noted in the waters of the area.

ARNOW, THEODORE

1. The ground-water resources of Fulton County, New York. N Y Dept Cons Rep GW-24, 41 pp, 1951
2. The ground-water resources of Columbia County, New York. N Y Dept Cons Rep GW-25, 48 pp, 1951

ARONOVICI, V. S.

1. Laboratory evaluation of desert soils for irrigation. Trans Amer Geophys Union, v 33, pp 49-52, 1952
   A simple laboratory technique of evaluating desert soils for suitability for irrigation is outlined. The laboratory tests augment field examination of the physiography and pedology of the area. The relative distribution of available moisture in the tension range from 100 to 15,000 cm is found to be especially important.
2. The application of the ring infiltrometer to diagnosis of irrigation problems in southern California. Trans Amer Geophys Union, v 35, pp 813-820, 1954
   Field tests show that the conventional ring infiltrometer is not well suited for quantitative evaluation of irrigation problems.

ARONS, A. B. See also Keith, C. H., 1

1. (and KIENTZLER, C. F.) Vapor pressure of sea-salt solutions. Trans Amer Geophys Union, v 35, pp 722-728, 1954
   Vapor pressures between freezing and 25° C are reported and related to earlier determinations.

ASHCROFT, G.

1. (and TAYLOR, S. A.) Soil moisture tension as a measure of the water removal rate from soil and its relation to weather factors. Proc Soil Sci Soc Amer, v 17, pp 171-174, 1953
   The relation between moisture content and tension is developed and integrated to give a value for the total water in the soil. This is used for estimating the available water in the soil and hence required irrigation applications.

ATKINSON, H. B.

1. (and HAYS, ORVILLE E.) Erosion controlled by terraces. Wisc Agr Exp Sta Bul 494, 1951
   A review of the successful use of terraces for soil conservation.

ATKINSON, H. J. See Cordukes, R. E., 1

ATLAS, DAVID

1. (and BANKS, HAROLD C.) The interpretation of microwave reflections from rainfall. J Met, v 8, pp 271-282, 1951
   The distortions of the radar echo pattern from the true precipitation pattern are analyzed in terms of their causes and the effect on the utility of rainfall-radar studies.
2. Microwave scattering from non-spherical hydrometeors. Ill Water Surv Bul 41, pp 269-276, 1952
   The scattering from non-spherical particles is analyzed theoretically and compared with that from spherical particles. Pertinent to interpretation of radar observations of rainfall.
3. (and PLANK, VERNON) Drop-size history during a shower. J Met, v 10, pp 291-295, 1953
   The changes in drop-size dispersion at close intervals of time during the passage of a shower are presented and an explanation of the physical causes is advanced. Discussion by L. A. DEAN and D. M. A. JONES, v 11, pp 256-257, 1954.

ATWATER, MONTGOMERY M.

1. The relationship of precipitation intensity to avalanche occurrence. Proc West Snow Conf, pp 11-28, 1952
   Data is presented to show the significance of precipitation intensity as a factor in inducing avalanches.
2. Snow avalanches. Sci Amer, v 190, pp 26-31, 1954
   A summary of the factors influencing avalanche formation with illustrations.

AUFM KAMPE, H. J. See also Kumai, M., 1

1. (and WEICKMANN, H. K., and KELLEY, J. J.) The influence of temperature on the shape of ice crystals growing at water saturation. J Met, v 8, pp 168-174, 1951
   Presents photographs of crystals grown at various temperatures together with data on crystal shape. Discusses reasons for the observed variations of shape with temperature.
2. (and WEICKMANN, H. K.) The effectiveness of natural and artificial aerosols as freezing nuclei. J Met, v 8, pp 283-288, 1951
   Reports laboratory tests of various aerosols as freezing nuclei. Tests are interpreted to indicate that whenever synoptic conditions favor appreciable rain, the rain will usually occur without seeding.

AUSTIN, PAULINE M.

1. Radar observations of a frontal storm. Bul Amer Met Soc, v 32, pp 136-145, 1951
   Presents a history of the development of precipitation patterns associated with a warm and a cold front near Boston, Mass.
2. Comparison of average radar signal intensity with rainfall rate. Ill Water Surv Bul 41, pp 227-233, 1952
   A discussion of the problems inherent in obtaining a good calibration between radar observations and rainfall rates.

AVERY, STUART B.

1. Analysis of ground-water lowering adjacent to open water. Trans Amer Soc Civ Eng, v 118, pp 178-208, 1953
   A mathematical analysis of the situation occurring when an excavation adjacent to open water is unwatered. Formulas are developed to show the rate of pumping required to maintain a specified drawdown and the relation between the drawdown at the center of the well field and at any other point. Discussion by M. I. RORABAUGH, S. J. JOHNSON, and H. P. HALL.

AVRETT, J. R. See Lohr, E. W., 4

AYERS, A. D.

1. (and CAMPBELL, R. B.) Freezing point of water in soil as related to salt and moisture contents of the soil. Soil Sci, v 72, pp 201-206, 1951
   Freezing point measurements are made on Pachappa fine sandy loam at five levels of added NaCl and six levels of moisture.

AYERS, H. D.

1. Soil permeability as a factor in the translocation of salts on irrigated lands. Sci Agr, v 31, pp 383-395, 1951
   Ground-water theory is used to define the conditions leading to high water tables. Locus of salt concentration is found to be at the point where there is a decrease of permeability in the direction of flow.

AYRES, CLAUDE Q. See Roe, H. B., 1

BABBITT, HAROLD E. See Jansen, R. B., 1; Lee, M., 1

BABCOCK, H. M. See also Rapp, J. R., 2; Visher, F. N., 2

1. (and VISHER, F. N., and DURUM, W. H.) Ground-water conditions in the Dutch Flats area, Scotts Bluff and Sioux Counties, Nebr. U S Geol Surv Circ 126, 51 pp, 1951
2. (and VISHER, F. N., and DURUM, W. H.) Reconnaissance of the geology and ground-water resources of the Pumpkin Creek area, Morrill and Banner Counties, Nebr. U S Geol Surv Circ 156, 30 pp, 1952
   A study of the possibilities for developing ground water for irrigation. The alluvium underlying the flood plains of the area is the principal aquifer, while the Ogallala formation yields some water in the upland area south of Pumpkin Cr. About 21,300 ac ft leave the area annually as stream flow and this is approximately the quantity available for development.
3. (and RAPP, J. R., and DURUM, W. H.) Reconnaissance of the geology and ground-water resources of the Hores Creek-Bear Creek area, Laramie and Goshen Counties, Wyo. U S Geol Surv Circ 162, 28 pp, 1952
   The Brule formation, Arikaree sandstone, and the alluvium under the main valleys are the main sources of ground water. The water is hard but suitable for both irrigation and domestic use.

BACH, W. K. See Swenson, F. A., 1

BACON, VINTON W. See also Stone, R. V., 1

1. (and GLEASON, GEORGE B., and WALLING, I. W.) Water quality as related to water pollution in California. Ind Eng Chem, v 45, pp 2657-2665, 1953
   A general discussion of water quality with some summarized data on ground and surface water in California, both natural and polluted.

BADER, HENRI

1. Introduction to ice petrofabrics. J Geol, v 59, pp 519-536, 1951
   The types of glacier ice structure are described and related to physical properties of the ice. Laboratory methods of study are emphasized.

BAINES, WILLIAM DOUGLAS See also Glover, R. E., 1

1. Water surface elevations and tidal discharges in the Fraser River estuary, January 23 and 24, 1952. Can Nat Res Coun Rep MU-32, 18 pp, 1952
   A report on a survey made during a low-flow period to determine water surface elevations and discharge. Method of computing tidal discharge is described.
2. Survey of tidal effects on flow in the Fraser River estuary, June 10 and 11, 1952. Can Nat Res Coun Rep MH-40, 11 pp, 1953
   Water surface elevations and computed discharges are presented for two freshet days. The dynamics of the flow is discussed.

3. A long period effect of tides on Fraser River stages. Trans Amer Geophys Union, v 34, pp 733-736, 1953
   A discussion of the relation between tides, stream flow, and stage on the lower Fraser River, British Columbia.

BAIRD, P. D.

1. Baffin Island expedition, 1953: A preliminary field report. Arctic, v 6, pp 227-251, 1953
   A summary of operations in the Cumberland Peninsula area from May to Sep, 1953. The data is summarized and the methods of observation described.

BAIRD, RALPH W.

1. Runoff from conservation and non-conservation watersheds. Agr Eng, v 35, pp 95-97, 1954
   A comparison of runoff volume from treated and untreated watersheds at Blacklands Experimental Station, Tex.

BAJORUNAS, L. See Einstein, H. A., 3

BAKER, DONALD M.

1. Yield from ground-water reservoirs. West Const, v 28, pp 74-76, 117, 1953
   Reviews methods of estimating yield and overdraft, the principles of artificial recharge, and the determination of the safe yield from ground water.

BAKER, G. ORIEN See Jensen, M. C., 1

BAKER, R. C. See Tait, D. B., 1

BALIGH, ALY See Priest, M. S., 1

BALL, JOHN R.

1. Geology and mineral resources of the Carlinville Quadrangle. Ill Geol Surv Bul 77, 110 pp, 1952
   A general geologic study with some mention of ground water.

BALLESTER, R. E. See Hill, R. A., 1

BALMER, BERT

1. Watersheds--their management in the Pacific Northwest. West City, v 30, pp 38-45, 88, 1954
   A description of the methods used by several large cities for protection of water supply sources. Includes discussion of sediment and erosion control.

BALMER, GLENN G. See Glover, R. E., 2

BANKS, HAROLD C. See Atlas, David, 1

BANKS, HARVEY O.

1. (and LAWRENCE, JACK H.) Water quality problems in California. Trans Amer Geophys Union, v 34, pp 58-66, 1953
   Discusses a few of the water quality problems of California including pollution by sewage and industrial waste, degradation as a result of man's use of the water, and natural water quality problems.
2. (and RICHTER, RAYMOND C.) Sea-water intrusion into ground-water basins bordering the California coast and inland bays. Trans Amer Geophys Union, v 34, pp 575-582, 1953
   Describes the extent of salt-water intrusion, the methods of control which have been considered, and experimental work on control methods which is in progress.
3. Problems involved in the utilization of ground-water basins as storage reservoirs. Proc Assn West State Eng, pp 96-105, 1953
   A review of some of the problems and the possibilities of ground-water management based on experience in California.
4. Utilization of underground reservoirs. Trans Amer Soc Civ Eng, v 118, pp 220-234, 1953
   A review of the problems of operating ground-water basins as reservoirs for maximum conservation of water. Discussed with special reference to the alluvial basins of Southern California. Specifically discusses water waste to the ocean, use by native vegetation, and use of sewage for recharge.

BANKS, R. E. See Longard, J. R., 1

BANKS, R. P. See Einstein, H. A., 1, 3

BARBAROSSA, NICHOLAS L. See Einstein, H. A., 3

BARBER, E. S.

1. (and SAWYER, C. L.) Highway subdrainage. Pub Roads, v 26, pp 251-268, 1952
   Describes methods for determining permeability and drainability. Discusses moisture movement in unsaturated soil. Several permeameters and a unit for measuring specific yield are described, as is the use of a consolidometer-type test for estimating permeability of fine-grained material.

BARCLAY, J. E. See Reed, E. W., 2

BARDACH, JOHN E.

1. Effects of the wind on water movements in Lake West Okoboji, Iowa. Proc Iowa Acad Sci, v 61, pp 450-457, 1954

The standing wave pattern and thermal variations in a lake subjected to variable winds are described.

BARGER, G. L. See Shaw, R. H., 1

BARKLEY, R. C.

1. Artesian conditions in southeastern South Dakota. S D Geol Surv Rep Inv 71, 1952
2. Artesian conditions in the area surrounding the Sioux Quartzite Ridge. S D Geol Surv Rep Inv 72, 1953

BARKSDALE, H. C. See Herpers, H., 1

BARLEY, K. P.

1. Effects of root growth and decay on the permeability of a synthetic sandy loam. Soil Sci, v 78, pp 205-210, 1954
   Root growth in sandy loam is found to decrease permeability while subsequent decay increases permeability. A report of field and laboratory tests.

BARNES, BERTRAM S.

1. Unitgraph procedures. U S Bur Recl Hydrol Branch, 48 pp, 1952
   A comprehensive discussion of the unit hydrograph concept, the development of unit hydrographs, methods of adjusting unit hydrographs for different durations, and methods for estimating unit hydrographs in the absence of stream flow data.

BARNES, H. E.

1. Electrical subsurface exploration simplified. Roads and Streets, v 97, pp 81-84, 1954
   Discusses use of electrical resistivity methods for shallow subsurface exploration.

BARNES, J. R. See Goines, W. H., 1

BARNES, K. B.

1. New log interpreter. Oil Gas J, v 50, pp 55-56, 1951
   Describes slide rule for determining porosity, permeability, and saturation from the Archie and Tixier equations.

BARNES, KENNETH K.

1. Continuous sampling of intermittent runoff from agricultural watersheds. Ph D thesis Iowa State Coll, 102 pp, 1951
   Describes a slot-type sampler designed to intercept a constant percentage of flow over a drop spillway. Equation for slot width developed from laboratory tests.
2. (and FREVERT, R. K.) A runoff sampler for large watersheds. Agr Eng, v 35, pp 84-90, 1954
   Reports tests of a slot sampler to be installed just downstream of a weir to obtain a continuous, integrated sample of sediment load.

BARNES, LELAND H.

1. (and MANER, SAM B.) A method for estimating the rate of soil loss by sheet erosion from individual fields or farms under various types of land treatment. U S Soil Cons Serv, Ft. Worth, Tex, 13 pp, Dec 1953 (processed)
   Presents charts and nomograms for estimating soil loss as a function of soil type, land slope, slope length, cover, and 2-yr, 30-min rainfall.

BARNETT, AURELIUS P. See Carreker, J. R., 2

BARRACLOUGH, JACK T. See Heath, R. C., 2

BARRETT, EARL W.

1. (and HERNDON, LEE R., JR.) An improved electric dew-point hygrometer. J Met, v 8, pp 40-51, 1951
   Discusses the basic physics of dew-point hygrometry and describes an instrument which uses the photoelectric detection of condensation on a cooled polished-metal mirror combined with a radio-frequency induction heating system.

BARTELLI, L. J. See Stall, J. B., 6

BARTON, JAMES R.

1. (and ALBERTSON, MAURICE L.) Temperature, seepage, and turbulence as factors affecting suspended sediment concentration. Colo Agr Mech Coll Dept Civ Eng U S Bur Recl Cont 12R-19126, Rep 53JRB12, 75 pp, 1953
   The effect of temperature and bed seepage was studied in a turbulence tank. An increase in temperature decreased the average sediment concentration although other factors were involved in the change. An equation for predicting sediment concentration as a function of height above the bed is proposed.

BARTON, MANES See also Beaumont, R. T., 1; Nelson, M. W., 2

1. A systematized regression forecasting method. Proc West Snow Conf, pp 24-29, Apr 1953
   Outlines a method for developing a statistical regression between snow-survey data and runoff and revising it annually as additional data become available.

BASCOM, WILLARD N.

1. The relation between sand size and beach slope. Trans Amer Geophys Union, v 32, p 871, 1951
   Tests and field observations show that beach slope is controlled by sand size and wave intensity.

BASHAM, R. B.

1. (and MICUNE, C. W.) The delta-log, a differential temperature surveying method. Trans Amer Inst Min Metal Eng, v 195, pp 123-128, 1952
   Describes instrument for measuring temperature gradients in the order of 0.001°F per inch in wells. Said to be useful in detecting water leaks in oil wells.

BATCH, JOHN M.

1. An investigation of a pipe bend for determining the amount of flow of water in a small pipe. M S thesis Mont State Coll, 80 pp, 1952
   Pipe bends from 7.5 to 180° were found to be accurate for use as flowmeter if calibrated in the laboratory before actual installation.

BATEN, W. D.

1. (and EICHMEIER, A. H.) A summary of weather conditions at East Lansing, Michigan, prior to 1950. Mich State Coll Agr Exp Sta Tech Bul 222, 63 pp, 1951
   Summaries of air temperature, precipitation, humidity, wind velocity, per cent sunshine, radiation, evaporation, and soil temperature are presented in charts which indicate averages and trends.

BATES, CHARLES C.

1. (and FREEMAN, J. C., JR.) Inter-relations between jet behavior and hydraulic processes at deltaic river mouths and tidal inlets. Proc 3rd Conf Coastal Eng, Eng Found Coun Wave Res, pp 165-175, 1953
2. Rational theory of delta formation. Bul Amer Assn Pet Geol, v 37, pp 2119-2162, 1953

BATTAN, LOUIS J.

1. The 'Thunderstorm Project' data. Bul Amer Met Soc, v 32, pp 27-29, 1951
   Summarizes the nature of the data and explains its availability for other research uses.

BATTLE, W. R. B.

1. (and LEWIS, W. V.) Temperature observations in bergschrunds and their relation to cirque erosion. J Geol, v 59, pp 537-545, 1951
   Temperature observations in Greenland and Norway show little diurnal variation, thus casting some doubt on the hypothesis suggested by Willard Johnson.

BAUKNIGHT, WILFRED

1. Elkins flood control project. Mil Eng, v 43, pp 203-204, 1951
   Describes use of diversion across neck of meander to provide emergency bypass during floods on the Tygart River at Elkins, W. Va.

BAUM, WERNER See Lenhard, R. W., 1

BAUMANN, E. ROBERT See also Lee, M., 1

1. A graphical method for determining the slopes of curves. Water, Sewage Works, v 99, pp 93-94, 1952
   A curve appears discontinuous under a small glass rod except when the rod is exactly normal to the curve. This provides a simple and accurate method for finding curve slopes.

BAUMANN, PAUL

1. Ground-water movement controlled through spreading. Trans Amer Soc Civ Eng, v 117, pp 1024-1074, 1952
   The mathematics of movement of mounds beneath spreading areas including the special case of mounds beneath recharge wells is presented. Model tests of two-dimensional flow are described and compared with the theory. Discussion by D. K. TODD, MAX SUTER, and D. P. KRYNINE.
2. Experiments with fresh-water barrier to prevent sea-water intrusion. J Amer Water Works Assn, v 45, pp 521-534, 1953
   Describes conditions in the West Coast basin, Los Angeles. Explains spreading plots and recharge wells and discusses the economic considerations.

BAVER, L. D. See also Ewart, G. Y., 1

1. How serious is soil erosion? Proc Soil Sci Soc Amer, v 15, pp 1-5, 1950
   A general review of soil-erosion problems.

BAY, CLYDE E.

1. (and HULL, HAROLD H.) Loss of nitrogen and water from Fayette silt loam as measured by monolith lysimeters. Agron J, v 44, pp 78-82, 1952
   Runoff percolation and vapor loss are reported from La Crosse, Wisc. Effect of fertilizers is explored.

2. (and WUNNECKE, GEORGE W., and HAYS, ORVILLE E.) Frost penetration into soils as influenced by depth of snow, vegetative cover, and air temperatures. Trans Amer Geophys Union, v 33, pp 541-547, 1952
Reports tests conducted in Wisconsin using electrical resistance methods to measure frost depth. Results are presented in graphical and tabular form.

BEACHER, B. F. See Doneen, L. D., 2; Hastings, W. W., 1

BEAMER, N. H. See Lohr, E. W., 8; Noecker, M., 1

BEAN, L. H. See Willett, H. C., 1

BEARD, L. R.

1. Statistical methods in hydrology. U S Corps Eng Off Chf Eng, Washington, D. C., 1951
Some applications of statistical methods in hydrologic analysis are described and illustrated by examples.
2. Estimation of flood probabilities. Proc Amer Soc Civ Eng sep 438, 21 pp, 1954
Analysis of a large number of records shows that the logarithms of annual floods are normally distributed. Plotting position, measures of reliability, and computational procedures are discussed. The mean flow and standard deviation are tabulated for 159 long record stations in the U. S.

BEASLEY, ROBERT P.

1. The Missouri farm water-management plan. Agr Eng, v 32, pp 541-543, 1951
A discussion of terraces in relation to farm operation.
2. Determining the effect of topography and design on the characteristics of farm ponds. Agr Eng, v 33, pp 702-704, 1952
Describes the method of computing the capacity of farm ponds including allowance for earth removed from the pond area for construction of the dam.

BEATTY, M. E. See Dightman, R. A., 1

BEAUCHAMP, KEITH H.

1. Surface drainage of tight soils in the Midwest. Agr Eng, v 33, pp 208-212, 1952
A review of ditch layout for most efficient drainage where tile drains are unsuccessful.

BEAUMONT, R. T.

1. (and WORK, R. A., FROST, W. T., and BARTON, MANES) Use of snow surveys in evaluating cloud-seeding operations. Proc West Snow Conf, pp 56-72, Apr 1952
Describes evaluation of seeding operations in the Rogue River basin (Ore.) during 1949-51. Method compared snow course water equivalent in target area with that in control areas. Results show significantly less water in target areas than control areas.
2. Cloud-seeding analysis in Oregon. Bul Amer Met Soc, v 34, pp 298-303, 1953
Summarizes results of evaluation of several projects in western Oregon and Washington. Sees no evidence of increases in precipitation as a result of seeding.

BEEBE, ROBERT G.

1. The distribution of summer showers over a small area. Mon Wea Rev, v 80, pp 95-98, 1952
A study of the adequacy of rain gage networks near Birmingham, Ala. and Atlanta, Ga. for the evaluation of shower type precipitation.

BELL, BURTON J.

1. South Florida flood control. Mil Eng, v 45, pp 28-29, 1953
Describes works constructed in the Lake Okeechobee area.

BELLAIRE, F. R.

1. (and ANDERSON, L. J.) Thermocouple psychrometer for field measurement. Bul Amer Met Soc, v 32, pp 217-220, 1951
Describes an arrangement for ventilating and shielding wet and dry thermocouples for field psyhrometric measurements.

BEMIS, A. C.

1. Census of radar-weather projects. Ill Water Surv Bul 41, pp 193-197, 1952
A brief listing of work being done on 32 different projects.

BENEDICT, P. C. See also Lohr, E. W., 3; Nelson, M. E., 1

1. (and MATEJKA, D. Q.) The measurement of total sediment load in alluvial streams. Proc 5th Iowa Hydr Conf, Iowa Univ Studies in Eng Bul 34, pp 263-286, 1953
Measurement of suspended load at two sections with different hydraulic characteristics offers a possibility of estimating total load, through interpretation of the changes of particles in the range of bed-load sizes.
2. (and ALBERTSON, M. L., and MATEJKA, D. Q.) Total sediment load measured in turbulence flume. Proc Amer Soc Civ Eng, sep 230, 48 pp, 1953
Reports results of tests using a model turbulent flume to induce turbulent suspention of bed load. The performance of a prototype based on the design developed in the laboratory is also discussed.

BENGSTON, KERMIT B.

1. (and HARRISON, A. E.) Glaciers reflect our changing climate. Mazama, v 36, pp 56-57, 1954
   Coleman Glacier on Mt. Baker (Washington) has advanced since 1949. A wave traveling down Nisqually Glacier on Mt. Rainier reached a crest in 1950 at 7000-ft elevation and has now reached elevation 5200 ft.

BENNETT, HUGH H.

1. Improved drainage in the Imperial Valley, California. Soil Cons, v 16, pp 135-138, 1951
   A report of a research project aimed toward removing excess water and salts from agricultural land in the valley.
2. Water in the ground: too much or too little. Soil Cons, v 16, pp 153-157, 1951
   A very generalized account of irrigation practices by water-table management in the Rio Grande Valley.
3. Relation of soil erosion to coastal waters. Tex J Sci, v 3, pp 147-161, 1951
   Reviews the problems of sedimentation in harbors, the possibility of erosion control on watersheds, and some of the activities of the Soil Conservation Service.
4. The complete watershed program in flood control. Soil Cons, v 17, pp 75-82, 1951
   Summarizes rather broadly the essence of Flood Control Act of 1936 into three types of operations: (1) land treatment (2) upstream engineering (3) downstream engineering. Illustrated with data from the July 1951 floods in Kansas and Nebraska.
5. The use of water in humid areas. Soil Cons, v 17, pp 99-103, 1951
   How irrigation may be used advantageously in humid areas is discussed. The portable sprinkler system is credited with making such irrigation practical.

BENNETT, P. T. See Turnbull, W. J., 2

BENNETT, R. R.

1. (and MEYER, R. R.) Geology and ground water resources of the Baltimore area. Md Dept Geol Mines Water Res Bul 4, 573 pp, 1952
   A comprehensive ground-water survey with supporting data.

BENNINGHOFF, WILLIAM S.

1. Interaction of vegetation and soil frost phenomena. Arctic, v 5, pp 34-44, 1952
   The relationship between vegetal cover and permafrost is discussed.

BENNISON, E. W. See also Guyton, W. F., 1

1. Fundamentals of water well operation and maintenance. J Amer Water Works Assn, v 45, pp 252-258, 1953
   Outlines causes of well failures, and operation, maintenance, and protective measures for water-supply wells.

BENTON, GEORGE S. See also Jens, S. W., 1; Li, W. H., 4

1. (and ESTOQUE, MARIANO A., and DOMINITZ, JACK) An evaluation of the water vapor balance of the North American Continent. Johns Hopkins Univ, Dept Civ Eng Sci Rep 1, 101 pp, 1953
   Monthly and seasonal patterns of moisture flow for the year 1949 are evaluated from meteorological data. Divergence fields of water vapor transfer and a mass continuity equation are used to compute evapotranspiration over the continent and major subareas.
2. (and DOMINITZ, JACK) The use of atmospheric data in the evaluation of evapotranspiration. Johns Hopkins Univ, Dept Civ Eng Sci Rep 3, 39 pp, 1954
   Estimates of evapotranspiration from large areas (continents) are made by evaluating the water balance of the atmosphere. The possibilities and limitations of the method are discussed.

BERG, E. J. M. See Steel, E. W., 3

BERG, L. S.

1. Are our steppes becoming drier? Ecology, v 34, pp 796-802, 1953
   A review of evidence on long period climatic trends in the Russian steppes. Translated by J. S. JOFFE.

BERRY, D. W.

1. Geology and ground water resources of Lincoln County Kansas. Kans Geol Surv Bul 95, 96 pp, 1952
   Describes geology, geography, and water resources of county. Includes geologic maps, water-table map, cross-sections, water analyses, well records, and logs of test holes.

BETHLAMY, NEDAVIA See also Croft, A. R., 3

1. An alinement chart for use with the Fiberglass soil-moisture instrument. Soil Sci, v. 71, pp 377-380, 1951
   Presents a nomogram for use with the Colman soil moisture blocks.

2. A method for approximating the water content of soils. Trans Amer Geophys Union, v 33, pp 699-706, 1952
   Description of a procedure for calibrating fiber glass soil-moisture units. For thin horizons subject to large errors of measurement, a method is described for correcting the bulk-density regression equation so as to conform with its corresponding calibration curve. Discussion by C. H. M. VAN BAVEL and M. J. GILBERT, v 35, pp 168-169, Feb 1954.

BEVERIDGE, THOMAS R.
1. The geology of the Weaubleau Creek area in Missouri. Mo Geol Surv, v 32, 2nd ser, 111 pp, 1951
   Describes area in southwestern Missouri. Includes brief discussion of water resources.

BIEL, ERWIN R.
1. Applied climatology. Trans N Y Acad Sci, v 14, ser II, pp 336-339, 1952
   A general review of work in the field with emphasis on work in progress at Rutgers University.

BILLINGS, NORMAN F.
1. (and BOOTH, FLORENCE C.) Water rights law in Michigan. J Amer Water Works Assn, v 46, pp 1159-1170, 1954
   A review of Michigan water law.

BILLINGSLEY, G. A. See Lohr, E. W., 1, 4; Robinson, W. H., 1; Tait, D. B., 1

BINDER, R. C. See Huffman, G. G., 1

BINDER, W. H. See Dreibelbis, F. R., 4

BINGEMAN, MELISSA E.
1. Two studies concerning the levels of the Great Lakes. Proc Rochester Acad Sci, v 10, pp 1-25, 1953
   Precipitation is related to lake levels and discussed with respect to artificial controls. Lake levels, winds and shore damage are also correlated.

BIRD, J. BRIAN
1. The glaciation of central Keewatin, Northwest Territories, Canada. Amer J Sci, v 251, pp 215-230, 1953
   Reexamination of field data suggest new concept of history of the Wisconsin glaciations.

BIRSTEIN, S. J.
1. The effect of relative humidity on the nucleating properties of photolyzed silver iodide. Bul Amer Met Soc, v 33, pp 431-434, 1952
   Nucleating power of silver iodide which has been exposed to sunlight is found to be dependent on the relative humidity of the gas stream passing over the generator.

BISHAY, M. See Jansen, R. B., 1

BISHELL, L. M.
1. (and EARLS, K. D.) Volume inflow forecasting procedures, Hungry Horse Reservoir, Montana. Proc West Snow Conf, pp 74-82, Apr 1954
   A description of the statistically derived procedures employed by Bonneville Power Administration. Discussion by H. D. HAFTERSON and R. E. LINDGREN.

BITTINGER, MORTON W.
1. Water supply, labor, and equipment requirements for the irrigation of Iowa field crops. MS thesis, Iowa State Coll, 1951
   Analysis of the problems of supplemental irrigation in Iowa. Study of possible water supplies and their limitations. Field tests of labor requirements for irrigation of corn with portable irrigation equipment.

BLACK, A.
1. (and BROWN, EUGENE, and PEARCE, J. M.) Salt-water intrusion in Florida--1953. Fla Div Water Surv Res Paper 9, 38 pp, 1953

BLACK, HAYSE H.
1. Procedures for sampling and measuring industrial wastes. Sewage Works J, v 24, pp 45-65, 1952
   The article describes the objectives and such measuring devices as sharp-crested weirs, current meters, flow through pipes, and radioactive tracers for evaluating industrial wastes.

BLACK, ROBERT F.
1. Polygonal patterns and ground conditions from aerial photographs. Photo Eng, v 18, pp 123-134, 1952
   Discusses the pattern characteristic of various moisture and frost conditions.
2. Permafrost - a review. Trans N Y Acad Sci, v 15, ser II, pp 126-130, 1953
   A general summary of the occurrence and characteristics of permafrost.
3. Precipitation at Pt. Barrow, Alaska, greater than recorded. Trans Amer Geophys Union, v 35, pp 203-207, 1954
   Snow water equivalent and other data suggest that recorded precipitation at Barrow may be as little as 25 pct of the true amount. The error is presumably due to wind.

4. Permafrost - review. Bul Geol Soc Amer, v 65, pp 839-856, 1954
A review of recent work on permafrost. Extensive bibliography.

BLAIR, GEORGE Y. See Wilcox, L. V., 2

BLAISDELL, FRED W. See also Donnelly, C. A., 1

1. (and DONNELLY, CHARLES A.) Capacity of box-inlet drop spillways under free and submerged flow conditions. Minn Univ Tech Paper 7-B, 36 pp, 1951
Reports results of comprehensive tests showing effect of approach channel capacity, inlet shape, position of dike, and depth of inlet.
2. Hydraulic design of the box inlet drop spillway. Minn Univ Tech Paper 8-B, 63 pp, 1951 (reprinted as SCS-TP-106 Agr Res Serv, U S Dept Agr)
A handbook for the design of drop inlet spillways with data on the capacity of the spillways.
3. Hydraulics of closed conduit spillways--Part I. Theory and its applications. Minn Univ Tech Paper 12-B, 36 pp, 1952
Discusses the flow in closed conduit spillways, presents the theoretical equations of flow for various conditions of flow, outlines method for preparing head-discharge curve, and for determining the pressure at various points within the spillway.

BLANCHARD, DUNCAN C.

1. Raindrop size-distribution in Hawaiian rains. J Met, v 10, pp 457-473, 1953
Various methods of measuring drop-size distribution in rainfall are surveyed. Data collected by plane flights near the cloud base for several cases in Hawaii are presented and the significance of the observed distribution is discussed.

BLANCHARD, FRANCIS B. See Clyde, G. D., 1

BLANEY, HARRY F. See also Croft, A. R., 3

1. Use of water by irrigated crops in California. J Amer Water Works Assn, v 43, pp 189-200, 1951
A general review of method of estimating consumptive use and irrigation efficiencies, and the prospect for water needs in California.
2. Irrigation requirements of crops. Agr Eng, v 32, pp 665-668, 1951
Presents with examples, the Blaney-Criddle method of estimating consumptive use for irrigation. Discusses irrigation efficiency of farms.
3. Determining evapotranspiration by phreatophytes from climatological data. Trans Amer Geophys Union, v 33, pp 61-66, 1952
Explains the use of the Blaney-Criddle method of evapotranspiration computation for determining the losses caused by phreatophytes.
4. Evapotranspiration by vegetative cover with particular reference to semi-arid areas. Paper presented at 6th Int Cong Soil Sci, Pa State Coll, 10 pp, Aug 1952 (processed)
An extensive review of experimental work on evapotranspiration and methods of estimating consumptive use. Bibliography.
5. Consumptive use of water. Trans Amer Soc Civ Eng, v 117, pp 949-973, 1952
An introductory paper to a symposium on water use. Discusses the subject with special reference to definitions, methods, and results of research. Outlines method for determining consumptive use from climatological data and summarizes some experimental determinations. Discussion by G. H. HARGREAVES, and W. W. DONNAN.
6. Determining consumptive use of ground water by native vegetation from climatological data. Paper presented at Assn West State Eng, Reno, Nev, 10 pp, Aug 1953 (processed)
Presents data on the consumptive use of phreatophytes and hydrophytes, and describes method of estimating consumption of water from climatological data.
7. Consumptive water requirements in the Colorado River basin. Paper presented at Colo Water Users Assn, Las Vegas, Nev., 11 pp, Dec 1953 (processed)
8. Consumptive use of ground water by phreatophytes and hydrophytes. Paper presented at 10th Gen Assembly, Int Assn Sci Hydrol, Rome, Italy, 11 pp, Sep 1954 (processed)
Summarizes experimental data on water consumption and illustrates use of climatological data to estimate consumptive use in the absence of observed data.
9. Evapotranspiration measurements in western United States. Paper presented at 10th Gen Assembly, Int Assn Sci Hydrol, Rome, Italy, 13 pp, Sep 1954 (processed)
Describes field methods for determining water use and presents results of measurements for natural vegetation and irrigated crops in western U. S. Describes method for computing consumptive use from climatological data.
10. Consumptive-use requirements for water. Agr Eng, v 35, pp 87-873, 880, 1954
Describes the Blaney-Criddle method for estimating consumptive use from climatological data and presents tables and graphs for the solution. Notes the applicability of the method to estimates of ground water recharge. Describes estimates of consumptive use for several major river basins of the west.

BLANKENSHIP, R. R. See Schneider, R., 1

BLEIL, CARL E. See Howard, R. A., 1

BLENCH, THOMAS See also Bondurant, D. C., 1; Corfitzen, W. E., 1; Einstein, H. A., 3; Glover, R. E., 1; Lindner, C. P., 1; Parshall, R. L., 1; Stanley, J. W., 1

1. Hydraulics of sediment-bearing canals and rivers. Evans Ind, Vancouver, B. C., 1951
   Presents a theory on the behavior of channels that form themselves from their own transported materials. Intended to permit quantitative estimates of changes which will follow any disturbance of the regime.
2. Regime theory for self-formed sediment-bearing channels. Trans Amer Soc Civ Eng, v 117, pp 383-408, 1952
   Formulas for the behavior of alluvial rivers with respect to the self-determination of width, depth, slope, and alignment are presented and discussed. Discussion by E. M. LAURSEN and G. H. MATTHES.

BLISS, E. S.

1. (and JOHNSON, C. E.) Some factors involved in ground-water treatment. Trans Amer Geophys Union, v 33, pp 547-558, 1952
   Laboratory and field studies of water spreading on fine-textured soils are discussed. Factors considered are effects on water-intake rates of treatments with cotton-gin trash, grasses, detergents, and other substances, the effects of soil and water properties and changes of these properties, microbial activity and a management program. The study was conducted in the San Joaquin Valley, California.

BLISS, JOHN H. See also Guyton, W. F., 1

1. Administration of the ground water law of New Mexico. J Amer Water Works Assn, v 43, 1951
   The article discusses administration of ground-water law in New Mexico.

BLISSENBACH, ERICH

1. Geology of alluvial fans in semi-arid regions. Bul Geol Soc Amer, v 65, pp 175-190, 1954
   Defines terminology and describes the characteristic alluvial fans and their properties as ground-water sources. Criteria for identifying ancient alluvial fans are presented.

BLONK, HU

1. Tapping lost river. Recl Era, v 37, pp 66-67, 1951
   Irrigation water provided for new development from wells tapping waters of rivers which disappear into the ground. General discussion.

BLOODGOOD, DEAN W.

1. (and MORTENSON, JAMES E.) Silt load of Texas streams (1949-50). Tex Bd Water Eng Prog Rep 12, 58 pp, 1951
   A summary of silt load data.
2. (and MORTENSON, JAMES E.) Fourteenth annual report of the silt load of Texas streams 1951-1952 and a summary of silt studies made in Texas. Tex Bd Water Eng, 78 pp, 1953
   Presents monthly sediment discharges for Texas stations and a summary of annual records. Includes photographs of all sampling stations.
3. (and PATTERSON, R. E., and SMITH, ROBERT L., JR.) Water evaporation studies in Texas. Tex Agr Exp Sta Bul 787, 84 pp, 1954

BLOODWORTH, MORRIS E.

1. (and COWLEY, W. R.) The use of undisturbed soil cores for permeability and infiltration determinations. Agron J, v 43, pp 4-9, 1951
   Describes techniques developed at the Texas Agricultural Experiment Station.
2. (and ROSS, P. EARL) Drainage of irrigated lands in the lower Rio Grande Valley of Texas. Agr Eng, v 32, pp 669-671, 1951
   The sources of the drainage problem, the general solution, and some details on methods of planning are presented.

BLUMENSTOCK, DAVID I.

1. Weather instruments. Sci Amer, v 184, pp 64-70, 1951
   Brief illustrated descriptions of the more common instruments.

BLYTHE, DAVID K.

1. Crop acreages by aerial photography. Ky Univ Eng Exp Sta Bul 26, 38 pp, 1952
   Describes techniques for measuring crop acreages by aerial photography and checks data to indicate accuracy.

BOCK, PAUL See Li, W. H., 4

BODDY, HERB

1. Storage ponds multiply value of range. Soil Cons, v 17, pp 276-277, 1952

BODHAINE, G. L.

1. (and ROBINSON, W. H.) Floods in western Washington, frequency and magnitude in relation to drainage basin characteristics. U S Geol Surv Circ 191, 124 pp, 1952

A composite frequency curve was developed on basis of discharge records for 131 gaging stations, expressing floods in terms of the ratio to the mean annual flood. An equation was derived that expresses the relation between mean annual floods and basin characteristics in terms of geographical factors. A nomograph is included for ease in solving the equation. In addition to an outline of the techniques employed, and related graphical material, the report contains descriptions of the gaging stations and tabulations of the maximum annual floods at each station.

BODMAN, G. B.

1. (and FIREMAN, MILTON) Changes in soil permeability and exchangeable cation status during flow of different irrigation waters. Proc 4th Int Cong Soil Sci, v 1, pp 397-400, 1950
   Effects of long-continued irrigation of soil with waters of varying salt content are reported.
2. Report of committee on the physics of soil moisture, 1952-1953. Trans Amer Geophys Union, v 34, pp 938-944, 1953
   Contains a summary of research in progress on permeability of soil, water flow and temperature influence, water-vapor movement, field capacity, irrigation, infiltration, drainage, and evaporation.

BOGICH, KNEZEVICH See Geza, B., 1

BOKE, RICHARD L.

1. (and STONER, DAVID S.) The application of hydrologic techniques to ground-water problems in California's Central Valley. Proc Ankara Symp on Arid Zone Hydrology, pp 134-139, UNESCO, Paris, 1953
   A review of procedures followed by the Bureau of Reclamation in ground-water investigations for development of additional supplies in the Central Valley.

BOLON, HARRY C.

1. Surface waters of Missouri. Mo Geol Surv, v 34, 2nd ser, 934 pp, 1952
   A summary of streamflow data for the years 1940-1949.

BOLTON, J. G.

1. (and QURESHI, N. A.) The effects of air temperature and pressure on the decay of silver iodide. Bul Amer Met Soc, v 35, pp 395-399, 1954
   Reports study of decay rates of silver iodide at several different temperatures. Finds rapid rate of decay leading to conclusion that ground seeding with silver iodide is quite impractical.

BONDURANT, D. C. See also Lindner, C. P., 1

1. Sedimentation studies at Conchas Reservoir in New Mexico. Trans Amer Soc Civ Eng, v 116, pp 1283-1295, 1951
   Presents data on the form, extent, and type of sediment deposits in Conchas Reservoir with a description of the reservoir, its use, and its tributary drainage. Discussion by T. BLENCH.

BONNEN, C. A. See also Magee, A. C., 1, 2

1. (and McARTHUR, W. C., MAGEE, A. C., and HUGHES, W. F.) Use of irrigation water on the high plains. Tex Agr Exp Sta Bul 756, 1952
   A summary of the extent of irrigation and its growth since 1934. Most of the water is derived from ground water.

BONNET, J. A.

1. (and LUGO-LOPEZ, M. A.) The rate of infiltration of latesitic soils. Puerto Rico J Agr, v 36, pp 161-166, 1952
   Six soils are tested by ring method and results related to soil properties.

BOOTH, FLORENCE C. See Billings, N. F., 1

BOOTH, WILLIAM H. See Hardin, J. R., 1

BORCHERT, JOHN R.

1. The surface water supply of American municipalities. Assn Amer Geog Ann, v 44, pp 15-32, 1954
   A survey of sources of municipal water supply and of the problems of drought, sediment, and pollution.

BORDAN, JACK See Hitschfeld, W., 1

BORLAND, W. M. See Lane, E. W., 5; Maddock, T., 1

BORN, R. H. See Gleason, G. B., 1

BOSAZZA, V. L. See also Veihmeyer, F. J., 2

1. On storage of water in rocks in situ. Trans Amer Geophys Union, v. 33, pp 42-48, 1952
   Maximum yield plotted against maximum drawdown offers a means of evaluating the porosity in the vicinity of a pumped well. The process can be reversed by pumping a measured volume of water down the well.

BOUCHER, ROLAND J.

1. Results of measurement of raindrop size. Ill Water Surv Bul 41, pp 293-297, 1952
   A method of measuring drop size by use of a nylon screen is described. Radar reflectivity is related to rain intensity on basis of 63 sets of data at Cambridge, Mass.

BOUGHNER, C. C.

1. (and POTTER, J. G.) Snow cover in Canada. Weatherwise, v 6, pp 155-159, 1953
   A general discussion of snow in Canada with maps of mean first and last dates of snow cover, number of days with snow cover, average maximum depth, and computed snow loads.

BOULDIN, VICTOR W.

1. Legal aspects of water resources development in Texas. J Amer Water Works Assn, v 46, p 421, 1954
   A brief summary of Texas water law.

BOUYOUCOS, GEORGE JOHN

1. The effects of fertilizers on the plaster of Paris electrical resistance method for measuring soil moisture in the field. Agr J, v 43, 3 pp, 1951
   A report on a laboratory study to determine the errors, if any, produced in the Bouyoucos moisture meter, using plaster of Paris blocks, by the addition of fertilizers to the soil.
2. A recalibration of the hydrometer method for making mechanical analysis of soils. Agron J, v 43, pp 434-438, 1951
   The method is recalibrated to conform to the currently used soil particle size classification.
3. Improvements in the nylon method of measuring soil moisture in the field. Agron J, v 44, 4 pp, 1952
   A discussion of the material and method of construction of the nylon resistance unit which uses the stainless steel grid. Included are laboratory calibration curves and curves from field tests of resistance versus soil moisture.
4. A new electric automatic irrigation system. Agron J, v 44, pp 448-451, 1952
   Electrical resistance elements are used to actuate water-supply system for automatic irrigation.
5. Methods for measuring the moisture content of soils under field conditions. Hwy Res Bd Spec Rep 2, pp 64-71, 1952
   A review of the comparative utility of plaster of Paris and nylon blocks for moisture determination by the electrical resistance method. Each has advantages under specific conditions.
6. More durable plaster of Paris soil-moisture blocks perfected. Mich Agr Exp Sta Bul 35, p. 460, 1953
   Use of plastic resins to improve durability of the blocks is described.
7. Capillary rise of water in soils under field conditions. J Phys Chem, v 57, no 45, 5 pp, 1953
   A moisture gradient was obtained in the soils and then the capillary rise of water in these soils was studied by use of the plaster of Paris resistance block. In most cases there was very little movement of the soil moisture to the drier layers.
8. Newly developed nylon units for measuring soil moisture in the field. Hwy Res Abs, 4 pp, Jan 1954
   The older nylon unit has now been incased in plaster of Paris to improve the soil contact. A table shows the comparison of the resistance readings to tensiometer readings and soil moisture.
9. Electrical resistance methods as finally perfected for making continuous measurement of soil moisture content under field conditions. Mich State Coll Agr Exp Sta Q Bul, v 37, 18 pp, 1954
   Discussion, charts, graphs, and pictures showing the present state of development of the plaster of Paris and nylon resistance units for measuring soil moisture. The two units are compared and the nylon unit is compared with the tensiometer. The electrical measuring instruments are also discussed.
10. New type electrode for plaster of Paris moisture blocks. Soil Sci, v 78, 4 pp, 1954
    A description of the new 20-mesh stainless steel electrode for the plaster of Paris moisture blocks. Two tables are included, one showing the uniformity of the resistance reading and the other the sensitivity of the blocks with this 20-mesh stainless steel electrode.

BOWEN, E. G.

1. Australian experiments in artificial rainmaking. Bul Amer Met Soc, v 33, pp 244-246, 1952
   A brief summary of experiments in the use of dry ice, silver iodide, and water as seeding agents.

BOWER, C. A. See March, A. W., 1; Wilcox, L. V., 2

BOWERMAN, F. R. See Rawn, A. M., 1; Stone, R., 2

BOWERS, CHARLES E. See Straub, L. G., 2

BOWMAN, JAMES S.

1. Trend toward multipurpose developments. Civ Eng, v 22, pp 152-155, 1952

Traces the factors such as technical development and legal requirements which are responsible for the trend toward multipurpose development.

BOWMAN, WALDO G.

1. First dams for India's Great Barren Plateau. Eng News-Rec, v 146, p 35, June 7, 1951
2. India's T. V. A. Eng News-Rec, v 146, p 33, May 24, 1951
   Describes the Damodar Valley project which is patterned after the T. V. A. The effect of power and irrigation storage on the economy of India is discussed.

BOWSER, CURTIS

1. Water conservation through elimination of undesirable phreatophyte growth. Trans Amer Geophys Union, v 33, pp 72-74, 1952
   A discussion of the water losses resulting from phreatophytes and a review of some possible measures for recovering some of this water.

BOYER, M. C.

1. Estimating the Manning coefficient from an average bed roughness in open channels. Trans Amer Geophys Union, v 35, pp 957-961, 1954
   Suggests that the Manning coefficient can be determined through use of the logarithmic velocity-distribution equation and the height of the bed roughness or from a relationship between the velocities at the 0.2 and 0.8 depths. Curves for use in solving the relations are presented.

BOYER, PETER B.

1. Heat exchange and melt of late season snow patches in heavy forest. Proc West Snow Conf, pp 54-70, Apr 1954
   Analyzes observations for a period of five days above a snow patch in dense forest. The components of heat for snow melt are evaluated individually to assess their importance. Discussion by W. U. GARTSKA.

BOYLE, ROBERT V.

1. Southwest gets thirstier as water problem grows. Soil Cons, v 17, pp 195-199, 1952
   The article discusses how below-normal precipitation since 1941 and increased demand for water has created a shortage that can best be overcome by more careful handling and use of irrigation water now available.

BRADEN, GLADYS E.

1. Turbulence, diffusion, and sedimentation in stream channel expansion and contractions. Proc Okla Acad Sci, v 31, pp 73-77, 1950
   Reports field observation on the Popo Agie River, Wyo., and model verification.

BRADLEY, JOSEPH N.

1. Rating curves for flow over drum gates. Trans Amer Soc Civ Eng, v 119, pp 403-433, 1954
   Utilizing data from model and prototype tests, curves are developed which yield a reasonably accurate rating for drum gates, bascule gates, Volet gates, and others which consist of a sector of a circle hinged at or near the spillway crest. Discussion by G. WYSS, S. SHULITS, B. BUEHLER, F. B. CAMPBELL, and A. A. McCOOL.

BRADSHAW, GEORGE B. See Donnan, W. W., 1

BRADY, NYLE C. See Lyon, T. L., 1

BRAHAM, ROSCOE R., JR.

1. (and REYNOLDS, S. E., and HARRELL, J. H., JR.) Possibilities for cloud seeding as determined by a study of cloud height versus precipitation. J Met, v 8, pp 416-418, 1951
   Data on cloud-top height is compared with radar indications of the occurrence of precipitation. The relative occurrence of supercooled cloud without precipitation is determined.
2. The water and energy budgets of the thunderstorm and their relation to thunderstorm development. J Met, v 9, pp 227-242, 1952
   Primarily a discussion of the mechanics of thunderstorm development but includes data on the areal extent of single cell precipitation and rates of precipitation from single cells. Based on Thunderstorm Project data from Ohio.

BRANCH, J. R. See Prescott, G. C., 4

BRASHEARS, M. L.

1. Recharging ground-water reservoirs with wells and basins. Min Eng, v 5, pp 1029-1032, 1953
   A general discussion of recharge methods. Notes effect of temperature of recharge water on ground water.

BRATER, E. F. See Hazen, R., 1

BRAUS, HARRY See Middleton, F. M., 1

BRAWAND, HANS

1. (and KOHNKE, HELMUT) Microclimate and water vapor exchange at the soil surface. Proc Soil Sci Amer, v 16, pp 195-198, 1952

Field measurement and theory are used to determine the quantity of water exchanged by evaporation, condensation and absorption at the soil surface near Lafayette, Ind. Vapor movement of moisture within the soil is also considered.

BREAZEALE, EDWARD L.

1. (and McGEORGE, W. T., and BREAZEALE, J. F.) Movement of water vapor in soils. Soil Sci, v 71, pp 181-185, 1951
Reports results of study on the ability of plants to utilize water vapor. It was found that some plants can grow with no other source of water. A technique for demonstrating this is proposed.

BREAZEALE, J. F. See Breazeale, E. L., 1

BREEDING, S. D. See George, W. O., 3

BREHM, C. D.

1. (and MALINSTEN, H. E.) Contour furrows on pasture and range land. J Soil Water Cons, v 9, pp 111-114, 1954
A discussion of design of contour furrows for range land in the northern Great Plains.

BRETSCHNEIDER, C. L. See also Mason, M. A., 1

1. The generation and decay of wind waves in deep water. Trans Amer Geophys Union, v 33, pp 381-389, 1952
Data collected by the University of California and by Sverdrup and Munk are analyzed and the results presented as graphs for use in wave forecasting.

BRETZ, J. HARLEN

1. Glacial Grand River, Michigan. Papers Mich Acad Arts, Sci, Let, v 38, pp 359-382, 1952
Traces the history of the glacial Grand River and its various routes across northern Michigan.
2. Genetic relations of caves to peneplains and big springs in the Ozarks. Amer J Sci, v 251, pp 1-24, 1953
A general discussion of cave formation and development.

BRIER, GLENN W. See also MacCready, P. B., Jr., 1; Wahl, E. W., 1

1. (and ENGER, ISADORE) An analysis of the results of the 1951 cloud-seeding operations in Central Arizona. Bul Amer Met Soc, v 33, pp 208-210, 1952
Results of the seeding operations are evaluated by comparison between target and control stations using periods of record of varying length to determine the effect of record length on the evaluation.
2. Seven-day periodicities in May, 1952. Bul Amer Met Soc, v 35, pp 118-121, 1954
An apparent seven-day periodicity in weather during May 1952 is analyzed. Discussion by C. E. P. BROOKS, v 35, p 314, 1954.

BRILL, G. D. See Neal, O. R., 1

BRISTOL, RALPH

1. Defeating the Rio Grande drought. Recl Era, v 38, pp 139-140, 1952
Describes a drought in the Rio Grande project and the means used to provide an emergency supply of water.

BRITT, S. H.

1. Selected abstracts on engineering geology and related subjects. U S Geol Surv Circ 259, 27 pp, 1954
A selection of 126 abstracts of domestic and foreign literature on construction materials, drilling and exploration, landslides and subsidence, mapping techniques, physical properties of rocks, and soils.

BROADFOOT, WILLIAM M.

1. (and REINHART, K. G., FERGUSON, EDWIN R., DUKE, WILLIAM M., WOODS, FRANK, HOPKINS, WALT, and CARLSON, CHARLES A.) Some field, laboratory, and office procedures for soil-moisture measurement. South For Exp Sta Occ Paper 135, 47 pp, 1954
A collection of short papers discussing evaluation of various procedures for estimating bulk density, moisture tension, soil moisture, and extent of roots in the soil. Devices for soil sampling and use of electrical resistance elements are described.

BROADHURST, W. L.

1. Coastal plain near Houston, Texas. Physical and Economic Basis of Natural Resources, v 4, pp 51-69, U S House Rep, 1953
Discusses the general geography of the area, the basic elements of the water situation, the occurrence of ground water, and some problems of water development. Flow duration characteristics of typical streams are presented. The area is selected as a type area for the western Gulf Region.

BRODING, R. A.

1. (and others) Magnetic well logging. Geophysics, v 17, pp 1-26, 1952
Describes the instruments used for magnetic logging and the techniques of interpreting the logs.

BROOKS, C. E. P. See also Brier, G. W., 2; Wahl, E. W., 1
1. Climate in everyday life. 314 pp, Philosophical Library, New York, 1951
A semi-technical summary of some aspects of applied climatology intended for the educated layman. Includes brief climatography of the world, discussion of the influence of climate on heating and air conditioning, a discussion of severe storms, air pollutions, floods, etc.

BROOKS, F. A. See also Veihmeyer, F. J., 3
1. (and RHODES, D. G.) Daytime partition of radiation and the evaporation chilling of the ground. Trans Amer Geophys Union, v 35, pp 145-152, 1954
A study of the heat exchange at the ground as influenced by soil moisture. Cooling of the soil by evaporation of irrigation water is observed in test plots. Equations for evaluating the heat balance are suggested.

BROWN, C. J. D.
1. (and JEWETT, STANLEY S., JR.) Some limnological and fisheries observations on Cottage Grove Reservoir (Coast Fork, Willamette River, Oregon). Proc Mont Acad Sci, v 14, pp 31-43, 1954
Contains data on temperature profiles and chemical profiles over a period of six months in 1946.

BROWN, CARL B. See also Thorp, E. M., 1
1. Sediment steals water storage. J Soil Water Cons, v 6, pp 92-98, 1951
A general discussion of the problems of reservoir sedimentation.
2. Planning the watershed. J Soil Water Cons, v 7, pp 16-21, 1952
Outlines procedures for developing plans for best watershed use.
3. Flood prevention through watershed planning. Agr Eng, v 34, pp 159-162, 1953

BROWN, E. A. See also Stuart, W. T., 2
1. (and STUART, W. T.) Ground-water resources of the glacial deposits, Bessemer area, Michigan. Mich Geol Surv Prog Rep 14, 68 pp, 1951
Describes area about 60 sq mi within 5-mi radius of Bessemer. Bedrock crops out in a discontinuous band across the area and lows between the bedrock exposures are filled with glacial drift. Contains records of wells, test borings, and springs.

BROWN, EDWARD A.
1. Missouri River flood problems. Midwest Eng, v 4, pp 7-9, 21, 1952
A review of the flood history of the basin and of the flood control plans.

BROWN, EUGENE See Black, A., 1; Cooper, H. H., 2

BROWN, P. N. See Drescher, W. J., 2; Lohr, E. W., 6

BROWN, PAUL L.
1. (and HALLSTEAD, A. L.) Comparison of evaporation data from standard Weather Bureau and Plant Industry type evaporation pans. Agron J, v 44, pp 100-101, 1952
Presents a direct correlation of data for 14 yr at Hays, Kans.

BROWN, R.
1. (and FARNHAM, R. S.) Use of aircraft in soil mapping. J Soil and Water Cons, v 9, pp 254-256, 1954
Describes soil mapping by visual methods from light aircraft.

BROWN, R. F.
1. Public and industrial water supplies of the Mississippian Plateau region, Kentucky. U S Geol Surv Circ 341, 38 pp, 1954
Report includes maps showing the amount of water pumped at various locations within the area and the chemical character of the water. Tables give detailed information on 68 supplies which were studied and on 44 water analyses. A generalized section shows the geologic formations of the area and their water-bearing characteristics.

BROWN, RUSSELL H.
1. Selected procedure for analyzing aquifer test data. J Amer Water Works Assn, v 45, pp 844-866, 1953
Describes various methods of determining the aquifer characteristics from pumping tests with illustrative examples.

BROWN, T. C.
1. Climatic data for North Carolina for use by engineers, architects, and contractors. N C State Coll Ind Inf Bul 5, 24 pp, 1953
Presents data on humidity, degree days, and wind at selected stations and summaries of water temperature, water quality, and precipitation for the state.

BRUIN, JACK
1. (and SMITH, H. F.) Preliminary investigation of ground-water resources in the American Bottom. Ill Water Surv Rep Inv 17, 28 pp, 1953
A summary of ground-water levels and water-quality data for an area near St. Louis.

BRUNE, GUNNAR M.

1. Collection of basic data on sedimentation. Ill Water Surv Bul 41, pp 53-62, 1952
   Reviews briefly the types of sedimentation damage, the sources of sediment and rates of production, and the field procedures used for measuring reservoir sedimentation and suspended load.
2. Trap efficiency of reservoirs. Trans Amer Geophys Union, v 34, pp 407-417, 1953
   Data on 44 reservoirs are analyzed to determine the factors governing trap efficiency for sediment. Discusses the capacity-inflow ratio, age of reservoir, shape of reservoir, type of outlets, and method of operation. Discussion by A. E. COLDWELL, v 35, pp 660-661, 1954.
3. Gully stabilization structures check erosion in western Iowa. Civ Eng, v 23, pp 590-591, 1953
   Describes extent of gully and sheet erosion in the loess hills of western Iowa, and the various methods of erosion control which are being used. The benefit-cost ratio is estimated at 2.17:1.

BRUUN, PER

1. Coast erosion and the development of beach profiles. U S Beach Erosion Bd Tech Mem 44, 79 pp, 1954
   Illustrates shore protection as applied abroad, especially along the Danish North Sea coast. Includes discussion of the development of beach profiles as related to wave conditions. Compares results obtained along the Danish coast with those in Mission Bay, Calif.
2. Use of small-scale experiments with equilibrium profiles in studying actual problems and developing plans for coastal protection. Trans Amer Geophys Union, v 35, pp 445-452, 1954
   Examples from Denmark demonstrate the utility of small scale laboratory experiments with equilibrium profiles for interpreting observed conditions on beaches on predicting performance of protective structures.

BRYSON, R. A. See Verber, J. L., 2, 3

BUCKMAN, HARRY O. See Lyon, T. L., 1

BUEHLER, BOB See Bradley, J. N., 1; Ezra, A. A., 1; King, R. E., 1

BUFORD, T. B. See Jones, P. H., 1

BUGLIARELLO, GIORGIO

1. The resistance to accelaration motion of spheres in water. Minn Univ MS thesis, July 1954

BUHLE, MERLYN B. See also Foster, J. W., 2

1. Earth resistivity in ground-water studies in Illinois. Min Eng, v 5, pp 395-399, 1953
   Resistivity surveys have been highly successful for ground-water surveys in Illinois. Four simple cases are presented as examples.

BUNCH, C. M.

1. Discharge records and their value in design of bridge waterways. Ga Geol Surv Bul 60, pp 157-161, 1953
   Describes briefly the need for considering flow conditions in bridge design.

BUNTING, D. C.

1. (and LATOUR, M. H., GENTRY, R. C., and NORTON, GRADY) Florida hurricanes of 1950. Univ Fla Eng Ind Exp Sta Bul 45, 33 pp, 1951
   Describes the hurricanes, their detection by radar, and problems of forecasting. Summarizes meteorological data and some statistics on the hurricanes.
2. (and LATOUR, MARINUS H.) Radar-rainfall studies in Ohio. Bul Amer Met Soc, v 32, pp 289-297, 1951
   Isohyetal maps as constructed from rain-gage data are compared with maps constructed from radar data. The 10- and 3.2-cm radar are compared.

BURDINE, N. T.

1. Relative permeability calculations from pore-size distribution data. Amer Inst Min Metal Eng Trans, v 198, pp 71-78, 1953
   Formulas for computing permeability from the physical characteristics of a rock or soil are presented.

BURGY, R. H.

1. (and SCOTT, V. H.) Some effects of fire and ash on the infiltration capacity of soils. Trans Amer Geophys Union, v 33, pp 405-416, 1952
   The effect of presence of ash, application of heat, burning of brush, and the chemical character of the ash on infiltration rates into California brushland soils is studied through field tests.

BURLEIGH, HARRY R.

1. It can happen in Texas. Recl Era, v 38, pp 286-289, 1952
   A description of storm and resulting floods on the Colorado River in Texas. Other similar storms are described and some of the causes of such storms are discussed.

BURNETT, EARL See also Fisher, C. E., 1
1. (and FISHER, C. E.) The effect of conservation practices on runoff, available soil moisture, and cotton yield. Proc Soil Sci Soc Amer, v 18, pp 216-218, 1954
Reports effect of contouring and terracing at Spur, Tex.

BURNS, JOSEPH I.
1. Small-scale topographic effects on precipitation distribution in San Dimas experimental forest. Stanford Univ Eng thesis, 21 pp, Apr 1952
A correlation between mean annual precipitation and topographic parameters.

BURRELL, GENE N.
1. Constant-factor method aids computation of reservoir sediment. Civ Eng, v 21, pp 51-52, 1951
A brief survey of various methods of figuring sedimentation rates and a detailed discussion of the constant-factor method assuming a steady flow of sediment to the reservoir.

BURRIDGE, GASTON
1. Juvenile water. Earth Sci Digest, v 7, pp 15-19, 1954
A discussion of the development of juvenile ground water by STEPHEN RIESS.

BURT, E. M. See Ferris, J. G., 1

BURT, WAYNE V.
1. Extinction of light by filter-passing matter in Chesapeake Bay waters. Sci, v 118, pp 386-387, Oct 2, 1953
Particulate, filterable matter is found to be the main factor in the absorption of light. Details of field and laboratory tests are presented.
2. Albedo over wind-roughened water. J Met, v 11, pp 283-290, 1954
The observed albedo over a water surface as a function of solar elevation and cloud cover is reproduced semi-theoretically. The relation between albedo, wind velocity, and atmospheric turbidity is considered.

BURTIS, V. M. See Lohman, S. W., 4, 5

BUSH, JAMES
1. Derivation of a size-frequency curve from the cumulative curve. J Sed Pet, v 21, pp 178-182, 1951
Outlines a technique for the development of size-frequency curves from sieve-analysis data.

BUSH, ROBERT E.
1. The quantitative application of radioactivity logs. Trans Amer Inst Min Metal Eng, v 192, pp 191-198, 1951
A report of recent developments in the field of interpretation.

BUSHY, C. E.
1. Water rights and administration with respect to soil and water conservation. Agr Eng, v 34, pp 769-780, 1953
A general review of water law in the U. S. with special attention to that which affects water conservation.

BUSTAMENTE, J. C.
1. Falcones Dam stimulates irrigation in Mexico. Civ Eng, v 21, pp 42-43, 1951
A brief description of the possibilities for irrigation south of the Rio Grande.

BUSWELL, ARTHUR M.
1. Effects of drought in Illinois. J Amer Water Works Assn, v 46, pp 395-402, 1954
Describes the drought of April 1953 to January 1954, summarizes the meteorology of the situation, and discusses its effect on public water supplies.
2. (and STOUT, G. E., and NEILL, J. C.) Quantitative measurement of rainfall by radar. J Amer Water Works Assn, v 46, pp 837-852, 1954
Discusses the variability of rainfall over area, adequacy of rain-gage network, and the work being done in Illinois on the use of radar to measure rainfall.

BUTCHER, W. S. See Poole, D. M., 1

BUTLER, R. G. See also Thomas, H. E., 1
1. (and ORLOB, G. T., and McGAUHEY, P. H.) Underground movement of bacterial and chemical pollutants. J Amer Water Works Assn, v 46, pp 97-111, 1954
Reports results of research by University of California on the distance to which pollution is transmitted.

BUTSON, KEITH D.
1. U. S. Weather Bureau snow cover observation program. Proc West Snow Conf, pp 5-6, Apr 1953
Summarizes briefly the Weather Bureau program in the Columbia Basin for observations of snow cover intended to aid in day-to-day forecasts of snow melt.

BYERS, HORACE R.
1. Report of committee on cloud physics 1951. Trans Amer Geophys Union, v 32, p 760, 1951
An abstract of the various articles on cloud seeding published in 1951.

2. Coast redwoods and fog drip. Ecology, v 34, pp 182-193, 1953
A brief discussion of fog drip as a water source.

CAHOW, THEODORE W.

1. A study of drought frequencies for the lower peninsula of Michigan. MS thesis Mich State Coll, 48 pp, 1952
Precipitation records for 37 stations in the lower peninsula of Michigan for the months May through Sep. are tabulated. The frequency of 7 to 14, 14 to 21, 21 to 28, 28 to 35, and over 35-day droughts for each of the various months are plotted on a map. Also in graph form are the frequencies of various droughts for each station for each month.

CALDWELL, JOSEPH M. See also Saville, T., Jr., 2

1. Supersonic sounding instruments and methods. Trans Amer Soc Civ Eng, v 117, pp 44-58, 1952
A history of echo-sounding methods. The types of equipment used are discussed and the limitations are presented in quantitative terms. Data is presented to show the accuracy which can be expected and this is compared with lead line methods.

CALHOUN, JOHN C., JR. See Chatenever, A., 1

CALIFORNIA DIVISION OF WATER RESOURCES

1. Feasibility of the reclamation and conveyance of sewage from San Francisco, Peninsula cities and communities, and San Jose, for use in Santa Clara County. Calif Div Water Res, 116 pp, Apr 1951
The sewage of the Peninsula cities is analyzed and found to be, with occasional exception, too high in mineral and soluble salts, especially sodium, for use as supplement to irrigation supplies now in use. Cost of delivery is found to be about $45 per acre foot delivered. Appendices contain discussion of sewage lagooning for natural oxidation by algae.
2. Ground water basins in California. Calif Div Water Res Rep 3, 44 pp, 1952
Presents base map defining the separate ground water basins of the state.
3. Reclamation of water from sewage or industrial waste. Calif Div Water Res Dept, 63 pp, Dec 1952
A review of the literature in the field, discussions of technical problems, survey of present uses and a consideration of possible further uses in the Los Angeles and San Francisco area.
4. Ground-water occurrence and quality, Colorado River basin region. Calif Div Water Res Water Quality Inv Rep 3, 53 pp, 1954
A comprehensive description of ground water occurrence in the extreme southeastern portion of the state.

CALIFORNIA, UNIVERSITY OF

1. Present economics and technical status of water reclamation from sewage and industrial wastes. Univ Calif San Eng Res Proj Tech Bul 4, 24 pp, 1951
A general review of the problem with special reference to conditions in California. Extensive bibliography.
2. On the methodology of evaluating cloud-seeding operations. Calif Univ Statistical Lab, 49 pp, Apr 1953
A review of statistical techniques for evaluating cloud-seeding methods. Outlines a method of randomizing experiments for maximum effectiveness.

CALIFORNIA WATER POLLUTION CONTROL BOARD

1. Water quality criteria. Calif Water Poll Control Bd Pub 3, 512 pp, 1952
A detailed review of existing criteria for water quality as used by various state, federal, and foreign agencies. The effect of each pollutant on domestic, agricultural, and industrial use is discussed. Contains bibliography of over 1000 items.

CALIFORNIA WATER RESOURCES BOARD

1. Water resources of California. Calif Water Res Bd Bul 1, 648 pp, 1951
A brief discussion of water problems in California, methods of data collection, and methods of data analysis. For each of 10 major hydrographic areas of the state, data is given on drainage area of streams, all known precipitation stations, and stream gaging stations with maximum, average, and minimum annual runoff. Summary of annual runoff at key stations for the period 1894-1947 and flood frequency curves for selected stations are also included.
2. Central Basin investigation. Calif Water Res Bd Bul 8, 32 pp, 1952
An evaluation of the water resources and water needs of the lower Los Angeles and San Gabriel River basins.
3. Sutter-Yuba counties investigation. Calif Water Res Bd Bul 6, 174 pp, 1952
A comprehensive review of water supplies, water requirements, and possible water development plans for two counties in northern California.
4. Elsinore Basin investigation. Calif Water Res Bd Bul 9, 104 pp, 1953
A study of the water resources of the area tributary to Lake Elsinore in Southern California with a view to possible irrigation development. Includes general description and analysis of surface and ground-water hydrology.

5. Santa Cruz-Monterey Counties investigation. Calif Water Res Bd Bul 5, 230 pp, 1953
   A comprehensive study of the water resources, water needs, and possible water development plans for two counties on the central California coast.
6. Interim report on Klamath River investigation. Calif Water Res Bd, 117 pp, 1954
   A report on the water uses and probable ultimate water requirements of the Klamath River basin in northern California.

CALLAHAN, J. T. See Harshbarger, J. W., 1

CAMBEFORT, H. See Cary, A. S., 1

CAMERON, A. L.

1. Measurement of water current velocities by parallax method. Photo Eng, v 18, pp 99-104, 1952
   Describes methods of estimating velocities of tidal currents from aerial photographs.

CAMPBELL, F. B. See Bradley, J. N., 1

CAMPBELL, J. M. See Slaughter, J. L., 1

CAMPBELL, R. B. See Ayers, A. D., 1

CANNON, GRANT

1. Refilling our wells. Johnson Nat Drillers' J, v 26, pp 8-10, 13, 1954
   A discussion of artificial recharge of ground water with some case histories of small artificial recharge projects.

CARDWELL, W. D. E.

1. Irrigation-well development in the Kansas River basin of eastern Colorado. U S Geol Surv Circ 295, 72 pp, 1953
   In 1940 there were only 15 wells in the area but by 1950 there were more than 100 wells. The main source of ground water is the Ogallala formation; less important sources are alluvium and dune sand. A program of test drilling is outlined.

CAREY, WALTER C.

1. Engineer uses of chemical herbicides. Mil Eng, v 44, pp 174-177, 1952
   Discusses use of chemicals to kill weeds.

CARHART, ARTHUR H.

1. The future course in water management. J Amer Water Works Assn, v 44, pp 803-810, 1952
   Outlines the problems of the nation's water supply. Points out the sediment problem inherent with large dams. States that watershed management should include dams but only as a part of a broader plan.

CARLSON, CHARLES A. See Broadfoot, W. M., 1; Palpant, E. H., 1

CARLSON, E. J. See also Lane, E. W., 3

1. New twist on sediment. Recl Era, v 37, pp 109-111, 1951
   A discussion of a method for control of sediment at diversions developed by the Bureau of Reclamation.

CARLSON, NORMAN K.

1. Pineapples, machinery and erosion in Hawaii. Soil Cons, v 17, pp 64-67, 1951
   A discussion of the climate of Molokai as it affects erosion and of the erosion control methods in use.

CARLSON, WILLIAM A. See also Davis, S. N., 1

1. (and RUNNELS, RUSSELL T.) A study of silt deposited by the July 1951 flood, central Kansas River valley. Trans Kans Acad Sci, v 55, pp 209-213, 1952
   A report of the depth and chemical and physical properties of sediments deposited in the vicinity of Lawrence and Topeka, Kans.

CARLTON, P. F.

1. (and others) Modifications and tests of radioactive probes for measuring soil moisture and density. U S Civ Aero Adm Tech Dev Rep 194, 1953
   A report of tests using neutrons and gamma rays for moisture and density determinations. The utility and limitations of the various methods are discussed and desirable research is outlined.

CARPENTER, CLARENCE, JR.

1. Fluid flow through porous media composed of rectangular spaced particles. Minn Univ MS thesis, Jan 1952

CARR, DONALD R. See Kulp, J. L., 1

CARR, J. A.

1. Snow and record cold in Wyoming and Montana, June 1-3, 1951. Mon Wea Rev, v 79, pp 129-132, 1951
   A meteorological description of an unusual weather occurrence.

CARR, J. ROLAND

1. Kansas City takes biggest beating. Eng News-Rec, v 147, p 23, July 19, 1951
   Describes events during the flood of July 1951.

2. Kansas City, Mo., just missed a water famine. Eng News-Rec, v 147, p 29, Aug 2, 1951
Describes the nearly complete breakdown of the municipal water-supply system during the flood of July 1951.
3. Kansas flood cleanup--a tale of three cities. Eng News-Rec, v 147, pp 30-34, Oct 4, 1951
Describes the problems and costs involved in rehabilitating Manhattan, Topeka, and Salina including repair of flooded wells. The effect of Kanopolis Dam on flood stages at Salina is questioned.
4. Omaha braces for its biggest flood. Eng News-Rec, v 148, pp 21-23, Apr 17, 1952
Omaha levees are built for a 26.6-ft crest with 5-ft free-board. Predicted crest is 30.4 ft. The causes of the flood are outlined.

CARR, JOHN H.

1. Long-period waves or surges in harbors. Trans Amer Soc Civ Eng, v 118, pp 588-616, 1953
Reports results of field and model studies of the source and characteristics of long-period waves in harbors and discusses basin resonance and water motion induced by the waves. Discussion by J. S. McNOWN and B. W. WILSON.

CARREKER, JOHN R. See also Land, W. B., 1

1. (and HENDRICKSON, B. H.) The measurement of soil and water losses with runoff plots. U S Soil Cons Serv, Feb 1952
A discussion of the usefulness of plots for securing data on soil and water losses with descriptions of typical plots at the Southern Piedmont Experiment Station, Watkinsville, Ga.
2. (and BARNETT, AURELIUS P.) Rainfall and runoff characteristics on a small watershed in the southern Piedmont. U S Soil Cons Serv SCS-TP-114, 16 pp, 1953
Report observations over a 12-yr period on a 19-acre watershed near Watkinsville, Ga. Effect of cropping on runoff is evaluated, probable peak flows estimated, and the extent of periods without runoff is summarized for design of farm ponds.
3. The effects of rainfall, land slope, and cropping practices on runoff and soil losses. J Soil Water Cons, v 9, pp 115-119, 1954
A report of plot tests at Watkinsville, Ga., over a 12-yr period.

CARSTENS, M. R. See Ismail, H. M., 1

CARTER, CLYDE L.

1. Soil temperature, moisture content, and thermal properties. Tennessee Valley area, 1949, 1950, and 1951. Tenn Univ Eng Exp Sta Bul 15, 85 pp, 1951
Reports results of measurements at a number of field stations. Diffusivity determinations for several soil samples are presented. Thermal properties of the soil are found to be related to a function of the liquid and plastic limits of the soil. Sample computations are included.

CARTER, R. W. See also Kindsvater, C. E., 1, 2; Tracy, H. J., 1

1. (and HERRICK, S. M.) Water resources of the Atlanta metropolitan area. U S. Geol Surv Circ 148, 19 pp, 1951
2. Flood regime of the Coosa-Alabama River: Historical and modern. Ga Geol Surv Bul 60, pp 153-156, 1953
Presents a stage frequency graph for the Coosa River at Montgomery, Ala., and historical data on earlier floods.
3. Effect of Buford Reservoir on flow of Chattahoochee River at Atlanta. Ga Geol Surv Bul 60, pp 161-167, 1953
The effect of power regulation is discussed and possible problems of water supply during lower flows are outlined.

CARVER, C. E., JR. See Ippen, A. T., 1

CARY, ALLEN S.

1. Origin and significance of open-work gravels. Trans Amer Soc Civ Eng, v 116, pp 1296-1318, 1951
Discusses deposits of gravel without interstitial sand and the possible mechanism of deposition in streams. Discussion by J. FELD, A. CASAGRANDE, A. MAYER, H. CAMBEFORT, H. FORBES, and L. F. HARZA.

CASAGRANDE, A. See Cary, A. S., 1

CASEY, T. B. See Hardin, J. R., 1

CAUSEY, OBIE Y.

1. The distribution of summer showers over small areas. Mon Wea Rev, v 81, pp 111-114, 1953
A study of the areal scattering of showers near Lincoln, Nebr., Peoria, Ill., and in east-central Ohio. Study is aimed primarily at estimating the probability of verification of a forecast of scattered showers during any 24-hr period.

CAVALLERO, JOHN B. See Whelan, D. E., 1
CAVAZZA, LUIGI See Taylor, S. A., 3
CEDERSTROM, D. J.
1. Summary of ground-water development in Alaska, 1950. U S Geol Surv Circ 169, 37 pp, 1952
Ground-water development in Alaska is in an early stage except in the vicinity of Anchorage, Palmer, and Fairbanks. Water quality ranges from good to poor with high iron and organic matter in many places. Contains brief descriptions of ground-water conditions in about 70 communities south of the Brooks Range.
2. (and JOHNSON, P. M., and SUBITZKY, SEYMOUR) Occurrence and development of ground water in permafrost regions. U S Geol Surv Circ 275, 30 pp, 1953
Summarizes the information available on location and development of ground water in regions of permafrost. Types of drilling equipment, methods of development, and precautions against freezing are described. Selected bibliography.
CERMAK, J. E.
1. (and KOLOSEUS, H. J.) Lake Hefner model studies of wind structure and evaporation, final report, part 1. Colo Agr Mech Coll Dept Civ Eng, 152 pp, 1953
Reports model study of evaporation and wind structure at Lake Hefner with wind tunnel. Model and prototype data are compared.
2. (and KOLOSEUS, H. J.) Experimental study of velocity indicator. Colo Agr Mech Coll Dept Civ Eng, 60 pp, 1954
A systematic investigation to design an air velocity indicator to yield speed and direction from measurements of pressure differences.
CHAMBERLAIN, L. W. See Nash, W. B., 1
CHANDLER, V. N. See Fletcher, J. E., 1
CHAPMAN, RODGER H.
1. Seismic depth to ledge studies as related to water problems at Morris mine, Ishpeming, Michigan. Mich Coll Min Tech, MS thesis, 51 pp, 1952
CHARLES, JOHN R.
1. Occurrence, development, and use of underground water. Water Works Eng, v 104, pp 219-220, 1951
A very general discussion of ground-water problems.
CHATENEVER, ALFRED
1. (and CALHOUN, JOHN C., JR.) Visual examination of fluid behavior in porous media--part I. Trans Amer Inst Min Metal Eng, v 195, pp 149-156, 1952
A report on microscopic observations of flow in porous media. Techniques for making color motion pictures of the flow are described.
CHEN, ROBERT See Allred, E. R., 1
CHENOWETH, H. H. See Owen, W. M., 1
CHEPIL, W. S.
1. Properties of soil which influence wind erosion: III. Effect of apparent density on erodibility. Soil Sci, v 71, pp 141-153, 1951
Erodibility of soil is found to be dependent on the square root of apparent density of the erodible fractions in the soil.
2. (and ENGLEHORN, C. L., and ZINGG, A. W.) The effect of land use practices on erodibility of soil by wind. Kans Agr Exp Sta Agron Dept Cont 449, 1951
Observations at more than 90 sites are employed to analyze the effect of cultivation since the virgin soil was first plowed. The older cultivated areas have lost much of the erodible material and although less productive are also less erodible.
3. Properties of soil which influence wind erosion: IV. State of dry aggregate structure. Soil Sci, v 72, pp 387-401, 1951
Presents tables and graphs showing the influence of various structural characteristics of soil on erodibility.
4. Properties of soil which influence wind erosion: V. Mechanical stability of the structure. Soil Sci, v 72, pp 465-478, 1951
The effect of farm machinery and the abrasive action of wind blown soil are evaluated as means of breaking down soil structure and making it susceptible to wind erosion.
5. (and ENGLEHORN, C. L., and ZINGG, A. W.) The effect of cultivation on erodibility of soils by wind. Proc Soil Sci Soc Amer, v 16, pp 19-21, 1952
Investigation shows that fields recently plowed from virgin sod are most susceptible to erosion. See CHEPIL, W. S., 2.
6. Factors that influence clod structure and erodibility of soil by wind: I. Soil texture. Soil Sci, v 75, pp 473-483, 1953
Both coarse and fine-textured soils are found to be relatively erodible. Medium textured soils containing about 27 pct clay formed clods and were resistant to erosion. Equations relating mechanical analysis of soils to erodibility are presented.

7. (and WOODRUFF, N. P.) Estimation of wind erodibility of field surfaces. J Soil Water Cons, v 9, pp 257-265, 1954
   The primary factors determining the erodibility of soils are discussed.

CHERNOFF, HERMAN
1. (and LIEBERMAN, GERALD J.) Use of normal probability paper. J Amer Stat Assn, v 49, pp 778-784, 1954
   Discusses the plotting position of points on normal probability paper with a view to determining the optimum position for the best estimate of the mean and standard deviation (slope). Gives tables for the best plotting positions for sample sizes up to 10.

CHIEN, CHIA-HUAN
1. Relaxation technique for three-dimensional flow net. Trans Amer Geophys Union, v 33, pp 123-125, 1952
   Presents a method analysis based on Southwell's technique which permits relaxation of three-dimensional flow nets.

CHIEN, NING See also Einstein, H. A., 5, 6, 9, 10
1. Investigation of the maximum equilibrium rate of bed load movement. Calif Univ Ph D thesis, 96 pp, 1951
   An extensive laboratory study was conducted to determine whether a maximum equilibrium rate of bed load movement exists and how it differs quantitatively from the minimum equilibrium rate.
2. The efficiency of depth-integrating suspended sediment samplers. Trans Amer Geophys Union, v 33, pp 693-698, 1952
   The depth-integrating sampler cannot be lowered to sample clear to the stream-bed and therefore part of the sediment load will not be collected. The errors resulting from this are determined analytically.
3. The present status of research on sediment transport. Proc Amer Soc Civ Eng sep 565, 33 pp, 1954
   The theory of sediment transport is summarized and reviewed. Controversial issues are discussed and an effort is made to unify some of the divergent views. Extensive bibliography.

CHILDS, E. C.
1. (and GEORGE, N. C.) Movement of moisture in unsaturated soils. Proc 4th Int Cong Soil Sci, v 1, pp 60-63, 1950
   Permeability at various moisture contents is calculated for two sands and one slate dust and found to be in good agreement with experimental observations.
2. (and O'DONNELL, T.) The water table, equipotentials, and streamlines in drained land: IV. The rising water table. Soil Sci, v 71, pp 233-237, 1951
   The last of a series of papers dealing with various applications of an electrical analog to ground-water flow problems.

CHILDS, ELLIOT F.
1. Regulation of flood control reservoirs in New England. J Boston Soc Civ Eng, v 40, pp 189-230, 1953
   Each Corps of Engineer reservoir in New England is described and its operating plan explained.

CHINN, ORVILLE W.
1. Watershed approach to sedimentation problems. Ill Water Surv Bul 41, pp 67-69, 1952
   A general discussion of the watershed management problems of Federal agencies.

CHOW, VEN TE See also Einstein, H. A., 3; Guillou, J. C., 1; Hudson, H. E., Jr., 7; Hurst, H. E., 1
1. A general formula for hydrologic frequency analysis. Trans Amer Geophys Union, v 32, p 231, 1951
   A general formula is presented which expresses the frequency functions used in a number of different methods. A constant is changed in the formula to adapt to a specific method. Curves showing the values of the constants as functions of return period are given.
2. A practical procedure for flood routing. Ill Univ Civ Eng Studies, Hydr Eng ser 1, 4 pp, 1951
   Describes a simple semi-graphical method of determining the outflow hydrograph of a river reach from a given inflow graph and a historical flood.
3. Design charts for finding rainfall intensity-frequency. Water, Sewage Works, v 99, pp 87-88, 1952
   Using Yarnell's data as a base, constants and curves are derived for a general rainfall-intensity-frequency relation for the U. S.
4. On the determination of transmissibility and storage coefficients from pumping test data. Trans Amer Geophys Union, v 33, pp 397-404, 1952
   A graphical procedure for determining the formation constants of an artesian aquifer from pumping test data is presented.

5. Hydrologic studies of urban watersheds, rainfall, and runoff of Boneyard Creek, Champaign-Urbana, Illinois. Ill Univ Civ Eng Studies Hydr Eng ser 2, 66 pp, 1952
Studies a creek with 9.5 sq mi drainage area. Describes watershed and stations for collecting data. Presents frequency analysis of rainfall, study of areal distribution of storms, derivation of unit hydrograph, and determination of consumptive use of water.
6. Frequency analysis of hydrologic data with special application to rainfall intensities. Ill Univ Eng Exp Sta Bul 414, 80 pp, 1953
Presents a general account of the purpose and scope of statistical analysis in hydrology; theory of analysis including selection of data, plotting position, curve fitting, etc; application of improved methods to Chicago data; and a discussion of the preparation of data for analysis.
7. The log-probability law and its engineering applications. Proc Amer Soc Civ Eng sep 536, 25 pp, 1954
Surveys the early applications of the log-probability law, presents a theoretical interpretation of the law and presents tables of frequency factors and skew curve factors. Determines that the extreme-value law is a special case of the log-probability law and suggests a method of straight-line fitting of engineering data.

CHRISTENSEN, PAUL D.
1. (and LYERLY, PAUL J.) Water quality--as it influences irrigation practices and crop production--El Paso and Pecos areas. Tex Agr Exp Sta Circ 132, 1952
Discusses the quality of water found in the area, the effect of salts on plants and soils, the principles of water application, and the ground-water situation of the area.

CHRISTIANSEN, J. E.
1. Irrigation in relation to food production. Agr Eng, v 34, pp 400-406, 410, 1953
Reviews the development of irrigation, the world food problem, and the role of irrigation in meeting this problem. Some statistical data.

CHU, HENRY HSIEN See Keifer, C. J., 1

CHU, T. Y. See Davidson, D. T., 2

CHUN, R. K.
1. Flood of August 1950 in the Waimea area, Kauai, Hawaii. U S Geol Surv Water-Supply Paper 1137-C, pp 327-349, 1952
Waimea River on the island of Kauai had a severe flood as a result of rains associated with the only typhoon ever recorded in the proximity of Hawaii. In the head-waters of Waimea River, 50 inches of rainfall was recorded during a 72-hr period, and a stream having a drainage area of 4.1 sq mi reached a maximum discharge of 7980 cfs. This report presents records of stage and discharge at four gaging stations in Waimea River basin during the flood, a description of the physical features of the basin, a section on meteorology prepared by the Weather Bureau, and other data related to the flood. A map of the island shows the location of gaging stations, the location of rain gages where rainfall was the greatest, the lines of equal rainfall for the storm period.

CHURCH, J. E. See Klein, G. J., 1

CHURCHILL, M. A.
1. Stream pollution: natural reduction of paper-mill color in streams. Sewage Ind Waste, v 23, pp 661-671, 1951
Describes the importance, objective, source, sampling program, and procedure for measurement of color in the streams and rivers in the Tennessee Valley as they relate to paper mills and the National Parks.
2. (and ELDER, REX A., and FRY, ALBERT S.) Significant effects of density currents in TVA's integrated reservoir and river system. Proc Minn Int Hydr Conv, Aug 1953
This paper presents some of the information on density current flows collected by the Tennessee Valley Authority for the solution of practical operating problems, covering relationship of density current flows to industrial water supply, and steam plant condensing water.

CHURCHILL, WARREN S. See O'Donnell, D. J., 1

CLARK, C. O. See Kohler, M. A., 2

CLARK, JEAN M.
1. (and LEWIS, W. V.) Rotational movement in cirque and valley glaciers. J Geol, v 59, pp 546-566, 1951
Study of banding of glaciers confirms possibility of rotational movement.

CLARK, JOHN W.
1. Runoff and soil moisture. Mo School Mines, MS thesis, 78 pp, 1953
A collection of basic data on soil moisture in relation to runoff. A natural drainage basin of 0.227 sq mi was used for this study.

CLARK, WILLIAM E. See Heath, R. C., 1

CLENDENEN, FRANK B.

1. A comprehensive plan for the conjunctive utilization of a surface reservoir with underground storage for basin-wide water supply development: Solano Project, California. Calif Univ D Eng thesis, 160 pp, 1954
   The feasibility of combined surface and underground storage for the Solano Project is evaluated in terms of costs, structures, irrigation requirements, and artificial ground-water recharge. The conjunctive operation would provide equal service at less than one-half the capital cost of a plan not utilizing storage, and would have a benefit to cost ratio twice as great.

CLINE, MARLIN G. See Pomerening, J. A., 1

CLOUDE, LAVAL, JR.

1. Photographing water wells. J Amer Water Works Assn, v 43, p 378, 1951
   The author describes a camera for taking photographs in a well and discusses value of photographs.

CLYDE, CALVIN G.

1. Sediment movement in Bear River, Utah. Calif Univ C E thesis, 99 pp, 1953
   The geologic history and hydrographic data of the Bear River, Utah are presented. Measured and calculated sediment transport rates are compared. Effects of future stream development are discussed.

CLYDE, GEORGE D.

1. Utilization of natural underground water storage reservoirs. J Soil Water Cons, v 6, pp 15-19, 1951
   Discusses experience in ground-water recharge and management in western U. S.
2. What determines the value of water? J Soil Water Cons, v 6, pp 87-91, 106, 1951
   Points to the rising cost of water as a result of new efforts to obtain water or to improve local water situations. These may determine the market value of water but the real value will be determined by its use and conservation.
3. Benefits of snow surveying. Proc West Snow Conf, pp 84-107, Apr 1951
   Discusses the characteristics of snow, methods of snow surveying, organization of cooperative snow surveys, and illustrates with examples some of the benefits of snow surveys. Discussion by W. A. LANG, J. R. RITER, G. W. TEMPLETON, and F. B. BLANCHARD.
4. Relating basic resources in irrigation research. Agr Eng, v 33, pp 277-278, 1952
   A general review of research programs illustrated by examples of successful research.
5. Irrigation in the United States. Trans Amer Soc Civ Eng, v CT, pp 311-342, 1953
   A history of the development of irrigation in the West from Spanish times.

CODE, W.

1. (and TOBISKA, J. W.) Report on mineralization of ground and surface waters of the South Platte valley in Colorado. Colo Agr Mech Exp Sta Misc ser 500, 28 pp, 1951
   A report on the mineralization status of ground water and surface water in the South Platte valley in Colorado under conditions of different discharges and at various times.

COFFIN, JAMES C.

1. A method of estimating precipitation normals for short-record stations. Trans Amer Geophys Union, v 35, pp 405-412, 1954
   Regression formulas which account for the variance of the short-period mean from a longer period mean are utilized to adjust short records to a long-term normal. Applied to stations in western Washington.

COILE, T. S.

1. Moisture content of small stone in soil. Soil Sci, v 75, pp 203-207, 1953
   A study of the moisture content of small stone in a typical Piedmont Plateau soil. It is concluded that the stone contributes to the moisture available for plants.

COLBERT, LEO OTIS

1. The lower Mississippi River. Mil Eng, v 44, pp 194-196, 1952
   Describes the region, its flood history, and flood control efforts.

COLBY, B. C. See Schwantes, A. J., 1

COLBY, B. R.

1. (and MATEJKA, D. Q., and HUBBELL, D. W.) Investigations of fluvial sediments of the Niobrara River near Valentine, Nebr. U S Geol Surv Circ 205, 57 pp, 1953
   The Niobrara River flows over a sandy, shifting bed generally confined to a width of 150 ft by banks that do not erode rapidly. In September or October 1950, bank caving constricted about 100 ft of channel to a width of about 30 ft. This report gives information that was obtained on the quantity, the distribution in the cross sections, and the particle sizes of the fluvial sediments at the constriction, at nearby sections, and about 6 mi downstream at the gaging station near Sparks, Nebraska. The information indicates that half the total quantity of sediment that is transported by the Niobrara River at normal flow moves near the bed and is not measured as suspended sediment with suspended-sediment samplers.

2. (and HEMBREE, C. H., and JOCHENS, E. R.) Chemical quality of water and sedimentation in the Moreau River drainage basin, South Dakota. U S Geol Surv Circ 270, 53 pp, 1953
The Moreau River drainage basin in northwestern South Dakota covers about 5360 sq mi of grassy, rolling plains and is underlain by shales, siltstones, and limestones of Cretaceous and Tertiary age. The chemical quality of the water and the amount and size of sediment transported are directly related to the geology of the area. On the basis of concentration and per cent sodium, the water in the Moreau River at Bixby is classed as permissible to doubtful for irrigation. Per cent sodium, hydrogen-ion concentration, and the ratio of carbonate bicarbonate to calcium plus magnesium, indicate that the water impounded during dry periods is conducive to the formation of black alkali. Suspended sediment transport by the Moreau River is mostly fine material and the specific weight would be about 50 lb per cubic foot soon after deposit.

COLDWELL, A. E. See Brune, G. M., 2

COLE, J. S.

1. (and MATHEWS, O. R.) Soil-moisture studies of some Great Plains soils. I. Field capacity and 'Minimum point' as related to moisture equivalent. Proc Soil Sci Soc Amer, v 18, pp 247-252, 1954
Field observations of moisture under wheat in the Great Plains area are related to the moisture equivalent of the soil as an index of moisture characteristics.

COLE, ROBERT O.

1. The Yukon River breakup of 1952. Weatherwise, v 5, pp 88-89, 1952
A brief description of the breakup of the ice cover on the Yukon River in 1952.

COLLIS, GEORGE N.

1. Calculation of the permeability of porous media from their moisture characteristics. Trans Amer Geophys Union, v 34, pp 589-593, 1953
An interpretation of the moisture characteristics, or the relation of moisture content to hydrostatic pressure deficiency, of a porous medium is outlined giving the pore-size distributions involved in the simultaneous flow of wetting and non-wetting fluid. Describes method of calculating intrinsic permeability to air and water flow at all fluid contents.

COLMAN, E. A. See also Hendrix, T. M., 1; Rowe, P. B., 2

1. Vegetation and watershed management. Ronald Press, New York, 411 pp, 1953
A comprehensive appraisal of vegetation management in relation to water supply, flood control, and soil erosion. Includes a basic summary of the hydrologic processes and discusses role of vegetation in detail. Cites results of many research projects. Extensive bibliography.

COLTON, F. B. See Nichols, H. B., 2

COLVOCORESSES, ALDEN P.

1. Flood prediction in Korea. Mil Eng, v 46, pp 266-270, 1954
Describes general hydrology of the area, prediction methods used, and results obtained.

COMISSOT, N. A.

1. The pH of the rain at Beirut and of the snow on the mountains of Lebanon. Bul Amer Met Soc, v 32, pp 24-26, 1951
Electrical measurements of pH values are reported.

COMMONS, GLENN G. See Hopkins, C. D., Jr., 1; Jones, V. H., 3

CONANT, FRANCIS P.

1. Will the Sahara bloom again? Nat Hist, v 63, pp 392-401, 1954
Describes ancient irrigation systems and possibility of reestablishing extensive irrigation.

CONNOR, J. G. See Lohr, E. W., 7

CONSERVATION FOUNDATION

1. Soil erosion survey of Latin America. J Soil Water Cons, v 9, pp 158-168, 1954
Presents erosion map of Mexico, Latin America, and the Caribbean islands with discussion by countries.
2. Soil erosion survey of Latin America. Part II, South America. J Soil Water Cons, v 9, pp 214-229, 1954
Presents an erosion map of South America and brief discussion by countries.
3. Soil erosion survey of Latin America. Part III, Agents of Erosion. J Soil Water Cons, v 9, pp 275-280, 1954
A general discussion of the causes and types of erosion.

CONWELL, CLELAND M.

1. Application of the electrical resistivity method to delineation of areas of seepage along a canal, Wyoming Canal-Riverton Project. U S Bur Recl Geol Rep 114, 10 pp, 1951

COOK, ALBERT W.

1. (and TOPIL, A. G.) Some examples of chinooks east of the mountains in Colorado. Bul Amer Met Soc, v 33, pp 42-47, 1952

A study of the mechanics of chinook occurrence. Complete data on one case are presented with some data on several other cases.

2. Snowfall at Denver. Weatherwise, v 5, pp 104-105, 1952
A brief climatological description of the Denver area with emphasis on snowfall. Table of snowfall frequency and discussion of the meteorology of the two heaviest falls.

COOK, HOWARD L.

1. (and PARSONS, DONALD A.) Characteristics of tipping-bucket devices. Trans Amer Geophys Union, v 34, pp 85-94, 1953
Presents the result of tests on the behavior of a tipping-bucket gage for use in flow measurements. This instrument is unsuitable for general use in the measurement of soil and water runoff from experimental areas.

COOKE, C. WYTHE

1. (and MARTIN, ROBERT O. R., and MEYER, GERALD) Geology and water resources of Prince Georges County. Md Dept Geol Mines Water Res Bul 10, 270 pp, 1952
A fairly comprehensive report on surface and ground water in the county.

COOKE, MORRIS LLEWELLYN

1. On water resources. J Soil Water Cons, v 6, pp 10-14, 1951
Stresses the problems of putting scientific knowledge to work.

COOPER, A. J. See Kohler, M. A., 2

COOPER, H. H., JR. See also Stringfield, V. T., 1, 3

1. (and KENNER, W. E.) Central and northern Florida. Physical and Economic Basis of Natural Resources, v 4, pp 147-161, U S House Rep, 1953
A general discussion of the hydrology of northern Florida. Main emphasis on ground-water conditions but some discussion of surface water supplies.
2. (and KENNER, W. E., and BROWN, EUGENE) Ground water in central and northern Florida. Fla Geol Surv Rep Inv 10, 37 pp, 1953
A general report on ground-water occurrence in the area.

CORDUKES, R. E.

1. (and TURNER, R. C., RIPLEY, P. O., and ATKINSON, H. J.) Water erosion of soil. Sci Agr, v 31, pp 152-161, 1951
Reports results of field studies on Rideau clay soil near Ottawa. Rainfall intensity was found to be the major factor determining erosion and cover crops were effective in reducing erosion.

COREY, WALTER C.

1. Comprehensive water resources and conservation planning. Mil Eng, v 46, pp 419-423, 1954
A general review of Federal policy. Traces historical development from 1785 and describes present planning organization. Discussion by L. W. PRENTISS.

CORFITZEN, WILLIAM E.

1. Economic effects of reservoir sedimentation. Trans Amer Soc Civ Eng, v 116, pp 1109-1119, 1951
The problems of estimating rates of sedimentation and economic effects of reservoir sedimentation are discussed in general terms. Discussion by T. BLENCH and M. MAEVERS.

COSTELLO, R. D.

1. Damping of water waves by vertical circular cylinders. Trans Amer Geophys Union, v 33, pp 513-519, 1952
A discussion of the interference to wave propagation offered by pile structures as determined from model tests.

COTE, DANIEL N. See Smallwood, C., Jr., 1

COTTINGHAM, KENNETH

1. The geologists vocabulary. Sci Mon, v 72, pp 154-163, 1951
A discussion of the origin of terms. Includes terms in glaciology and ground water.

COULTAS, C. LYNN

1. (and McCRACKEN, RALPH J.) Properties of soils of the outwash terraces of Wisconsin age in Iowa. Proc Iowa Acad Sci, v 59, pp 233-247, 1952
Locates areas of occurrence and presents data on geology and physical properties of the upper soils profile.

COUNTRYMAN, C. M. See Rowe, P. B., 3

COURT, ARNOLD

1. Temperature frequencies in the United States. J Met, v 8, pp 367-380, 1951
Frequency of hourly temperatures for January and July at 40 stations are presented and classified into types that are applicable within definite geographic areas.
2. Duration of very hot temperatures. Bul Amer Met Soc, v 33, pp 140-149, 1952
A study of the duration of unusually high temperatures at some desert stations indicate that they are of significant duration and that the daily temperature fluctuation is similar to that on much cooler days at the same station.

3. Wind extremes as design factors. J Franklin Inst, v 256, pp 39-56, 1953
Wind data for the U. S. are analyzed to determine probable magnitude-frequency relations for five-minute wind speeds.

COWLEY, W. R. See Bloodworth, M. E., 1

COX, D. C.

1. Hydrology. Chap 4, Handbook for atoll research. Pac Sci Bd Res Bul 17, 1953
A general discussion of ground-water studies with special attention to salinity problems. Aimed as a guide to investigations on Pacific islands.

COX, MAURICE B.

1. (and DANIEL, HARLEY A., and ELWELL, HARRY M.) Terraces in grassland: A study of terraced and unterraced areas on eroded shallow soil before and after revegetation with native grasses. Okla Agr Exp Sta Bul B-373, Sep 1951
A study of two case areas on abandoned land. Grass cover and forage yield was greater on unterraced land and runoff was greater on the terraced area.
2. Recording the intake of water into the soil. J Soil Water Cons, v 7, pp 79-80, 1952
Describes use of recording rain gage to measure and record rate of infiltration with ring-type infiltrometers.
3. (and DANIEL, H. A., and ELWELL, H. M.) Terraces on grassland. Agr Eng, v 33, pp 294, 296, 1952
Evaluation of terraces in grassland indicate that under some conditions they may be detrimental. Data from Guthrie, Oklahoma.

CRABB, G. A. See also Rowland, E. F., 1, 2, 3; Smith, J. L., 1, 2; Tyson, J., 1

1. Insolation: A primary factor in evaporation from a free water surface in Michigan. Mich State Coll Agr Exp Sta Bul, v 35, 7 pp, Nov 1952
A discussion of a method for correlating the evaporation from a free water surface with the solar energy received at East Lansing, Michigan.
2. The normal pattern of solar radiation at East Lansing, Michigan. Trans Mich Acad Arts, Sci, Let, v 36, pp 173-176, 1952
Compares annual patterns of solar radiation as computed by weekly average radiation income to those determined by 15-day moving averages.
3. (and SMITH, J. L.) Soil temperature comparisons under varying covers. Hwy Res Bd Bul 71, pp 32-80, 1953
Vegetation influences soil directly and also influences many other items which control soil temperature. Temperature variations in soil with depth, cover, and air temperature are discussed.
4. The normal annual pattern of mean daily temperatures at East Lansing, Michigan. Mich State Coll Agr Exp Sta Bul, v 36, 7 pp, May 1954
The method for development of a normal annual pattern is given and this curve compared with the curve for average values. Some examples of application of this curve are given.

CRADDOCK, GEORGE W.

1. Water yield from snow as affected by consumptive water losses. Proc West Snow Conf, pp 70-73, Apr 1954
A general discussion of the relation of cover to water yield of basins with reference to the situation in high-elevation, snow-covered areas.

CRAGWALL, J. S., JR.

1. Floods in Louisiana, magnitude and frequency. La Dept Hwys, 281 pp, Dec 1952
Presents descriptions of gaging stations, data on annual floods and develops regional frequency curves for the state.

CRAMER, HARRISON E.

1. A new approach to the problem of turbulent mixing. J Met, v 10, pp 46-53, 1953
The principle of dynamic entrainment is applied to the problem of turbulent mixing and an equation is derived for the mass exchange between an accelerated fluid and its environment. Several elementary models are described and the results of numerical integration presented.
2. (and RECORD, FRANK A.) The variation with height of the vertical flux of heat and momentum. J Met, v 10, pp 219-226, 1953
Presents the results of direct measurements in the layer from 2 to 12 meters.

CRAMER, OWEN P.

1. A critical look at cloud seeding. J Forestry, v 52, pp 515-517, 1954
Discusses problems of evaluating cloud-seeding projects.

CRAWFORD, C. B. See also Leggett, R. F., 1

1. Soil temperature: A review of published records. Hwy Res Bd Spec Rep 2, pp 17-41, 1952
A survey shows a wealth of available data and, at the same time, numerous gaps which need to be filled by research. Evidence indicates that the moisture content of the soil and data on density or compaction have been omitted from most records, yet are quite important for interpretation.

CRAWFORD, L. C.

1. Surface-water measurement. Ohio State Univ Eng Exp Sta News, v 23, pp 10-11, 1951
   A history of stream gaging in Ohio and a statistical summary of the records.
2. Measurement of suspended sediment loads in Ohio Rivers. Ohio State Univ Eng Exp Sta News, v 23, pp 14-15, 1951
   A brief summary of the sediment sampling program in Ohio.

CRAYA, A.

1. Evaluation of the critical regime in stratified flow. Trans Amer Geophys Union, v 32, pp 891-897, 1951
   Describes the role of density stratification, gravity currents, and the current regime in the study of open channel flow. Shows the application to distribution of winds, ocean currents, and flow in general.

CRIDDLE, WAYNE D. See also Monson, O. W., 2; Wilson, W. T., 1

1. Irrigated crops. Trans Amer Soc Civ Eng, v 117, pp 991-1003, 1952
   A discussion of the factors affecting consumptive use of water by crops and of the range in consumptive use for various crops in the western U. S. Discussion by C. E. HOUSTON.
2. Consumptive use of water and irrigation requirements. J Soil Water Cons, v 8, pp 207-212, 1953
   A review of consumptive use concepts and methods of measurement. Presents nomogram for estimating consumptive use and irrigation requirements.

CRITCHLOW, H. T. See also Guyton, W. F., 1

1. Irrigation water rights in the humid areas. Trans Amer Soc Civ Eng, v 118, pp 509-516, 1953
   A brief survey of water law in the eastern states. Discussion by H. E. GRAY.

CROFT, A. R.

1. Water management of range land: A responsibility of range managers. J Soil Water Cons, v 8, pp 158-162, 1953
   Based on data from the intermountain area describes the effects of poor range management on erosion and runoff.
2. (and MONNINGER, L. V.) Evaporation and other water losses on some aspen forest types in relation to water available for stream flow. Trans Amer Geophys Union, v 34, pp 563-574, 1953
   Reports the effects of altering an aspen forest cover in Utah on evapotranspiration losses, overland flow, erosion, and mantle storage deficits during three successive growing seasons.
3. Report of the committee on evaporation and transpiration, 1952-53. Trans Amer Geophys Union, v 35, pp 164-167, 1954
   Summarizes briefly notes by committee members on various topics as follows: J. R. MATHER, N. BETHLAMY, PAUL KRAMER on evapotranspiration; H. F. BLANEY on evaporation at high altitudes; and R. B. MARSTON and M. D. HOOVER on the effect of vegetation on soil moisture and stream flow.

CROSS, S. B. See Warnick, C. C., 3

CROSS, WILLIAM P. See also Norris, S. E., 1

1. (and SCHROEDER, M. E., and NORRIS, S. E.) Water resources of the Mahoning River, Ohio, with special reference to the Youngstown area. U S Geol Surv Circ 177, 57 pp, 1952
   Shortage of water for industrial use, pollution, high water temperature and floods present problems in the Mahoning River valley. Total water demand estimated more than twice the average flow of the Mahoning River. The report summarizes and documents information that will assist with the development, control, and use of the water resources in the region. The quantity and quality of water available, present water use, future water requirements, and possibilities for expanding the water supply are discussed together with related physiographical features of the basin.

CROSTHWAITE, E. G. See Ferris, J. G., 1

CROW, FRANK R. See Garton, J. E., 4; Ree, W. O., 2, 3

CUEVAS, SERGIO

1. Puerto Rico develops safe water supplies for its citizens. Civ Eng, v 21, pp 25-28, 1951
   The development of a water supply from an area with very little known engineering data. Mention of difficulties of salt-water intrusion and poor water quality, as well as the lack of stream flow and rainfall data.

CULLER, R. C. See also Langbein, W. B., 1

1. (and PETERSON, H. V.) Effect of stock reservoirs on runoff in the Cheyenne River basin above Angostura Dam. U S Geol Surv Circ 223, 33 pp, 1953
   During the last 50 years more than 9300 ponds and small reservoirs have been constructed in the basin. The aggregate capacity of the reservoirs is estimated to average 9.3 ac ft per sq mi. This report describes the method used in estimating the number and capacity of the

reservoirs by use of a five per cent random sample of the basin. Tentative volumes of runoff lost or detained in these reservoirs and the effect of such loss on total runoff from the basin, computed by application of the runoff information available, are shown. Also included are descriptions of the hydrologic characteristics of the basin, geology, climate, and land use.

CUNDIFF, STUART A. See Hall, F., 3

CUNNINGHAM, ROBERT M.

1. Some observations of natural precipitation processes. Bul Amer Met Soc, v 32, pp 334-343, 1951
   Some examples of precipitation occurrence are analyzed on the basis of radar, aircraft, and usual synoptic observations in an attempt to evaluate the important processes in precipitation formation.

CURTISS, HOWARD See Slater, W. R., 1

CUSHMAN, R. V.

1. (and ALLEN, W. B., and PREE, H. L., JR.) Geologic factors affecting the yield of rock wells in southern New England. J N E Water Works Assn, v 67, pp 77-95, 1953
   A general discussion of the occurrence of ground water in New England.

CUSICK, C. F.

1. Use of the thin plate orifice. Instrumentation, v 7, pp 42-43, 1954
   Reviews some of the causes for errors when orifice meters are used for measuring discharge of pipes.

DAILY, JAMES W.

1. (and STEPHAN, SAMUEL C., JR.) Characteristics of the solitary wave. Trans Amer Soc Civ Eng, v 118, pp 575-587, 1953
   Describes the solitary wave and the range of its occurrence and summarizes the theoretically determined characteristics and the status of their experimental verification.

DALE, L. A.

1. (and others) Dowsing: a field experiment in water divining. Amer J Phys Res, v 45, pp 3-16, 1951
   A professor of geology and an engineer estimated depth of water and yield for several sites. Dowsers made corresponding estimates. The scientific estimates were substantially better.

DALRYMPLE, TATE

1. Cooperative U. S. G. S. program improves design of bridge waterway areas. Civ Eng, v 446, p 50, 1951
   Outlines the limitations involved in the use of empirical flood flow formulas. Demonstrates application of published hydrologic data to bridge waterway design.
2. Hydraulics of floods. Proc Forum on flood control, Kans State Coll, pp 24-34, Nov 1951
   A brief review of some of the hydrologic features of the floods of 1951 in Kansas and of the methods of measuring and analyzing stream flow.

DAMON, PAUL E. See also Kuroda, P. K., 1

1. (and KURODA, P. K.) The natural radioactivity of rainfall. Trans Amer Geophys Union, v 35, pp 208-216, 1954
   Reports measurements by the authors and summarizes previous work on the topic. Concludes that natural radioactivity can be used as a tracer for meteorological processes.

DANIEL, D. HOWELL

1. Hydraulic jump in irregular cross-sections computed by time-saving methods. Civ Eng, v 23, p 64, 1953
   Discussion of a method to compute the hydraulic jump in irregular cross sections.

DANIEL, HARLEY A. See also Cox, M. B., 1, 3

1. Recording concentric ring infiltrometer. Agron J, v 44, p 451, 1952
   Weighing rain gage mechanism is utilized to record rate of intake in a ring infiltrometer.

DANIELL, FORREST

1. The International Boundary and Water Commission and the Rio Grande. Survey Mapping, v 14, pp 80-87, 1954
   Discusses the general functions of the commission and describes in some detail the problems of deciding title to 'bancos' or areas enclosed within natural cutoffs of the river.

DAUM, C. R. See Glover, R. E., 1

DAVIDS, H. W.

1. (and LIEBER, MAXIM) Underground water contamination by chromium wastes. Water, Sewage Works, v 98, pp 528-534, 1951
   Describes two cases of contamination occurring in Nassau County, N. Y.

DAVIDSON, D. T. See also Lyon, C. A., 1

1. (and HANDY, R. L.) Property variations in the Peorian loess of southwestern Iowa. Proc Iowa Acad Sci, v 59, pp 248-265, 1952
   Describes area of occurrence and presents data on physical and chemical properties of soils from numerous samples.

2. (and HANDY, R. L., and CHU, T. Y.) Depth studies of the Wisconsin loess in southwestern Iowa. I, Particle-size and in-place density. Proc Iowa Acad Sci, v 60, pp 333-353, 1953
Variation in density, particle-size and moisture with depth up to 150 ft is reported.

DAVIES, R. W.

1. Turbulent diffusion and erosion. J App Phys, v 23, pp 941-948, 1952
Discusses theory and derives new diffusion equation consistent with statistical and force-equation dynamics of sediment transport. Bed load and suspended load cannot be considered independently.

DAVIES, T. V.

1. Gravity waves of finite amplitude. III, Steady, symmetrical, periodic waves in a channel of finite depth. Q J App Math, v 10, pp 57-67, 1952
A mathematical treatment of the solitary wave of translation.

DAVIS, ELLSWORTH I.

1. Development of a flood-control plan for Houston, Tex. Trans Amer Soc Civ Eng, v 118, pp 888-906, 1953
Describes previous plans and a new plan for flood control on the Buffalo Bayou watershed. Includes data on major storms and floods, and describes the development of the standard project flood for the area.

DAVIS, J. R. See Kidder, E. H., 1

DAVIS, LAURENCE E. See Stiff, H. A., Jr., 2

DAVIS, STANLEY N.

1. (and CARLSON, W. A.) Geology and ground-water resources of the Kansas River valley between Lawrence and Topeka, Kansas. Kans Geol Surv Bul 96, pt 5, 76 pp, 1952
Describes geology and ground-water resources of area. Includes chemical analyses, well logs, water-table measurements, and well yields.

DAVIS, STERLING See also Monson, O. W., 2

1. (and EVANS, NORMAN A., and HAZEN, ARLON G.) Estimates of irrigation-water requirements for crops in North Dakota. N D Agr Exp Sta Bul 377, May 1952
Outlines a procedure for estimating crop-water requirements and presents sufficient estimates to serve general needs in the state.

DAVISON, A. H.

1. Methods of general application developed for finding peak flood flow. Civ Eng, v 22, pp 418-420, 1952
A series of charts, diagrams, and formulas which the author uses to develop an empirical method of computing peak flow. The method developed is basically a modification of the Manning Formula.

DAY, MAURICE W. See Dils, R. E., 1

DAY, P. R.

1. Experimental confirmation of hydrometer theory. Soil Sci, v 75, pp 181-186, 1953
The pipette and hydrometer methods are compared on identical suspensions. The reliability of the hydrometer method is found to be dependent on the accuracy with which the particle density can be estimated.
2. (and LUTHIN, J. N.) Pressure distribution in layered soils during continuous water flow. Proc Soil Sci Soc Amer, v 17, pp 87-91, 1953
Subatmospheric pressures have been observed in flooded, freely draining, stratified soil in the laboratory. An ideal case occurs with moderately permeable surface soil and highly permeable substratum. The implications of this with regard to water spreading are discussed.
3. (and LUTHIN, JAMES N.) Sand-model experiments on the distribution of water-pressure under an unlined canal. Proc Soil Sci Soc Amer, v 18, pp 133-136, 1954
A study of seepage by capillary flow (at pressures less than atmospheric). Under certain cases this flow accounts for all of the flux.

DAY, RICHARD L.

1. Weather extremes in Florida during 1950-1951. J Fla Acad Sci, v 16, pp 102-110, 1953
A summary with maps of rainfall and temperature extremes.

DEAN, LAWRENCE A. See Atlas, D., 3

DEAN, W. W. See also Nelson, M. W., 2

1. (and FROST, W. T., and KUEHL, D. W.) Effect upon seasonal runoff forecasts of measurement errors in basic data. Proc West Snow Conf, pp 90-94, Apr 1954
Water supply forecasting relationship for Boise River is investigated to determine the effect of errors of various amounts in various factors on the final results. Discussion by F. A. STRAUSS.

DEARDUFF, R. F. See Watts, G. M., 5

DEBENHAM, FRANK
1. The ice islands of the Arctic: A hypothesis. Geog Rev, v 44, pp 495-507, 1954.
Presents an hypothesis on the formation of ice islands.

DE BOODT, M. F. See Swartzendruber, D., 3

DECKER, G. J.
1. Application of the soil-moisture characteristic curve. Agr Eng, v 34, pp 96-97, 102, 1953
Describes methods of determining the curve of moisture content vs moisture tension for soils and some of the possible information which can be obtained from such curves concerning soil structure and water holding characteristics.

DECKER, WAYNE L.
1. Hail-damage frequency distributions for Iowa, and a method of evaluating the probability of a specified amount of hail damage. Trans Amer Geophys Union, v 33, pp 204-210, 1952
A method is described for defining the frequency distribution of hail damage to agricultural crops. These frequency distributions can be used as a means of evaluating the nature of the hail hazard in various geographic areas. It is also possible to use the frequency distribution for estimating the probability of specified amounts of hail damage.

DE LA SAYETTE, E. R. See Haas, R. H., 1

DELAVAULT, R. E. See Warren, H. V., 1

DELLEUR, J. W. See Owen, W. M., 2

DE LUCCIA, E. ROBERT
1. (and WEAVER, FRANK L.) Status of hydroelectric power development in the United States. Physical and Economic Basis of Natural Resources, v 2, pp 67-74, U S House Rep, 1952
A summary of existing and potential hydroelectric power development in the United States.

DEMING, J. M. See Low, P. F., 1

DENNIS, P. E. See Aranow, Saul, 1, 2

DENTON, ROBERT L.
1. A thermocouple voltage amplifier for temperature recording. Bul Amer Met Soc, v 32, pp 214-216, 1951
A sensitive, photo-tube actuated amplifier for use with a milliameter for recording temperature from thermocouples is described. The unit is battery powered and suitable for remote sites.

DEVEREAUX, R. E.
1. (and STEELE, FORREST, and TURNER, WALTER L., JR.) Permeability and land classification for soil and water conservation. Proc Soil Sci Soc Amer, v 15, pp 420-423, 1950
Reports work in Virginia in an effort to learn more about permeability of different soil mapping units. Specific examples of applications to field problems illustrate the importance of information on permeability.

DE ZEEUW, J. W. See Kirkham, D., 4

DIAMOND, MARVIN
1. Evaporation or melt of snow cover. U S Corps Eng Snow Ice and Permafrost Res Estab Res Paper 6, 6 pp, 1953
A computation of the relative rates of melting and evaporation under conditions favoring evaporation.

DIEBOLD, C. H.
1. Soil layers causing runoff from hard-land wheat fields in Colorado and New Mexico. J Soil Water Cons, v 6, pp 202-209, 1951
A report of infiltrometer tests showing serious runoff problem on slopes of two per cent or more. Surface crusts and tillage pans at depths of three to eight inches increased runoff substantially.
2. Effect of tillage practices upon intake rates, runoff and soil losses of dry-farm land soils. Proc Soil Sci Soc Amer, v 18, pp 88-91, 1954
Reports tests on numerous soils in the Southwest. The tillage pans observed interfered seriously with infiltration and increased runoff and erosion. Chiseling of tillage pans was beneficial.
3. Permeability and intake rates of medium textured soils in relation to silt content and degree of compaction. Proc Soil Sci Soc Amer, v 18, pp 339-343, 1954
Permeability of 215 soils in the southwest is related to silt content. A basis for estimating permeability is suggested.

DIEMER, ROBERT B.
1. Southern California's domestic water-supply problem. West City, v 30, pp 35-73, 1954
A review of water requirements and water sources.

DIGHTMAN, R. A.
1. (and BEATTY, M. E.) Recent Montana glacier trends. Proc Mont Acad Sci, v 12, pp 127-137, 1952
A brief summary of glacier trends as compared with climatic trends in Montana.

2. Comparison of the evaporation rate from Weather Bureau Class A and USDA Plant Industry Evaporation Pans. Proc Mont Acad Sci, v 13. pp 49-51, 1953
Presents data from Fort Assiniboine, Montana.

DILS, ROBERT E.

1. (and DAY, MAURICE W.) The effects of precipitation and temperature upon the radial growth of red pine. Amer Mid Nat, v 48, 5 pp, Nov 1952
Summaries and curves of the radial growth of Red Pine in relationship to the temperature and precipitation for the years 1948-1950 are given and reveal a definite relationship.
2. Influence of forest cutting and mountain farming on some vegetation, surface soil, and surface runoff characteristics. U S For Serv S E For Exp Sta Paper 24, 55 pp, June 1953
A report including charts and graphs of the biologic, edaphic and runoff changes as a result of land use change from forestry to farming of some of the steep slopes in the southern Appalachians.
3. Status of college instruction in forest influences and watershed management. J Forestry, v 52, 3 pp, Oct 1954
A summary of the formal courses in forest influences and related subjects, such as forest hydrology, offered by colleges and universities which offer instruction in forestry.

DINGMAN, R. J.

1. (and MEYER, GERALD, and MARTIN, ROBERT O. R.) The water resources of Howard and Montgomery Counties. Md Dept Geol Mines Water Res Bul 14, 260 pp, 1954
A comprehensive summary of the surface and ground-water conditions in the two counties.

DISKANT, EUGENE M.

1. Photometric methods in water analysis. Amer Water Works Assn J, v 44, pp 625-647, 1952
The use of photometric techniques for visual colorimetry, filter photometry, and spectrophotometry in the water works field is discussed at length.

DITTBRENNER, E. E. See Lane, E. W., 5

DIXON, J. W.

1. Social and economic implications of irrigation development. Civ Eng, v 22, pp 105-106, 1952
Discusses the larger implications of irrigation development, the philosophy of federal laws, and the relation of irrigation to the social and economic problems that modern large-scale projects and multiple-purpose works have created.

DODDIAH, D.

1. (and ALBERTSON, M. L., and THOMAS, R. K.) Scour from jets. Proc Minn Int Hydr Convention, pp 161-169, Sep 1953
Results of model studies of scour beneath a vertical cylindrical jet and below a free overfall are reported. Equations involving the inter-relationship of discharge, depth of tail water, depth of fall, depth of scour, and size distribution of sediment are presented.

DOLAN, J. J. See Einstein, H. A., 3

DOLL, H. G.

1. The Laterolog: a new resistivity logging method with electrodes using an automatic focussing system. Trans Amer Inst Min Metal Eng, v 192, pp 302-316, 1951
Describes equipment and illustrates its utility by examples. Especially adapted to use on thin beds.
2. The Microlaterolog. Trans Amer Inst Min Metal Eng, v 98, pp 17-32, 1953
A description of the instrument and its application.

DOMINITZ, JACK See Benton, G. S., 1, 2

DONEEN, L. D. See also Hastings, W. W., 1

1. (and HENDERSON, D. W.) Compaction of irrigated soils by tractors. Agr Eng, v 34, pp 94-95, 102, 1953
Reports results of tests and field measurements on the reduction of infiltration capacity of irrigated soils as a result of compaction from tractors and other heavy vehicles.
2. Salination of soil by salts in the irrigation water. Trans Amer Geophys Union, v 35, pp 943-950, 1954
Suggest method for computing the potential salinity of water as 'effective salinity.' Conversion factors for the computation and new standards for irrigation water based on effective salinity are suggested. Discussion by B. F. BEACHER and W. W. HASTINGS.

DONNAN, W. W. See also Blaney, H. F., 5

1. (and BRADSHAW, GEORGE B.) Drainage investigation methods for irrigated areas in western United States. U S Dept Agr Tech Bul 1065, 45 pp, Sep 1952
A discussion of investigational methods including methods of soil sampling, field and laboratory permeability determination, and water table location with piezometers.

DONNELLY, CHARLES A. See also Blaisdell, F. W., 1

1. (and BLAISDELL, F. W.) Straight drop spillway stilling basin. St. Anthony Falls Hyd Lab Tech Paper 15, ser B, 35 pp, Nov 1954

Describes generalized design rules for a straight drop spillway stilling basin. Basin can be used for a wide range of flow, head, crest length, height of drop, and tailwater level.

DORSEY, N. ERNEST

1. Spontaneous freezing of water. Sci Mon, v 78, pp 283-288, 1954
   A summary of experimental research on the phenomenon of freezing.

DORTIGNAC, EDWARD J. See also Turner, G. T., 1

1. Design and operation of Rocky Mountain infiltrometer. Rocky Mt For Range Exp Sta Paper 5, 68 pp, Feb 1951
   The details of the infiltrometer and accessory equipment and the operation techniques are described. Measurement of vegetation density and sediment are described. Contains detailed specifications and drawings.

DOSEN, R. C. See Wilde, S. A., 2

DOTSON, B. J.

1. (and SLOBOD, R. L., McCREERY, P. N., and SPURLOCK, JAMES W.) Porosity-measurement comparison by five laboratories. Trans Amer Inst Min Metal Eng, v 192, pp 341-346, 1951
   Duplicate measurements on several samples of rock are compared.

DOVER, J. B. See Walling, I. W., 1

DOVER, T. B. See Lohr, E. W., 3, 4

DOWNING, C. G. E. See Ferguson, F. L., 1

DOYEL, W. W. See George, W. O., 2; Winslow, A. G., 2, 3

DRAEMEL, M. F.

1. Protection and conservation of the water resources of Pennsylvania. J Franklin Inst, v 251, pp 323-332, 1951
   A general review of the water problem with emphasis on stream pollution by sewage and mine wastes.

DREHER, F. C. See Drescher, W. J., 2

DREIBELBIS, F. R. See also Harrold, L. L., 2, 6; Youker, R. E., 1

1. A summary of data on soil and air temperatures at the North Appalachian Experimental Watershed, Coshocton, Ohio. Proc Soil Sci Soc Amer, v. 15, pp 394-399, 1950
   Maximum and minimum soil and air temperatures for a seven-year period are presented. Soil temperatures are reported to depth of 24 inches. The effect of various types of vegetal cover are illustrated.
2. (and NAIR, M. S.) Comparison of effects of discing and plowing on some properties of soil. Agron J, v 43, pp 25-33, 1951
   The effects of surface treatment on soil moisture, porosity, weight, aggregation, runoff, and erosion are evaluated at Coshocton, Ohio.
3. Some relationships of precipitation and soil loss on small agricultural watersheds. J Soil Water Cons, v 7, pp 113-116, 127, 1952
   Little correlation is evident between monthly or annual precipitation and erosion but substantial correlation is found when amounts of rainfall occurring above specified rates are used. Comparative data at Coshocton show the reduction in erosion achieved by conservation practices.
4. (and BINDER, W. H.) A study of some characteristics of Keene silt loam and Muskingum silt loam. J Soil Water Cons, v 8, pp 261-266, 1953
   A description of the soil properties and their influence on surface runoff.
5. Soil type and land use effects on percolation of soil water through monolith lysimeters. Proc Soil Sci Soc Amer, v 18, pp 358-362, 1954
   A summary of data from Coshocton, Ohio, over a 15-yr period.

DRESCHER, W. J. See also Foley, F. G., 1

1. Ground-water conditions in artesian aquifers in Brown County, Wisconsin. U S Geol Surv Water-Supply Paper 1190, 49 pp, 1953
   The principal water-bearing rocks are thick sandstone units. Ground water is the source of all public and most private and industrial supplies in the county. The report includes data on the use of ground water from 1886 through 1949. Maps of the piezometric surface show the cone of depression around Green Bay where water levels have declined about 400 ft. Data from pumping tests are presented and used to compute probable future declines of water level. The water from the sandstones is a hard calcium-magnesium bicarbonate water. The distribution of chlorides, fluorides, sulfates, and total solids are shown on maps.
2. (and DREHER, F. C., and BROWN, P. N.) Water resources of the Milwaukee area, Wisconsin. U S Geol Surv Circ 247, 42 pp, 1953
   This report contains information on the quantity and quality of water in Milwaukee County and the eastern half of Waukesha County. The public water-supply systems are described and the source and quality of the water is given. A flow-duration curve, a graph showing

maximum period of deficient discharge, and a drought-frequency graph are given for the Milwaukee River at Milwaukee. A flood-frequency graph for the Milwaukee River is also given. The water-bearing properties of the important geologic formations are described. A contour map shows bedrock elevations. Water levels in wells are given for the period 1946-50. Tables and graphs show the chemical quality and temperature of water from ground and surface sources. Laws affecting the use of water in the area are described briefly and the water resources potential of the area is evaluated.

DRESSLER, ROBERT F.

1. Hydraulic resistance effect upon the dam-break functions. J Res, v 49, pp 217-225, 1952
   A theoretical analysis of the movement of a solitary wave with consideration of frictional resistance.

DRYDEN, HUGH L.

1. Fluid mechanics as it relates to the tasks of civil engineering. Civ Eng, v 22, p 329, 1952
   Relates the importance of fluid mechanics to problems of the hydraulic engineer and the applications that have been made to hydraulic structures and allied fields of hydraulics.

DUKE, WILLIAM M. See Broadfoot, W. M., 1

DULEY, F. L. See also Fischback, P. E., 1

1. Keeping the dust under cover. J Soil Water Cons, v 6, pp 34-37, 1951
   Outlines the need for extensive erosion-control measures to avoid a future dust bowl and stresses the need for more research on control measures.

DUNAVEN, R. R. See Thom, E. M., 1

DUNBAR, M. J.

1. A note on climatic change in the sea. Arctic, v 7, pp 27-30, 1954
   Some evidence of recent climatic change is presented on basis of oceanic conditions of North Atlantic.

DUNBAR, MOIRA See Helk, J. V., 1

DUNFORD, E. G.

1. Surface runoff and erosion from pine grasslands of the Colorado Front Range. J Forestry, v 52, pp 923-927, 1954
   Reports results of plot tests aimed at demonstrating effect of forest disturbance and grazing on runoff and erosion.

DUNIPACE, DONALD W.

1. New Sun-angle calculator simplifies solar engineering. Heat, Piping, Air Cond, v 23, pp 121-123, 1951
   Describes charts for computing Sun angle and nomograph for estimating received radiation. Designed mainly for architectural use.

DUNLAP, H. F.

1. (and HAWTHORNE, R. R.) The calculation of water resistivities from chemical analysis. Trans Amer Inst Min Metal Eng, v 192, pp 373-375, 1951
   Describes method of computing water resistivity on basis of salinity expressed in equivalent sodium chloride.

DURUM, W. H. See also Babcock, H. M., 1, 2, 3; Nace, R. L., 1; Prior, C. H., 1; Rapp, J. R., 2, 3; Searcy, J. K., 2; Visher, F. N., 1, 2

1. Relationship of the mineral constituents in solution to stream flow, Saline River near Russell, Kansas. Trans Amer Geophys Union, v 34, pp 435-442, 1953
   This paper discusses studies made on the salinity relationships of ground-water inflow in the Saline River basin, Kansas, during the period 1945-1949.

DURY, G. H.

1. Contribution to the general theory of meandering valleys. Amer J Sci, v 252, pp 193-224, 1954
   Suggests that much higher rainfall during Pleistocene times produced flood flows necessary to the meandering of large valleys.

DYKES, J. C.

1. The small watershed. Agr Eng, v 55, pp 783-785, 1954
   A review and interpretation of the Hope-Aitken Act relating to flood control on small watersheds.

EAKIN, T. E. See also Loeltz, O. J., 1

1. (and MAXEY, G. B., ROBINSON, T. W., FREDERICKS, J. C., and LOELTZ, O. E.) Contributions to the geology of eastern Nevada. Nev Water Res Bul 12, 171 pp, 1951
   A survey of ground-water availability in Goshute, Antelope, Ruby, Clover, Independence, Railroad, Hot Creeks, Reveille, Kawich, and Penoyer Valleys, and in the vicinity of Elko.

EARLS, K. D. See Bissell, L. M., 1

ECKHART, CARL See Isaacs, J. D., 1

EDMINSTER, T. W.

1. (and TURNER, W. L., LILLARD, J. H., and STEELE, FORREST) Tests of small core samplers for permeability determinations. Proc Soil Sci Soc Amer, v 15, pp 417-420, 1950
   Tests of two sizes of cores and two methods of sampling indicate substantial differences in the estimated permeability.

EDMONSTON, A. D.

1. California proposes diversion of Feather River water to Southern California. Civ Eng, v 23, pp 41-43, 1953
   Discussion of the proposal to divert water to serve the East Bay, Santa Barbara, and the San Joaquin Valley.

EDMUNDSON, WALTER F.

1. Oil companies find answers to salt-water problem. Soil Cons, v 16, pp 209-210, 1951
   Discusses how some of the Texas oil field operators now give the salt water pumped from the wells a preliminary treatment and return it to the underground reservoir by injection wells instead of discharging it into the streams.

EDSON, CHARLES GRANT

1. Simple curve developed for critical depth in trapezoidal channels. Civ Eng, v 46, p 49, 1951
   Gives mathematical derivation and numerical examples to illustrate use of curve for critical depth.
2. Parameters for relating unit hydrographs to watershed characteristics. Trans Amer Geophys Union, v 32, pp 591-596, 1951
   Use of peak discharge and time to peak to derive empirical relations for synthetic unit hydrographs.
3. Two nomographs developed for trapezoidal channels. Civ Eng, v 22, pp 50-51, 1952
   Shows a simplified method for computation of flow in trapezoidal channels by means of nomographs. The nomographs are given for determination of critical depth, and depth in uniform flow.
4. The hydraulic drop as a function of velocity distribution. Civ Eng, v 24, pp 64-65, 1954
   A mathematical analysis of the ratio of critical depth to depth at a free outfall from an open channel.

EDWARDS, RICHARD A.

1. Water conservation problems in Florida. J Fla Acad Sci, v 16, pp 73-75, 1953
   A survey of ground-water problems.

EICHMEIER, A. H. See Baten, W. D., 1

EINSTEIN, HANS ALBERT See also Ladue, W., 1

1. (and BANKS, R. P.) Linearity of friction in open channels. Int Assn Sci Hydrol, 1951 Gen Assembly, v 3, pp 488-498, 1951
   Indicates the conditions under which the effects of differing frictional devices may be superimposed.
2. Bed-load function for sediment transportation in open channel flows. Ill Water Surv Res Bul 41, pp 43-49, 1952
   A general, non-mathematical discussion of bed-load transport. Discussion by V. A. VANONI and R. W. POWELL.
3. (and BARBAROSSA, NICHOLAS L.) River channel roughness. Trans Amer Soc Civ Eng, v 117, pp 1121-1146, 1952
   Existing theory on friction in open channels is reviewed and a rational derivation of formulas to fix the stage-discharge relation is presented. An interdependent treatment of the hydraulic and sedimentary characteristics of the stream is used. A proposed rational method of evaluating friction losses is discussed. Discussion by T. BLENCH, J. J. DOLAN, VEN TE CHOW, R. B. BANKS, L. BAJORUNAS, and C. INGLIS.
4. (and LI, HUON) Vortex motion in viscous fluids studied in apparatus consisting of concentric glass cylinders. Civ Eng, v 23, p 605, 1953
   Description of the testing instrument used to study single vortex in a real fluid. Depth of vortex is less for low discharge and low rotational speed than for high discharge and speed. Flow distribution depends on initial flow condition, internal friction, and exit condition. Discussion of a possible way of eliminating vortexes near pump intakes.
5. (and CHIEN, NING) Can the rate of wash load be predicted from the bed-load function? Trans Amer Geophys Union, v 34, pp 876-882, 1953
   Review concept of bed load and wash load and attempt to predict rate of wash load from composition of bed material, flow, and geometry of channel.
6. (and CHIEN, NING) Transport of sediment mixtures with large ranges of grain sizes. U S Corps Eng Missouri River Div, Sediment ser 2, 49 pp, 1953
   A report of laboratory tests at the University of California with particular reference to wash and bed loads.

7. (and HARDER, J. A.) Velocity distribution and the boundary layer at channel bends. Trans Amer Geophys Union, v 35, pp 114-120, 1954
   Analysis of the accelerating forces within a wide shallow channel bend shows that the existence of higher velocities near the outside bank requires in addition to a helical flow pattern, that the outward flowing upper layers be unaffected by bed shear. Experimental measurements confirm this.
8. (and SIBUL, O.) Open channel flow of water-air mixtures. Trans Amer Geophys Union, v 35, pp 235-242, 1954
   The flow of an air-water mixture is compared by analogy with a sediment suspension. Variation of flow-velocity and flow-depth as function of air concentration is computed theoretically and checked experimentally.
9. (and CHIEN, NING) Second approximation to the solution of the suspended load theory. U S Corps Eng Missouri River Div Sediment ser 3, 30 pp, 1954
   Existing theory is reviewed and the assumptions involved are noted. Possible improvements on these assumptions which lead to results comparable to those observed in river measurements are discussed in detail.
10. (and CHIEN, NING) Similarity of distorted river models with movable bed. Proc Amer Soc Civ Eng sep 566, 21 pp, Dec 1954
    The similarity conditions for distorted movable bed models are derived from theoretical empirical equations which have been found to govern sediment transport. A complete numerical example demonstrates the application.

EISENLOHR, WILLIAM S., JR.

1. (and STEWART, J. E.) Floods of July 18, 1942, in north-central Pennsylvania. U S Geol Surv Water-Supply Paper 1134-B, pp 59-158, 1952
   The floods followed rains that amounted to as much as 35 inches during a storm that for the most part lasted less than 12 hr. The report contains an isohyetal map of the storm and a list of nearly 500 observations of rainfall and tables of gage heights and discharges at stream-gaging stations in the flood area. Peak discharges are given for 47 other points on streams in the flood area. Descriptions given of previous storms and floods show that similar events have occurred in other areas in the past.
2. Snow survey data in the Water Resources Review. Proc West Snow Conf, pp 7-8, Apr 1953
   A brief summary of the coverage given in the Water Resources Review published by the U. S. Geological Survey.

EISENSTADT, RAYMOND See Hadley, W. A., 1, 2

EKERN, PAUL C.

1. Raindrop impact as the force initiating soil erosion. Proc Soil Sci Soc Amer, v 15, pp 7-10, 1950
   Report of tests to determine the significance of total impact energy, magnitude of unit impact, particle size, and soil slope, on erosion by rainfall impact.
2. Problems of raindrop impact erosion. Agr Eng, v 34, pp 23-25, 28, 1953
   A broad summary of the rain-drop erosion process. Results of work by various investigators on drop size, terminal velocity, and the effect of these factors on erosion are summarized. Instrumental and experimental techniques are discussed briefly.
3. Rainfall intensity as a measure of storm erosivity. Proc Soil Sci Soc Amer, v 18, pp 212-216, 1954
   Various data are analyzed to show that erosivity is a function of slope and rain intensity to its 1.5 power.

ELDER, REX A. See Churchill, M. A., 2

ELDER, WILLIAM R.

1. Factors affecting rate of water intake in Texas Blacklands. J Soil Water Cons, v 6, pp 195-197, 199, 1951
   Legumes in rotation with cotton and other crops are increasing water intake of the Blackland soils.

ELDRIDGE, E. F. See Neale, A. T., 1

ELEY, GAIL W. See also Lloyd, C. H., 1

1. (and LLOYD, CHARLES H.) Graphic solution of probable soil loss formula. U S Soil Cons Serv Misc Pub 204, Jan 1952
   Presents a graphical relation involving a soil erodibility factor, slope, slope length, rainfall intensity, and crop to estimate annual soil loss.

ELIASEN, ROLF

1. Reclamation of saline waters by electrodialysis shows promise. Civ Eng, v 24, pp 44-47, 1954
   Describes the process which uses electrical forces to move cations and anions through semi-permeable ion-selective membranes.

ELLIOT, LOUIS See Salzman, M. G., 1

ELLIOT, ROBERT D. See also Orville, H. T., 2

1. Methods of evaluation in cloud seeding. Proc West Snow Conf, pp 73-79, Apr 1952
   A general review of evaluation problems with examples from projects conducted by the author's company.
2. (and STRICKLER, ROBERT F.) Analysis of a group of cloud-seeding projects in Pacific slope watershed areas. Bul Amer Met Soc, v 35, pp 171-179, 1954
   Seeding projects in the Bitterroot Basin, Idaho, San Joaquin Basin, California, and Cascade Mt. of Oregon are evaluated on the basis of total annual precipitation or snow pack.

ELLIS, CECIL B.

1. Fresh water from the ocean. Ronald Press, New York, 217 pp, 1954
   A comprehensive discussion of methods of desalting water and of the physical and technical problems which would be encountered with our present knowledge. Power requirements of the most promising methods are estimated.

ELLISON, LINCOLN

1. Sub-alpine vegetation of the Wasatch Plateau, Utah. Ecol Mono, v 24, pp 89-184, 1954
   A comprehensive survey of vegetation as related to grazing and erosion. Includes discussion of climate, soil, geology, and erosion.

ELLISON, W. D.

1. Fertility erosion. Land, v 9, pp 487-491, 1950-51
   Points out possibility of loss of plant nutrients without appreciable net soil loss.
2. How to curb erosion. U S Navy Bur Docks Tech Digest 17, Nav-docks p-23, pp 27-28, May 1951
   A brief survey of the causes of erosion and the methods of control.

ELWELL, HARRY M. See Cox, M. B., 1, 3

EMERY, K. O.

1. Bathymetric chart of Lake Michigan. Minn Univ Eng Exp Sta Tech Paper 77, 11 pp, Apr 1951
   Presents maps showing bottom contours, shoreline geology, and bottom sediments of the lake.

EMMART, BARNEY D.

1. All-purpose dowsing. Atlantic Mon, v 190, pp 90-92, 1952
   A semi-popular article on dowsing with mention of the serious attention given to the subject by Europeans.

EMMONS, GARDNER

1. (and HAURWITZ, BERNHARD, WADSWORTH, GEORGE P., and WILLETT, HURD C.) Discussion of Dr. Langmuir's article on precipitation control. Sci, v 113, pp 191-192, Feb 16, 1951
   A discussion of paper by LANGMUIR [Sci, v 112, no 35, 1950] on cloud seeding in New Mexico. The writers question the conclusions of the original paper.

ENGER, ISADORE See Brier, G. W., 1

ENGLEHORN, C. L. See also Chepil, W. S., 2, 5; Zingg, A. W., 4

1. (and ZINGG, A. W., and WOODRUFF, N. P.) The effects of plant residue cover and clod structure on soil losses by wind. Proc Soil Sci Soc Amer, v 16, pp 29-33, 1952
   Test are made at several points in western Kansas using portable wind tunnel and the results are analyzed statistically and expressed as regression equations.

ENGSTROM, LE ROY

1. TVA and the River. Tenn Valley Auth, Nov 1951
   A concise presentation of the operation of the TVA multi-purpose reservoir system.

ERICKSON, C. E. See Paulhus, J. L. H., 2

ERICKSON, H. D.

1. Artesian conditions in east-central South Dakota. S Dak Geol Surv Rep Inv 74, 1954

ERIE, LEONARD

1. Consumptive use and irrigation water requirements of crops in South Dakota. U S Soil Cons Serv, Mar 1952
   A summary of consumptive use, effective precipitation, and irrigation requirements for selected crops.

ESTOQUE, MARIANO A. See Benton, G. S., 1

EVANKO, A. B.

1. A tin-can infiltrometer with improvised baffle. Mont For Range Exp Sta Res Note 70, Feb 1950
   Describes infiltrometer made from tin can.

EVANS, D. D. See also Johnson, H. P., 1

1. (and KIRKHAM, DON, and FREVERT, R. K.) Infiltration and permeability in soil overlying an impermeable layer. Soil Sci Soc Amer Proc, v 15, pp 50-54, 1951

Description of a preliminary experiment designed to furnish information pertinent to the establishment of a controlled drainage experiment. Presents some information of general value on the nature of the infiltration process for soil overlying an impermeable layer.

EVANS, NORMAN A. See also Davis, S., 1

1. (and JENSEN, M. E.) Erosion under furrow irrigation. N D Agr Exp Sta Bimonthly Bul, v 15, pp 7-13, 1952
   Erosion in irrigation furrows on slopes in excess of two per cent can be serious and slopes should be maintained at one per cent or less if possible. If steeps slopes are unavoidable control of the stream size can minimize erosion.

EVANS, O. F.

1. Archaeological evidence of recent filling in the present channel of the Washita River. Proc Okla Acad Sci, v 32, pp 121-122, 1951
   Occurrence of ancient settlements on land now frequently flooded suggests substantial channel filling.

EVANS, PAUL W.

1. Theory of probability and size distribution of soil aggregates. Soil Sci, v 72, pp 245-247, 1951
   A discussion of size distribution in homogeneous substances.

EVANS, THOMAS C. See also Kovner, J. L., 1

1. Problems in rain making. Pub Works, pp 35-36, 75, July 1951
   A discussion of the progress of modern rain-making attempts and a description of the techniques and processes involved.
2. Report on rain making. Rancher Farmer, v 5, p 6, Oct 13, 1951
   A report of the activities in rain making in northern Colorado in 1951.
3. The present status of rain making. Pub Works, v 84, pp 53, 126, Nov 1953
   Brief, non-technical review.

EVERIST, IAN

1. Fluid flow through sieved sand fractions of similar shape. Minn Univ MS thesis, Aug 1952

EWART, GEORGE YUAN

1. (and BAVER, L. D.) Salinity effects on soil moisture-electrical resistance relationships. Proc Soil Sci Soc Amer, v 15, pp 56-63, 1950
   Tests of Bouyoucos plaster blocks indicate that they are reliable with salinities up to 2000 ppm NaCl, while the Colman fibreglas blocks seem to be sensitive to salinities of only 1000 ppm NaCl.
2. The mechanics of field irrigation scheduling utilizing Bouyoucos blocks. Agr Eng, v 32, pp 148-151, 1951
   Discusses reliability of blocks, manufacture of blocks, and installation and interpretation of block data for irrigation of sugar cane in Hawaii.

EWING, BEN B. See Steel, E. W., 2

EXUM, JAMES P.

1. Waterway area for culverts and bridges. Ohio State Univ Exp Sta Bul 145, pp 61-63, Sep 1951
   Discusses the rational method for estimating flood flows.

EZRA, ARTHUR A.

1. A direct step method for computing water-surface profiles. Trans Amer Soc Civ Eng, v 119, pp 453-479, 1954
   Presents a semi-graphical method applying Bernoulli's theorem and including the effect of velocity-head changes. Other losses such as bridge-pier and eddy loss can be included. Method is said to be especially useful when several profiles must be computed for the same channel. Discussion by I. H. STEINBERG, C. A. M. GRAY, B. BUEHLER, and M. M. KANSOH.

FADER, STUART W.

1. An analysis of contour maps of water levels in wells in southwestern Louisiana, 1952 and 1953. La Dept Cons Water Res Pamphlet 1, 7 pp, 1954

FADUM, R. E. See Kashef, A. I., 1

FAGEN, T. D. See Rowland, E. F., 2, 3

FALKOVICH, S. B. See Polubarinova-Kochina, P. Y., 1

FARIS, PHOEBE O'N.

1. Books, booklets, bulletins on soil and water conservation. U S Soil Cons Serv Inf Bul 63, Sep 1951
   A bibliography of literature in the field.

FARNHAM, R. S. See Brown, R., 1

FARNSWORTH, GERALD W. See also Stout, G. E., 2

1. Quantitative radar-rainfall problems. Ill Water Surv Bul 41, pp 235-239, 1952
   A discussion of the work of the Illinois Water Survey in attempting to calibrate radar for rainfall measurement with a theoretical analysis of the probable limits of accuracy of such a calibration.

FEHRENBACHER, J. B. See Stall, J. B., 6
FELD, J. See Cary, A. S., 1
FENNELL, H. H.
1. The dust storms of 1954. Sci Amer, v 191, pp 25-29, 1954
Describes the region in Texas and Kansas and discusses cause and control.
FERGUSON, E. R. See Broadfoot, W. M., 1
FERGUSON, F. L.
1. (and DOWNING, C. G. E.) Farm drainage and drainage acts in Ontario. Agr Eng, v 32, pp 39-40, 1951
A review of extent of farm drainage and laws governing drainage.
FERGUSON, H. F. See Martin, R. O. R., 1
FERRIS, H. JAMES See Moore, W. H., 1, 2
FERRIS, JOHN G.
1. (and BURT, E. M., STRAMEL, G. J., and GROSTHWAITE, E. G.) Ground-water resources of southeastern Oakland County, Michigan. Mich Geol Surv Prog Rep 16, 153 pp, 1954
A discussion of water problems in a heavily populated, highly industrialized area. Contains sections on geography, physiography, geology, hydrology of ground-water, pump tests, intake structures, and ground-water conditions in the principal urban areas.
FETH, J. H.
1. (and YOST, C. B., JR.) A geologic and geophysical reconnaisance of the Doney Park-Black Bill Park area, Arizona, with reference to ground water. U S Geol Surv Circ 233, 11 pp, 1953
The area occupies about 200 sq mi near Flagstaff, Arizona. No permanent surface-water supply is available and attempts to develop adequate ground-water supplies have not been successful. At the time of the investigation only one well in the area was being used. Six localities are considered favorable for drilling test wells. Infiltration galleries dug in Recent cinder dunes might yield water in places where the dunes are underlain by older cinders that have partly weathered. An ancient Indian 'walk-in' well was recognized on the Crisp Ranch. A shaft dug in the center of the well encountered volcanic cinders welded in 'fossil ice.'
FIELD, NEIL C.
1. The Amu Darya: a study in resource geography. Geog Rev, v 44, pp 528-542, 1954
Discusses Soviet plans for developing this river in southeast Russia and Afghanistan for irrigation.
FIREMAN, MILTON See Bodman, G. B., 1; Wadleigh, C. H., 1
FISCHBACH, PAUL E.
1. (and DULEY, F. L.) Intake of water by claypan soils. Proc Soil Sci Soc Amer, v 15, pp 404-408, 1950
Reports tests aimed at determining the effect of the claypan on the movement of water through the soil profiles.
FISHEL, V. C.
1. Ground-water resources of Pawnee Valley, Kansas. Kans Geol Surv Bul 94, 144 pp, Apr 1952
Describes water resources and geology of area in west central Kansas. Extensive field data.
2. (and SEARCY, J. K., and RAINWATER, F. H.) Water resources of the Kansas City area, Missouri and Kansas. U S Geol Surv Circ 273, 52 pp, 1953
Contains information on the quantity and quality of water in a 1330 sq mi area including parts of Clay, Jackson, and Platte Counties, Missouri, and Wyandotte and Johnson Counties, Kansas. Flow-duration curves and curves showing the discharge available without storage are given for the Blue and Little Blue Rivers. A map shows the area inundated during the floods of 1951-52. Flood profiles and flood-stage frequency curves are given for the Missouri and Kansas Rivers. The extent of the alluvium and the thickness of saturated material are shown on maps. The availability and quality of ground water from the alluvium is discussed for each of five industrial districts. The principles of induced infiltration are discussed and the possibilities of greater application are evaluated. The public water supplies are described. Tables and graphs show the chemical quality and the temperature of water from ground and surface sources and from the public supplies. Laws affecting the use of water in the area are described briefly and the water resources potential of the area is evaluated.
FISHER, C. E. See also Burnett, E., 1
1. (and BURNETT, EARL) Conservation and utilization of soil moisture. Tex Agr Exp Sta Bul 767, 40 pp, Aug 1953
FISK, HAROLD N.
1. Loess and quaternary geology of the lower Mississippi Valley. J Geol, v 59, pp 333-356, 1951
Present geology of the alluvial valley is explained.

2. Mississippi River geology in relation to river regime. Trans Amer Soc Civ Eng, v 117, pp 667-689, 1952
   The geologic history of the lower Mississippi River is traced. Possible future trends in the flow pattern of the river are considered in the light of historic changes. Discussion by L. M. ODOM, and S. C. HAPP.
3. (and McFARLAN, E., JR., KOLB, C. R., and WILBERT, L. J., JR.) Sedimentary framework of the modern Mississippi Delta. J Sed Pet, v 24, pp 76-99, 1954
   The present structure of the delta is described and related to historical features. Factors determining the character of the delta deposits are discussed and the rate of growth of the delta is estimated.

FLAXMAN, ELLIOTT M.

1. Sedimentation in Cold Springs Reservoir, Umatilla County, Oregon. U S Soil Cons Serv SCS-TP-117, 26 pp, Oct 1953
   Describes sedimentation survey of a reservoir with a drainage area of 188 sq mi in northern Oregon after 43 yr. Recommendations for erosion control measures are presented. Detailed description of the watershed and land use within it.

FLEMING, RICHARD H.

1. Evaporation from the sea as a source of moisture for rainfall in the United States. Physical and Economic Foundation of Natural Resources, v 2, 410 pp, U S House Rep, 1952
   Discusses the evaporation process, methods of computing evaporation, and presents data on the average annual evaporation from the Pacific and Atlantic oceans.

FLETCHER, H. C. See Veihmeyer, F. J., 2

FLETCHER, JOEL E.

1. (and HARRIS, KARL, PETERSON, H. B., and CHANDLER, V. N.) Piping. Trans Amer Geophys Union, v 35, pp 258-263, 1954
   Describes erosion in which the subsoil is eroded from under the surface layer, and the conditions which bring it about. Discussion by H. V. PETERSON.

FLETCHER, PETER W.

1. Hydraulic function of forest soils in watershed management. J Forestry, v 50, pp 359-362, 1952
   The main function of forest soil is to equalize stream flow. Soil profiles developed under climax forest are ideal for this purpose and also provide substantial permanent retention because of the transpired water.

FLETCHER, ROBERT D.

1. Hydrometerology on the United States. Amer Met Soc, Compendium of Met, pp 1033-1047, 1951
   A broad review of the status of hydrometerology. Discussed are the basic data of hydrometeorology, the physical background, Orographic rainfall, nonorographic rainfall, special hydrometeorological problems, and the future of hydrometeorology.

FLOOK, L. R., JR. See Hill, R. A., 1

FLORIDA STATE BOARD OF CONSERVATION

1. Summary of the central and southern Florida flood control project. Fla Div Water Surv Res Paper 4, 51 pp, Aug 1950
   A statistical summary of proposed and completed projects.
2. St. Johns River basin. Fla Div Water Surv Res Paper 5, 195 pp, Oct 1950
   A summary of stage and discharge records from beginning of record to 1947.
3. Chemical Character of Florida's Waters - 1951. Fla Div Water Surv Res Paper 6, 118 pp, Nov 1951
   A summary of water quality data with discussion.
4. Lake Okeechobee tributaries. Fla Div Water Surv Res Paper 7, 119 pp, May 1952
   A summary of all available stage and discharge data by months through 1949.
5. Information on beach protection in Florida. Fla Div Water Surv Res Paper 8, 41 pp, Oct 1952
   Describes beach erosion problems and corrective measures which have been used.
6. Salt water intrusion in Florida - 1953. Fla Div Water Surv Res Paper 9, 38 pp, May 1953
   The areas of intrusion are identified and the causes discussed. Considerable general data on ground water and geology of Florida. Extensive bibliography.
7. Information and progress on the central and southern Florida Flood Control project. Fla Div Water Surv Res Paper 10, 73 pp, June 1953
   A summary of projects completed. Detail maps given by counties.
8. Summary of observed rainfalls in Florida to December 31, 1952. Fla Div Water Surv Res Paper 11, 334 pp, Aug 1954
   A summary of all available records of monthly and annual precipitation at selected stations. Data are analyzed with respect to frequency of occurrence.

FLUELLEN, J. R.
1. (and GOINES, W. H.) Water resources of Waller County, Texas. Tex Bd Water Eng Bul 5208, 57 pp, Sep 1952

FLUELLEN, T. R., JR. See Winslow, A. G., 1

FOCHT, J. A. See Turnball, W. J., 2

FOFONOFF, N. P.
1. A theoretical example of wind induced circulation in a semi-circular canal. Trans Amer Geophys Union, v 34, pp 725-728, 1953
A theoretical derivation of the streamlines in a cross-section of a canal due to a steady wind on the surface of the canal and a comparison with some models.

FOLEY, F. C.
1. (and WALTON, W. C., and DRESCHER, W. J.) Ground-water conditions in the Milwaukee-Waukesha area, Wisconsin. U S Geol Surv Water-Supply Paper 1229, 96 pp, 1953
The area covers all of Milwaukee County and half of Waukesha County in southeastern Wisconsin. Three major aquifers underlie this area. Records of wells are presented in tabular form. Data on water levels and water use are given and recharge to the aquifers is described. Maps of the piezometric surface show the cones of depression in the area. Geologic cross sections show local regional geologic relationships and profile of piezometric surfaces. Data from pumping tests are presented and used to compute future declines of water levels. The ground water is hard having calcium and magnesium as predominant cations and is relatively high in sulfate content. Thirty-eight chemical analyses of ground water are given.

FONDA, MORRIS E.
1. A new concept of conservation. J Soil Water Cons, v 7, pp 171-173, 1952
Discusses the changes which have taken place with respect to the concepts of erosion control.

FOOSE, RICHARD M.
1. Ground-water behavior in the Hershey Valley, Pennsylvania. Bul Geol Soc Amer, v 64, pp 623-646, 1953
Reports a detailed ground-water study of the valley (near Harrisburg) and of the effect of mine drainage on drying up ground-water supplies.

FORBES, HYDE See Cary, A. S., 1

FORD, ERWIN C.
1. Upstream floodwater damages. J Soil Water Cons, v 8, pp 240-243, 1953
An attempt to evaluate the damages from water and erosion which occur in headwater areas.

FORD, PERRY M.
1. Multiple correlation in forecasting seasonal runoff. U S Bur Recl Eng Mono 2, 38 pp, June 1953
An outline of the methods of multiple correlation as applied to the problem of water-supply forecasting. Detailed instructions for the various steps are provided. Several cases are presented as examples.

FOSKETT, LAURENCE W. See also Foster, N. B., 1
1. (and FOSTER, NORMAN B., THICKSTUN, WILLIAM R., and WOOD, REX C.) Infrared absorption hygrometer. Mon Wea Rev, v 81, pp 267-277, 1953
A recording hygrometer utilizing the absorption of infrared by water as a measuring base is described.

FOSTER, H. ALDEN
1. Flood insurance. Proc Amer Soc Civ Eng sep 483, 35 pp, Aug 1954
Flood frequency and flood damage data are analyzed to determine the feasibility of a practical flood-insurance scheme. It is concluded that flood insurance is not practicable.

FOSTER, HAL
1. Radar and the weather. Sci Amer, v 189, pp 34-38, 1953
A discussion of radar weather observation.

FOSTER, JOHN W.
1. Major aquifers in glacial drift near Mattoon, Illinois. Ill Acad Sci Trans, v 44, pp 85-94, 1951 (reprinted in Ill Geol Surv Circ 179)
2. (and BUHLE, MERLYN B.) An integrated geophysical and geological investigation of aquifers in glacial drift near Champaign-Urbana, Illinois. Econ Geol, v 46, pp 368-397, 1952
A description of electrical resistivity surveys, extensive test drilling, and electric logging of borings near Champaign-Urbana. The investigation yields information on aquifers available for industrial, municipal and domestic ground-water development and reveals the presence of buried sand and gravels whose expected yield exceeds total demand for the foreseeable future.

FOSTER, NORMAN B. See also Foskett, L. W., 1
1. (and FOSKETT, LAURENCE W.) A photoelectric sunshine recorder. Bul Amer Met Soc, v 34, pp 212-215, 1953
Describes the recorder and illustrates type of record obtained.

FOSTER, RICHARD F.
1. (and ROSTENBACH, ROYAL E.) Distribution of radioisotopes in the Columbia River. J Amer Water Works Assn, v 46, pp 633-640, 1954
Summarizes data on radioactivity of river water downstream from the Hanford plant of Atomic Energy Commission with emphasis on its effect on aquatic life.

FOWLER, J. R.
1. An improved bimetallic actinograph. Bul Amer Met Soc, v 34, pp 170-174, 1953
Describes device constructed by Canadian Meteorological Service to supplement Eppley pyrheliometers for field use. Said to be accurate within five per cent.

FOWLER, LLOYD C. See also Hansen, V. E., 2
1. A history of the dams and water supply of western San Diego County. Calif Univ C E thesis, 233 pp, 1953
A comprehensive and well-illustrated report on the water supply, including water developments and dams, in San Diego County, California, from 1602 to the present time.

FOX, CYRIL SANKEY
1. Radioactive isotopes trace underground water. Pub Works, v 83, pp 57-58, 1952
Describes use of isotopes as tracers in investigation in the Libyan desert.
2. Water: A study of its properties, its constitution, its circulation on the Earth, and its utilization by man. Philosophical Library, New York, 148 pp, 1952
A brief, non-technical treatise on water and its uses.

FOX, ROY L.
1. Blizzards of the northern plains. Weatherwise, v 5, pp 123-126, 132, 1952
Describes the meteorological situations which lead to the occurrence of blizzards.

FOXWORTHY, B. L.
1. Ground water in the lower Ahtanum Valley, Washington, and possible effects of increased withdrawal in the area. Wash Div Water Res, 26 pp, Nov 1953
A brief discussion of the geology and hydrology of the Ahtanum Creek Valley, Yakima County, Washington, with special consideration of the possible effect that additional shallow wells might have on the flow of Ahtanum Creek and its tributaries.

FRANCIS, C. J.
1. Drainage in the Red River valley of North Dakota. Agr Eng, v 33, pp 787-788, 790, 1952
A summary report of Soil Conservation Service drainage activities in the area with a review of the criteria of design including drainage coefficient, cross-sections, velocities, etc.

FRANK, BERNARD See Lassen, L., 1; Veihmeyer, F. J., 1

FRANSSILA, MATTI See Suomi, V. E., 1

FREDENHAGEN, V. B.
1. (and DOLL, E. H.) Grassed waterways. Agr Eng, v 35, pp 417-419, 1954
Outlines hydraulic design of grassed waterways and describes construction methods.

FREDERICKS, J. C. See Eakin, T. E., 1

FREE, GEORGE R.
1. Soil movement by raindrops. Agr Eng, v 33, pp 491-494, 496, 1952
Reports result of experiments at Marcellus, New York, in which pans of soil were exposed to natural rain. Direction of slope with respect to direction of storm is found to be important. Data on splash losses from various soils are presented.
2. Compaction as a factor in soil conservation. Proc Soil Sci Soc Amer, v 17, pp 68-70, 1953
Reports results of studies in New York on the influence of compaction resulting from moving equipment on infiltration. Large variations in infiltration rate seem to result from soil compaction.

FREEMAN, J. C., JR. See Bates, C. C., 1

FRENKIEL, F. N.
1. Frequency distributions of velocities in turbulent flow. J Met, v 8, pp 16-320, 1951
Some experimental frequency distributions of wind velocities are presented and the intensity of atmospheric turbulence is evaluated.
2. Application of the statistical theory of turbulence to micrometeorology. J Met, v 9, pp 252-259, 1952
The concept is reviewed and some applications to turbulent flow of gases are presented.

FREVERT, R. K. See Barnes, K. K., 2; Evans, D. D., 1; Johnson, H. P., 1; Van Schilfgaarde, J., 2

FREY, DAVID S.
1. The teaching of limnology in the United States. Sci Mon, v 76, pp 290-296, 1953
A review of college and university teaching in the field with emphasis on the biological aspects.

2. Evidence for the recent enlargement of the 'Bay' lakes of North Carolina. Ecology, v 35, pp 78-88, 1954
Evidence from tree growth around the lake lead to conclusion that shore-line erosion is increasing the lake areas.

FREYBURGER, EDWIN

1. Flood control in the Little Sioux watershed in Iowa. Agr Eng, v 32, pp 152-154, 1951
A general description of the planning of headwater flood control works.

FRIEDRICH, E. ALLAN

1. Factors that determine spring runoff in the northern Rocky Mountains. J Soil Water Cons, v 9, pp 86-89, 1954
A review of snow surveying and recent floods. It is emphasized that many factors in addition to a high snow water equivalent are involved in flood occurrences.

FRIEDRICH, K. O.

1. (and MYERS, D. H.) The existence of solitary waves. Commun App Math, v 7, pp 517-550, 1954
A detailed analysis of conditions controlling solitary waves.

FRITZ, EMANUEL

1. Just what is conservation? J Forestry, v 50, pp 3-5, 1952
A fundamental social viewpoint on conservation is urged.

FRITZ, SIGMUND

1. (and McDONALD, TORRENCE H.) Measurements of absorption of solar radiation by clouds. Bul Amer Met Soc, v 32, pp 205-209, 1951
Radiation entering and leaving both sides of a cloud deck are measured and compared to determine the per cent absorption by the clouds.

FROST, W. T. See Beaumont, R. T., 1; Dean, W. W., 1

FRY, ALBERT S. See also Churchill, M. A., 2

1. Hydrology and the hydraulic laboratory. Ill Water Surv Bul 41, pp 31-42, 1952
Describes the functions the hydraulic laboratory can serve for hydrology, mainly in the design and calibration of special equipment. Discussion by A. T. LENZ, J. I. PERREY, and C. E. KINDSVATER.

FRYE, JOHN C.

1. Importance of Pleistocene studies for ground-water investigations in Kansas. Trans Kans Acad Sci, v 54, pp 226-232, 1951
A substantial part of the ground-water of Kansas comes from Pleistocene formations. Examples of the importance of knowledge of the geology of this era are given.

FUCHS, R. A. See Johnson, J. W., 1

FUHRIMAN, D. K.

1. (and SMITH, R. M.) Irrigation practices in Puerto Rico. Agr Eng, v 32, pp 46, 48, 1951
A brief description of the climate and hydrology of the area and a summary of methods of water application used.
2. (and SMITH, R. M.) Conservation and consumptive use of water with sugar cane under irrigation in the south coastal area of Puerto Rico. Puerto Rico J Agr, v 35, pp 1-47, 1951
Tank and field studies of consumptive use are reported.
3. Measuring water application efficiency of irrigation. Agr Eng, v 32, pp 430-433, 454, 1951
Reviews method of determining irrigation efficiency, emphasizing importance of allowing for consumptive use between soil samplings. Illustrated by examples from Puerto Rico.

FULCHER, MARTIN K.

1. An approach to stream-flow forecasting. Proc West Snow Conf, pp 18-23, 1953
Presents a statistically derived relationship between precipitation, runoff, and other variables for forecasting the spring runoff of the Green River, Utah.

FULK, ROBERT L. See Lundquist, R. E., 1

GAGE, MAXWELL

1. Transport and rounding of large boulders in mountain streams. J Sed Pet, v 23, pp 60-61, 1953
Suggests undermining and momentum as key factors in movement of very large boulders.

GAISER, R. N.

1. Root channels and roots in forest soils. Proc Soil Sci Soc Amer, v 16, pp 62-65, 1952
The frequency, size, and stage of development of channels in soil formed by decay of roots of hardwood trees are reported for a site in southeastern Ohio. Root channels were exposed by trenching and by probing with a flexible wand. At least 4000 channels per acre were found.
2. Readily available water in forest soils. Proc Soil Sci Soc Amer, v 16, pp 334-338, 1952
Presents data on the relationship of soil texture to available water for the Muskingum-Wellton-Zanesville association. Moisture loss data, largely by transpiration, are presented. Evidence suggests that oak forests would transpire more water than is ordinarily available.

GARBER, WILLIAM F. See Stone, R., 2
GARCIA, LUIS de ARMERO
1. (and ROSSI, RENATO) Irrigating and reclaiming desert land in Peru. J Soil Water Cons, v 9, pp 266-274, 1954
Includes brief review of climate and hydrology.
GARDNER, D. R.
1. (and WHITESIDE, E. P.) Zonal soils in the transition region between the podzol and gray-brown podzolic regions in Michigan. Proc Soil Sci Soc Amer, v 16, pp 137-141, 1952
A description of the soils.
GARDNER, WALTER HALE See also Gardner, Willard H., 1; Robins, J. S., 1
1. (and GARDNER, WILLARD H.) Flow of soil moisture in the unsaturated state. Proc Soil Sci Soc Amer, v 15, pp 42-50, 1950
Results of experimental work on a typical soil are presented. Data indicate that a gradient develops due to the dynamic process in addition to gradients as a result of moisture difference.
GARDNER, WILFORD R.
1. Determination of soil moisture by neutron scattering. Iowa State Coll, MS thesis, 1951
A slow-neutron counter placed in the soil adjacent to a source of fast neutrons gives, after calibration, an accurate measure of soil moisture. Design of a suitable apparatus for actual field measurements was not attempted.
2. (and KIRKHAM, DON) Determination of soil moisture by neutron scattering. Soil Sci, v 73, pp 391-401, 1952
Shows theoretically and experimentally that the scattering and slowing of fast neutrons by hydrogen may be used as a basis of estimating soil moisture. Hydrogen is the only material which will slow fast neutrons and almost all hydrogen in soil is in soil water.
GARDNER, WILLARD See also Gardner, Walter H., 1; Gardner, Willard H., 1
1. (and ISRAELSON, O. W.) Drainage of the Cache Valley lowlands. Utah Agr Exp Sta Bul 368, 13 pp, 1954
Much of the present waterlogging results from upward flow of ground water from an underlying artesian basin. Pumping would provide both irrigation water and drainage.
GARDNER, WILLARD HALE See also Gardner, Walter H., 1
1. (and GARDNER, WALTER HALE, and GARDNER, WILLARD) Thermodynamics of soil moisture. Soil Sci, v 72, pp 101-105, 1951
Points out some serious difficulties with certain basic equations in the classical literature of thermodynamics. Discussion by T. SHUNSUKE, v 77, pp 303-312, Apr 1954.
GARGES, P. R.
1. The St. Lawrence Seaway. Mil Eng, v 45, pp 81-86, 1953
Describes proposed construction works, history, and purpose of project.
2. Redevelopment work at Niagara Falls. Mil Eng, v 45, pp 413-417, 1953
Review problems of power development and preservation of the falls. Describes plans and model study.
GARRETT, A. A. See Piper, A. M., 2
GARRETT, RICHARD A.
1. Kansas Weather - 1950. Trans Kans Acad Sci, v 54, pp 1-11, 1951
Presents synopsis of weather by months and brief discussion of the 1950 floods.
2. Kansas flood-producing rains of 1951. Trans Kans Acad Sci, v 54, pp 346-355, 1951
A summary of the precipitation and associated floods of May-July, 1951.
3. Kansas Weather - 1951. Trans Kans Acad Sci, v 55, pp 147-158, 1952
A brief summary of weather and precipitation by months.
4. Kansas Weather - 1952. Trans Kans Acad Sci, v 56, pp 387-394, 1953
Presents monthly precipitation maps and briefly discusses weather by months.
5. Weather of 1953 in Kansas. Trans Kans Acad Sci, v 57, pp 269-277, 1954
Presents maps of monthly precipitation and discusses a major drought, floods, and storms.
GARTON, JAMES E.
1. A graphic method of finding the depth of irrigation water applied. Okla Agr Exp Sta Bul B-368, Apr 1951
Presents a nomograph for computing the depth of applied water from rate and duration of flow.
2. A graphic method of finding the depth of irrigation water applied. Agr Eng, v 32, p 376, 1951
Presents nomogram relating area of field, time, and rate of flow to applied depth in inches.
3. A graphic method of solving sprinkler-irrigation problems. Agr Eng, v 32, p 615, 1951
Relates operating time, application rate, and physical measurements of system in nomogram.
4. (and CROW, FRANK P.) Rapid methods of determining soil moisture. Agr Eng, v 35, pp 486-487, 1954

Describes use of a limit sampler and pycnometer for rapid soil tests and of an infrared oven for rapid drying of soil samples.

GARTSKA, WALTER U. See also Boyer, P. B., 1; Koelzer, V. A., 1

1. Report of the committee on snow (1950-51). Trans Amer Geophys Union, v 34, pp 125-132, 1953
   Report of a survey of current activities dealing with research on snow compiled by members of the committee.

GASKELL, R. E. See Kirkham, D., 1

GAUM, CARL H.

1. Hydrologic and atmospheric studies in Schafer Cave. Nat Spel Soc Bul 14, pp 49-57, 1952
   Reports data on water levels, pressure, temperature, and other factors collected over a two-year period in a cave near Trenton, New Jersey.
2. High plains, or Llano Estacado, Texas-New Mexico. Physical and Economic Basis of Natural Resources, v 4, pp 92-104, U S House Rep, 1953
   Describes the area, the surface- and ground-water resources, the problems of water supply and possibilities of more effective utilization of water resources.

GAY, ROBERT W.

1. Forecasted temperature and snow-melt floods. Proc West Snow Conf, pp 1-9, 1952
   Temperatures after April 1, are predicted by correlation with those observed prior to April 1. These predicted temperatures are then used in mass curves of temperature versus stream flow to predict the spring hydrograph of the Boise River watershed.

GEIGER, R.

1. The climate near the ground. Translated by M. N. STEWART and others from the 2 ed, 1942. Harvard Univ Press, Boston, 482 pp, 1950
   The role of the ground in the heat and moisture balance is discussed and the influence of soil cover on climate is reviewed. The microclimate is discussed in its relation to topography, plants, animals, and man. Extensive bibliography.

GEILS, J. L. See Hudson, H. E., Jr., 3

GEMANT, ANDREW

1. Thermal soil conductivities. Heat, Piping Air Cond, v 24, pp 122-123, 1952
   Describes the mechanics of computing conductivity of soil by methods developed by author.

GENTRY, R. C. See Bunting, D. C., 1

GEORGE, N. C. See Childs, E. C., 1

GEORGE, WILLIAM O.

1. (and ROMBERG, FREDERICK E.) Tide-producing forces and artesian pressures. Trans Amer Geophys Union, v 32, pp 369-371, 1951
   Gravity measurements, atmospheric pressure, and computed tidal forces are compared with artesian pressures near Ft. Stockton, Texas. Discussion by TOM CULBERTSON, v 33, pp 597-600, 1952.
2. (and DOYEL, W. W.) Ground-water resources in the vicinity of Kenmore Farms, Kendall County, Texas. Tex Bd Water Eng Bul 5204, 15 pp, June 1952
3. (and BREEDING, S. D., and HASTINGS, W. W.) Geology and ground-water resources of Comal County, Texas. U S Geol Surv Water-Supply Paper 1138, 126 pp, 1952
   Describes the geology and ground-water hydrology of Comal County, with emphasis on the sources of water discharged at Comal Springs. The spring, the largest in the Southwest, issues from the Edwards limestone at an average rate of about 320 cfs. Ground water in the county is recharged largely from streams where they cross the Balcones Fault system. The Edwards and Glen Rose limestones are the most important ground-water reservoirs and conduits. Concludes that water discharged at Comal Springs is derived from a large area to the west and southwest, about two-thirds of it from beyond the drainage area of Cibolo Creek, the most obvious source of recharge.

GERDEL, R. W. See also Lang, W. A., 1; Riesbol, H. S., 1

1. Radioactive snow gage. Weatherwise, v 5, pp 127-129, 1952
   Brief, non-technical description of a gage to measure water equivalent of snowfall by means of measurements of gamma ray transmission through the snow pack.
2. Snow thermodynamics offers better understanding of mechanical properties of snow. Civ Eng, v 22, pp 46-48, 1952
   The article discusses the complicated changes that take place in snow and describes the fundamental research plans being followed at the Central Sierra Snow Laboratory and at the Snow, Ice, and Permafrost Establishment at Wilmette, Illinois.
3. The transmission of water through snow. Trans Amer Geophys Union, v 35, pp 475-485, 1954
   Describes an instrument which uses the differences in the dielectric constants of water and ice to detect the amount of liquid water in snow. The instrument can be used to trace the movement of water through a snow pack and determine the transmission rates.

GERHARDT, JOHN R.

1. Temperature and moisture soundings over the Gulf of Mexico for March, 1949. Trans Amer Geophys Union, v 32, p 15, 1951
   A study was made to demonstrate the modification of an air mass by a water surface. Observations confirm the logarithmic distribution of water vapor, the variation of the evaporation coefficient with wind speed, and the essential similarity of the heat and moisture transfer processes.

GEYER, JOHN C. See Li, W. H., 2, 3

GEYER, ROBERT L.

1. Depth determination from seismic data. J N E Water Works Assn, v 66, pp 185-194, 1951
   A discussion of accuracy and computational methods.

GEZA, BATA

1. (and BOGICH, KNEZEVICH) Some observations on density currents in the laboratory and in the field. Minn Int Hydr Conv Proc, pp 387-400, Sep 1953
   The influence of viscosity variations in the superimposed stratum on resistance of the underlying stratum is examined. Factors complicating the direct application of laboratory results to the field case are analyzed.

GIDDINGS, J. L., JR.

1. Tree-ring dating in the American Arctic. Tree-ring Bul, v 20, pp 23-25, 1954
   A general survey of some applications of tree-ring dating in Alaska and Canada.

GIDLEY, H. K.

1. Installation and performance of radial collector wells in Ohio River gravels. J Amer Water Works Assn, v 44, pp 1117-1126, 1952
   The author describes the construction, yield costs, water quality, and regional geology of a group of 13 wells.

GILBERT, M. J. See also Bethlamy, N., 2

1. (and VAN BAVEL, C. H. M.) A simple field installation for measuring maximum evapotranspiration. Trans Amer Geophys Union, v 35, pp 937-942, 1954
   Soil-filled gasoline drums are used to measure evapotranspiration at Waynesville, North Carolina. Data for one year under grass cover are presented and compared with Penman's and Thornthwaite's formulas.

GILKEY, ARTHUR K. See Heusser, C. J., 1

GILL, GERALD C.

1. A fast response anemometer for micrometeorological investigations. Bul Amer Met Soc, v 35, pp 69-75, 1954
   Describes a heated thermocouple anemometer.

GILL, WILLIAM R.

1. (and SHERMAN, G. DONALD) Properties of the gray hydromorphic soils of the Hawaiian Islands. Pac Sci, v 6, pp 137-144, 1952
   A discussion of the chemical, physical, and biological characteristics.

GILLENWATER, LYHLE E.

1. Coal washery wastes in West Virginia. Sewage Ind Wastes, v 23, pp 869-874, 1951
   Includes a discussion of the survey made of the streams in West Virginia, and the source of the coal wastes and its effect on the streams. The article includes tables and graphs of the behavoir of coal wastes in streams, and the method of treatment.

GILLETTE, HALBERT P.

1. Booklet on weather cycles and their causes. Roads and Streets, v 95, pp 73-76, 1952
   Reviews briefly some relations between planetary movements and cycles and notes the availability of more detailed treatment in a separate booklet.
2. Evidence of a precipitation and sunspot cycle of one month. Bul Amer Met Soc, v 35, pp 374-376, 1954
   Evidence is presented to show an approximate monthly weather cycle with a maximum of precipitation shortly before the middle of each month.
3. Weather cycles and their causes. Roads and Streets, v 97, pp 73-76, 1954
   A general discussion of weather cycles resulting from electrical and magnetic effects induced by the Sun and planets.

GILLULY, JAMES

1. (and WOODFORD, A. O.) Principles of geology. W. H. Freeman Co., San Francisco, 631 pp, 1951

GILMAN, C. S.

1. (and RIEDEL, J. T.) Persistence of extremely wet and extremely dry months in the United States. Mon Wea Rev, v 79, pp 45-49, 1951
   Statistical tests show a tendency for persistence of dry months.

GLASS, W. A. See Parker, G. G., 1

GLEASON, CLARK H.

1. Indicators of erosion on watershed land in California. Trans Amer Geophys Union, v 34, pp 419-426, 1953
   This paper discusses geologic and accelerated erosion, some factors that affect erosion, and some methods of appraising erosion. Describes some indicators that may be used to help an observer judge whether or not erosion has been accelerated.

GLEASON, GEORGE B. See also Bacon, W. W., 1

1. Municipal and industrial areas. Trans Amer Soc Civ Eng, v 117, pp 1004-1013, 1952
   A discussion of the consumptive use of water in municipal and industrial areas illustrated by an example for the Raymond Basin area in Southern California. Discussion by R. H. BORN and MEYER KRAMSKY.

GLENNEN, EDWARD J.

1. The problems of permafrost. West Const, v 28, pp 72-73, 1953
   A brief summary of characteristics of permafrost and necessary design features to overcome some of the difficulties encountered.

GLOVER, R. E.

1. (and HERBERT, D. J., and DAUM, C. R.) Application to an hydraulic problem. Trans Amer Soc Civ Eng, v 118, pp 1010-1027, 1953
   Describes the utilization of an electronic analog for the analysis of flow conditions in the network of tidal channels in the Sacramento-San Joaquin Delta, California. Discussion by J. VAN VEEN, W. D. BAINES, and T. BLENCH.
2. (and BALMER, GLENN G.) River depletion resulting from pumping a well near a river. Trans Amer Geophys Union, v 35, pp 468-470, 1954
   A theoretical formula is derived for the depletion of flow in a river when an adjacent well is pumped.

GLYMPH, LOUIS M., JR.

1. Relation of sedimentation to accelerated erosion in the Missouri River basin. U S Soil Cons Serv SCS-TP-102, 23 pp, July 1951
   A general discussion of the mechanics of erosion, sources of sediment, estimates of rate of erosion, and of reservoir sedimentation. The effect of man's activities in increasing erosion is stressed.
2. Water erosion problems and control on non-irrigated agricultural lands. Trans Amer Geophys Union, v 35, pp 246-252, 1954
   The principle types of water erosion on non-irrigated agricultural lands are described, and a generalized erosion map showing extent and degree of erosion for the U. S. is presented. Selected data on erosion, factors influencing rates of erosion, and methods of erosion control are described.

GOCEFFON, CHARLES L.

1. Gully erosion surveying with aerial photographs. J Soil Water Cons, v 8, pp 173-174, 1953
   Describes methods used by TVA.

GOEBEL, E. D. See O'Conner, H. G., 1

GOINES, W. H. See also Fluellen, J. R., 1

1. (and WINSLOW, A. G., and BARNES, J. R.) Water supply in the Houston Gulf Coast region. Tex Bd Water Eng Bul 5101, 16 pp, Jan 1951

GOLD, L. W.

1. (and POWER, B. A.) Correlation of snow-crystal type with estimated temperature of formation. J Met, v 9, p 447, 1952
   A brief note reporting some observations of type of crystal as related to temperature.

GOLDIN, A. S.

1. (and NADER, J. S., and SETTER, L. R.) The detectability of low-level radioactivity in water. J Amer Water Works Assn, pp 73-80, 1953
   A study of the factors involved in the detection of low-level radioactivity in water. Includes the background counting rate, the efficiency of radiation detection, and the sample size.

GOLDTHWAIT, RICHARD P. See Norris, S. E., 1

GOLZE, ALFRED R. See also Hill, R. A., 1

1. Reclamation in the United States. McGraw-Hill, 451 pp, 1952
   A text on the principles and policies of the Bureau of Reclamation and the history of reclamation development in the United States.

GOODELL, BERTRAM C. See also Li, W. H., 2, 3

1. A method for comparing the flow from a pair of experimental watersheds. Trans Amer Geophys Union, v 32, p 925, 1951

This paper describes a method of predicting the annual stream flow of one experimental watershed from that of another. Variables include size and topography, but common elevations are used. The method predicts the shape of the hydrograph and the total volume of stream flow.

2. Watershed management aspects of thinned young lodgepole pine stands. J Forestry, v 50, pp 374-378, 1952
Thinning of young stands increased net precipitation without increasing water losses. Under similar conditions elsewhere, substantial increases in water yield should be expected from timber thinning.

GOODMAN, LOUIS J.

1. Erosion control in engineering works. Agr Eng, v 33, pp 155-157, 1952
A study of rain drop erosion of various soils and of possible chemical additives to reduce this erosion.
2. Erosion control in engineering works. Ohio Univ Eng Exp Sta News, v 25, pp 27-32, 1953
Reviews mechanics of splash erosion and discusses use of chemical additives for erosion control.

GOODRICH, R. D. See Somers, W. P., 1

GOODWIN, M. H., JR. See Hendricks, E. L., 1, 2

GOTAAS, HAROLD B. See Stone, R. V., 1

GOTTSCHALK, LOUIS C. See also Stall, J. B., 1, 4

1. Sedimentation problems. Ill Water Surv Bul 41, p 51, 1952
A brief review of the problems of reservoir sedimentation and possible corrective measures.
2. Measurement of sedimentation in small reservoirs. Trans Amer Soc Civ Eng, v 117, pp 59-71, 1952
The procedures employed by the Soil Conservation Service for sediment surveys of reservoirs are described together with the computational methods employed. Discussion by E. E. SANDERSON.

GRAHAM, J. B. See also Mackichan, K. A., 1

1. (and MANGAN, J. W., and WHITE, W. F., JR.) Water resources of southeastern Bucks County, Pennsylvania. U S Geol Surv Circ 104, 21 pp, 1951
The report analyzes flood frequencies and presents a flood profile for the Delaware River and shows graphically the discharge, chemical quality, and temperature of the surface water. Maps showing the configuration of the bed-rock surface below the valley plain and areas of low and high ground-water yield are included, along with a discussion of the development of large ground-water supplies by infiltration from the Delaware River.

GRANACHER, CHARLES W.

1. Water intake for steel company built to withstand Monongahela River floods. Civ Eng, v 23, pp 528-529, 1953
Describes construction of pumping installation and intake works designed to resist flotation and hydrostatic pressure during extreme high water.

GRANT, BURTON S.

1. Rainfall and runoff in Southern California. Water Works Eng, v 106, pp 1003, 1023, 1953
A brief summary of some key items of hydrologic data.

GRANTHEM, KENNETH N.

1. Wave runup on sloping structures. Trans Amer Geophys Union, v 34, pp 720-724, 1953
Relationships are developed from laboratory experiments which show the effect of side slope, wave steepness, relative depth, and bank porosity. Maximum runup was at a side slope of 30°.

GRAY, C. A. M. See Ezra, A. A., 1

GRAY, H. E. See Critchlow, H. T., 1

GREEN, ROBERT L.

1. Evaluation of air resistance to freely falling drops of water. Agr Eng, v 33, p 28, 1952
An analysis of data by Laws for application to sprinkler design. See correction, v 33, p 286, 1952
2. A photographic technique for measuring the sizes and velocities of water drops from irrigation sprinklers. Agr Eng, v 33, pp 563-564, 566, 568, 1952
Describes a procedure employed to measure drop sizes and velocities by rapid exposure of photographic film.

GREEN, ROBERT W.

1. Soil moisture as influenced by cropping practices and meteorological conditions. Iowa State Coll MS thesis, 1953
Soil moisture differences due primarily to cropping and cultivation effects, soils, and climatic pattern were investigated.

GREENBERG, ARNOLD E.
1. (and THOMAS, JEROME F.) Sewage effluent reclamation for industrial and agricultural use. Sewage Ind Waste, v 26, pp 761-770, 1954
Reports field tests of spreading of treated sewage at Lodi, California. Rates of percolation and extent of travel of pollutants in the soil were given special study.

GREENE, THOM R.
1. (and HEIM, ALBERT E.) Water waves over a channel of infinite depth. App Math, v 2, pp 201-214, 1953
A study of gravity waves with special obstacles in the channel.

GREENMAN, D. W. See Noecker, M., 1

GREER, WALTON J. See Owen, J. E., 1

GREGG, HOWARD F.
1. The Southern California water problem in the Oxnard area. Geog Rev, v 42, pp 16-36, 1952
A general discussion of problems of water shortage and salt water intrusions and possible remedies.

GRIFFEN, IRA P.
1. Subsurface drainage for air fields. Mil Eng, v 43, pp 199-202, 1951
A general discussion of subsurface drainage from the practical viewpoint, illustrated by case reports of specific projects.

GRIGGS, R. L.
1. (and HENDRICKSON, G. E.) Geology and ground-water resources of San Miguel County, New Mexico. N M Bur Mines Mineral Res Ground-water Rep 2, 121 pp, 1951

GRINGORTEN, IRVING I.
1. The verification and scoring of weather forecasts. J Amer Stat Assn, v 46, pp 279-296, 1951
A statistical analysis of methods.

GRISWOLD, R. E.
1. The ground-water resources of Wayne County, New York. N Y State Dept Cons Rep GW-29, 61 pp, 1951

GROHSKOPF, J. C. See Unklesbay, A. G., 1

GROOT, JOHAN JACOB
1. (and RASMUSSEN, WILLIAM C.) Geology and ground-water resources of the Newark area, Delaware. Del Geol Surv Bul 2, 133 pp, Apr 1954
A comprehensive report on the ground and surface water of the area in northern Delaware.

GROSSMAN, I. G.
(and YARGER, L. B.,) Water resources of the Rochester area, New York, U. S. Geol Surv Circ 246, 30 pp, 1953
Presents information on the quantity and quality of water in the Rochester area. A flood profile and a flood frequency curve are given for the Genesee River at Rochester. Flow-duration curves for Black Creek, Oatka Creek, and Irondequoit Creek and graphs showing the elevation and seasonal temperature of Lake Ontario water are included. Information on the chemical quality of water from the streams and principal ground-water aquifers is given. Maps show aquifers and surface drainage. Altitude and configuration of the bedrock surface in the area are shown by contours. Water levels in three observation wells are shown. The occurrence and availability of ground water are briefly discussed and tables show average and extreme water levels, yields, and temperatures. The public water-supply systems are described. Laws affecting the use of water in the area are described briefly and the water-resources potential of the area is summarized.

GUERIN, J. W. See Lohr, E. W., 1

GUILLOU, JOHN C.
1. (and CHOW, VEN TE) Desilting structures for highway drainage systems. Ill Univ Civ Eng Studies Hydr Eng ser 3, 61 pp, 1954
An analysis of the efficiency of catch basins and similar structures as desilting devices.

GUMBEL, E. J.
1. Engineering application of statistical extremes. Trans N Y Acad Sci, v 13, ser 2, pp 328-332, 1951
A general discussion of frequency analysis with emphasis on floods.
2. Statistical theory of droughts. Proc Amer Soc Civ Eng sep 439, 19 pp, May 1954
Extreme probability paper is used to plot logarithms of droughts. Methods are given for deriving the frequency curve. Theory is compared with actual data from several streams in the U. S. and elsewhere. A drought is defined as the annual minimum flow.
3. Statistical theory of extreme values and some practical applications. U S Nat Bur Stand App Math ser 33, 1954
A comprehensive and unified summary with extensive bibliography.

4. (and LIEBLEIN, JULIUS) Some application of extreme-value methods. Amer Stat, v 8, pp 14-17, 1954
A non-mathematical review of the theory and summary of application.

GUNAJI, VASUDEO N. See Villemonte, J. R., 1

GUNBY, F. M.
1. Supply of water power in the United States. Trans Amer Soc Civ Eng, v CT, pp 461-475, 1953
A review of potential water power development in the U. S.

GUNN, ROSS See also Kinzer, G. D., 1
1. A vertical shaft for production of thick artificial clouds and for the study of precipitation mechanics. J App Phys, v 23, pp 1-5, 1952
Describes adaptation of old mine shaft for experimental work.

GURR, C. G. See also Marshall, T. J., 1
1. (and MARSHALL, T. J., and HUTTON, J. T.) Movement of water in soil due to a temperature gradient. Soil Sci, v 74, pp 335-345, 1952
Attempts to measure the contribution of movement in the liquid and vapor phases by measuring the changes in distribution of soluble salts which are assumed to move with the liquid phase only.

GUY, DAVID J.
1. Management of small watersheds. J Amer Water Works Assn, v 45, pp 450-456, 1953
Emphasizes the importance of management in small and large watersheds, and gives examples of methods of management with specific references to certain watersheds in the United States.

GUY, HAROLD P.
1. Level terrace design as affected by hydrologic factors. Iowa State Coll MS thesis, 97 pp, 1951
Runoff volume for level terrace design (25-year recurrence interval) estimated by two methods: (1) analysis of storm pattern, infiltration, rainfall, and interception, and (2) mass rainfall - mass infiltration method. From field measurement of infiltration rates in terrace channels and from above runoff estimates, the required cross-sectional area for terraces was determined for different terrace spacings.

GUYTON, W. F.
1. Analysis and use of ground-water data. Ill Water Surv Bul 41, pp 75-85, 1952
A general discussion of the problems of ground-water use and of the non-equilibrium theory of well hydraulics. Discussion by J. H. BLISS, H. T. CRITCHLOW, H. A. SPAFFORD, and E. W. BENNISON.

HAAK, RICHARD D.
1. Sources and control of river pollution. Instrum, v 25, pp 1714-1716, 1748, 1952
A general review of pollution problems including erosion. Discusses self-purification of streams.

HAAS, RAYMOND H.
1. (and WELLER, HARVILL E.) Bank stabilization by revetments and dikes. Trans Amer Soc Civ Eng, v 118, pp 849-870, 1953
A description of the bank-protection measures developed by experience for use on the lower Mississippi River. Discussion by H. V. PITTMAN, E. R. DE LA SAYETTE, and S. LELIAVSKY.

HADADY, R. E.
1. Moisture measurement. Instrum, v 25, pp 600-602, 1952
Reviews methods of measuring humidity with respect to instrument range, accuracy, speed of response and other factors.

HADLEY, W. A.
1. (and EISENSTADT, RAYMOND) Moisture movement in soils due to temperature difference. Heat Piping Air Cond, v 25, pp 111-114, 1953
Tests using a simulated soil of glass beads and radioactive tracer to determine nature of movement of soil water with thermal differences are reported. Preliminary conclusions are presented.
2. (and EISENSTADT, RAYMOND) A critical soil-moisture condition affecting buried transmission cables. Elec Eng, v 72, pp 989-992, 1953
A moisture content of four per cent separates two types of phenomena. At low moisture the soil drys rapidly and heat dissipation decreases. At high moisture a circulation process appears to dissipate considerable heat.

HAFER, LEROY R. See Jay, L. A., 1

HAFFORD, J. A. See Richardson, J. G., 1

HAFTERSON, H. D. See Bissell, L. M., 1; Riesbol, H. S., 1

HAIGLER, LEON B. See Rasmussen, W. C., 1

HAINS, C. H. See also Langbein, W. B., 1

1. (and VAN SICKLE, D. M., and PETERSON, H. V.) Sedimentation rates in small reservoirs in the Little Colorado River basin. U S Geol Surv Water-Supply Paper 1110-D, pp 129-155, 1952
   Describes a method for determining the origin of sediment and the rates of sediment movement. Measurements of deposition in 35 small reservoirs located within the Navajo Indian Reservation shows a relationship between rate of sediment movement and type of bedrock underlying the basins. The area investigated is underlain by sedimentary rocks ranging from well-indurated coarse sandstone and conglomerate to soft sandstone of aeolian origin and soft friable shale. Groups of reservoirs having drainage areas underlain by soft sandstones and shales showed average annual rates of sediment movement per square mile from two to eight times greater than the groups underlain by the conglomerate and hard sandstone. The relationship between erosibility of the soil mantle and parent bedrock is discussed and a method for estimating the rate of sediment movement from areas that have been mapped geologically is suggested.

HAKE, I. H. See Lowry, R. L., 1

HALES, J. VERN

1. (and HOFFER, THOMAS E., and PECK, EUGENE L.) Evaluation of rain-making experiments in Utah. Proc West Snow Conf, pp 10-18, 1954
   A general review of evaluation problems for cloud-seeding activities in southern Utah. Discussion by B. E. QUATE.

HALL, F. R. See Palmquist, W. N., Jr., 1

HALL, FERGUSON

1. Dr. Langmuir's article on precipitation control. Sci, v 113, pp 189-191, Feb. 16, 1951
   A discussion of an article by LANGMUIR [Sci, v 112, no 35, 1950] on cloud seeding in New Mexico. Questions some of the conclusions of the original article regarding the success of the seeding experiment.
2. Status of possibilities of artificial precipitation. Trans Amer Geophys Union, v 33, pp 866-870, 1952
   Historical summary and bibliography.
3. (and HENDERSON, T. J., and CUNDIFF, STUART A.) Cloud seeding in the Sierras near Bishop, California. Bul Amer Met Soc, v 34, pp 111-116, 1953
   The results of three years of seeding are evaluated on the basis of annual runoff and snow pack.

HALL, G. R. See Stall, J. B., 5

HALL, HOWARD P. See also Avery, S. B., 1

1. A historical review of investigations of seepage toward wells. J Boston Soc Civ Eng, v 41, pp 251-311, 1954
   A comprehensive summary of well hydraulics with an extensive bibliography.

HALL, JAY V., JR.

1. Artificially nourished and constructed beaches. U S Beach Eros Bd Tech Mem 29, Dec 1952
   The paper discusses the derivation and use of design criteria for four types of artificial beaches with case histories illustrating the four types of artificial nourishment which have been tried: offshore dumping, onshore stockpiling, continuous supply, and direct placement. The factors governing good engineering usage of design criteria for beach nourishment are discussed in terms of the natural forces influencing the stability of a beach sand.

HALL, WILFRED M.

1. Hydroelectric development in Turkey. J Boston Soc Civ Eng, v 38, pp 372-384, 1951
   A general account of the past and present development of the hydroelectric potential in Turkey, with details of the various projects under construction and proposed for construction in the near future. Specific designs for various sites are discussed.

HALLENBACH, F.

1. Geoelectrical problems of the hydrology of West German areas. Geophys Prosp, v 1, pp 241-249, 1953
   Describes extensive use of geophysical prospecting methods since the end of World War II and discusses those applications which seem to be most effective.

HALLOCK, HOUGHTON R.

1. Sabine River flood fight. Mil Eng, v 45, pp 459-460, 1953
   Describes flood of May 1953 on Sabine River near Orange, Texas.

HALLSTEAD, A. L. See Brown, P. L., 1

HALSEY, J. F. See Odom, L. M., 1

HALSTED, MAURICE H.

1. The turbulent flux of heat and momentum from soil and water surface. Ohio State Univ Eng Exp Sta Bul 149, pp 329-334, 1952
   A flux equation is derived and compared with experimental data.

HAMILTON, DAN K.

1. Hydrologic investigation of caves. Nat Spel Soc Bul 11, pp 8-10, Nov 1949
   An outline of the information which might be useful to a hydrologist and some possible interpretation.

HAMILTON, E. L.

1. (and ANDREWS, L. A.) San Dimas rainfall and wind velocity recorder. Bul Amer Met Soc, v 32, pp 32-33, 1951
   Describes use of a vertical-drum water-stage recorder for recording simultaneous wind and precipitation observations.
2. (and ANDREWS, L. A.) Control of evaporation from rain gages by oil. Bul Amer Met Soc, v 34, pp 202-204, 1953
   Reports tests to determine amount of evaporation loss from rain gages and the quantity of oil required to eliminate evaporation.
3. Rainfall sampling on rugged terrain. U S Dept Agr Tech Bul 1096, 41 pp, Dec 1954
   The problem of measuring rainfall falling at an angle with the vertical is reviewed in light of previous work and theoretical considerations. Experimental observations at San Dimas are analyzed to show the importance of tilted gages. Special vectopluviometers are described. A method of correcting old records for the effect of inclination of rain is presented.

HAMILTON, FRED B.

1. (and SCHRUNK, JOHN F.) Sprinkler versus gravity irrigation--a basis for choice of the best systems. Agr Eng, v 34, pp 246-250, 1953
   Discusses the economics of sprinkler and gravity irrigation, the advantages and disadvantages of both, and the efficiency of the operation. Includes discussion of evaporation and interception losses from sprinklers.

HAMILTON, WARREN B.

1. Playa sediments of Rosamund Dry Lake, California. J Sed Pet, v 21, pp 147-150, 1951
   Report of mechanical analysis of sediments from lake in Mojave desert.

HAMON, RUSSELL W.

1. (and WEISS, LEONARD L., and WILSON, WALTER T.) Insolation as an empirical function of daily sunshine duration. Mon Wea Rev, v 82, pp 141-146, 1954
   A graphical relation between insolation and per cent possible sunshine, latitude, and date is derived and tested.

HANCE, WILLIAM A.

1. The Gezira: an example in development. Geog Rev, v 44, pp 253-270, 1954
   Describes the area south of Karthoum and between the White and Blue Nile Rivers and its irrigation development.

HANDIN, JOHN W.

1. Source, transportation, and deposition of beach sediment in Southern California. U S Beach Eros Bd Tech Mem 22, 113 pp, Mar 1951
   A description of beaches along the Southern California coast, giving analyses of the beach materials, their relation to the coastal physiography, their probable source and transportation, and relation to the general wave climate.

HANDY, R. L. See also Davidson, D. T., 1, 2; Lyon, C. A., 1

1. (and LYON, C. A., and DAVIDSON, D. T.) Analysis of windblown silt, March, 1954. Proc Iowa Acad Sci, v 61, pp 278-290, 1954
   Describes the dust storms and gives data on particle size and mineralogy of the wind-blown material.

HANKS, R. J. See also Tanner, C. B., 1

1. (and TANNER, C. B.) Water consumption by plants as influenced by soil fertility. Agron J, v 44, pp 98-100, 1952
   From experiments in Wisconsin, data is shown to indicate higher crop yield per unit of water with high fertilizer treatment.
2. (and HOLMES, W. E., and TANNER, C. B.) Field capacity approximation based on the moisture-transmitting properties of the soil. Proc Soil Sci Soc Amer, v 18, pp 252-254, 1954
   An index of field capacity based on moisture retention of small cores subjected to a pressure of 0.2 atmosphere is developed and found to be superior to any previous index.

HANSEN, CHRIS A.

1. Water conservation aids health. Soil Cons, v 17, pp 139-141, 1952
   A discussion of malpractices in irrigation that contribute to areas favorable for mosquito-breeding.

HANSEN, F. N.

1. Surface water supplies. Their use, characteristics, and availability. Proc 1st Ann Symp on Water Res in La, La Univ Eng Exp Sta Bul 31, pp 17-25, 1952

A general summary of the surface water resources of Louisiana with maps showing average annual runoff and location of stream gaging stations.

HANSEN, HENRY P.

1. Postglacial forests in the Yukon territory and Alaska. Amer J Sci, v 251, pp 505-542, 1953
   Reports analysis of pollens and plants to estimate age of present postglacial forests.

HANSEN, VAUGHN E. See also Peterson, D. F., Jr., 1

1. Complicated well problems solved by the membrane analogy. Trans Amer Geophys Union, v 33, pp 912-916, 1952
   Introduction of the membrane analogy as a tool for solution of well problems, its history and principles. Discussion by R. G. KAZMANN, v 34, p 951, 1953.
2. Unconfined ground-water flow to multiple wells. Trans Amer Soc Civ Eng, v 118, pp 1098-1130, 1953
   Discusses effect of capillary fringe near the free surface, shape of the free surface, validity of the Dupuit formula, and the variation of the stream-surface spacing. Establishes a functional relationship relating the variables at the well for single and multiple well groups. Develops a dimensionless number which is the ratio of the Froude number to the Reynolds number to characterize the shape of the cone of depression. Discussion by A. SHUKRY, C. ROHWER, D. K. TODD, and L. C. FOWLER.
3. Determination of water flow from gated pipe. Agr Eng, v 35, pp 496-497, 1954
   Describes device for accurately setting the gate openings and method of computing discharge on basis of a pressure reading.

HANSON, RICHARD E.

1. (and MEYER, WALTER R.) Irrigation requirements. Kans State Coll Bul 69, 24 pp, June 1953
   The Blaney-Criddle method is used to estimate consumptive use for selected crops in Kansas.

HANTUSH, MAHDI S.

1. (and JACOB, C. E.) Plane potential flow of ground water with linear leakage. Trans Amer Geophys Union, v 35, pp 917-936, 1954
   A mathematical analysis of idealized sinks tapping uniform confined aquifers into which there is leakage in proportion to the drawdown. Numerous cases are developed from the fundamental solution for an infinite plane region by use of the method images. The solutions may be considered as the Green's functions for systems with linear leakage.

HAPP, S. C. See Fisk, H. N., 2

HARBECK, G. EARL, JR.

1. (and others) Utility of selected western lakes and reservoirs for water-loss studies. U S Geol Surv Circ 103, 31 pp, 1951
   This report describes a sifting of many western reservoirs and lakes to find one suitable as a field laboratory for testing various methods of determining evaporation, preliminary to the ultimate selection of Lake Hefner in Oklahoma.
2. Evaporation research at Lake Hefner. J Amer Water Works Assn, v 44, pp 701-706, 1952
   A report of studies to determine methods of estimating lake evaporation.
3. The use of reservoirs and lakes for the dissipation of heat. U S Geol Surv Circ 282, 6 pp, 1953
   Cooling by evaporation has been long used for the dissipation of unwanted heat in certain industrial processes. Where water supplies are plentiful, the consumptive use of water in cooling towers presents no problem, but where water is scarce and relatively expensive, other methods of cooling warrant consideration. This report shows that substantial savings often can be realized if it is practicable to withdraw water from a natural lake or existing reservoir, to let it absorb heat, and then to return it to the reservoir. For the two reservoirs studied (one actual and one hypothetical), annual savings were 45 to 50 pct.

HARDENBERGH, WILLIAM A.

1. Water supply and purification. Int Textbook Co, 500 pp, 3 ed, Scranton, Pa., 1952
   Includes brief section on the hydrology of water supply.

HARDER, J. A. See also Einstein, H. A., 7

1. (and others) Final report--Laboratory research on sea-water intrusion into fresh groundwater sources and methods of its prevention. Calif Univ Sanitary Eng Res Proj, 69 pp, 1953
   This report covers basic parameters of sea-water intrusion, hydraulics of injection wells, model studies, and results of sea-water intrusion and recharge and studies of bentonite slurries as sealing agents for cut-off walls to control sea-water intrusion.

HARDIN, JOHN R.

1. (and BOOTH, WILLIAM H.) Lake Michigan erosion studies. Trans Amer Soc Civ Eng, v 118, pp 39-60, 1953

Reports the erosion conditions along Lake Michigan in Illinois, prior corrective actions, and recommended corrective measures. Discussion by T. B. CASEY and C. E. LEE.

2. Mississippi-Atchafalaya diversion problem. Mil Eng, v 46, pp 87-92, 1954
Describes the geography and recent history of the Atchafalaya area. Discusses the possibility of a natural diversion into the Atchafalaya. Future flood control plans for the area are described.

HARDING, S. T.

1. Water law in the United States. Civ Eng, v 22, pp 112-117, 1952
The author places emphasis on the water laws in the western states, and traces them from early times to the present. Discussion of ground-water regulation, rights of federal projects, state control, and national policy.

HARDISON, C. H. See Stevens, G. C., 1

HARGREAVES, G. H. See Blaney, H. F., 5

HARLEMAN, DONALD R. F.

1. Density currents studied in glass-walled flume. Civ Eng, v 24, p 37, 1954
Describes the flume, equipment for generating density current, and associated measuring devices.

HARRELL, J. H., JR. See Braham, R. R., 1

HARRINGTON, ARTHUR W.

1. Snow surveys in the Northeast and uses of the data. Proc West Snow Conf, pp 1-3, Apr 1953
Presents a brief history of the snow survey work in New York and New England, outlines the present organization, and briefly summarizes the uses for the data.

HARRINGTON, BEN W.

1. Controlling upland runoff. Recl Era, v 38, pp 222-223, 1952
A review of the problem and suggestion for its control in Bostwick Irrigation District.

HARRINGTON, E. R.

1. Silting ducks along the Rio Grande. Eng News-Rec, v 148, pp 43-45, Mar 6, 1952
Silting of the Rio Grande at Albuquerque has raised the low water level above the city streets. It is confined by natural levees which will hold about 15000 cfs.

HARRINGTON, LYN

1. The Stikine River. Can Geog J, v 49, pp 48-57, 1954
An illustrated description of the river.

HARRIS, CHARLES D.

1. Ground-water law in New Mexico. J Amer Water Works Assn, v 46, pp 10-18, 1954
A survey of the desirable features of a ground-water control statute.

HARRIS, KARL See Fletcher, J. E., 1

HARRIS, ROBERT L.

1. Restudy of test - shore nourishment by offshore deposition of sand, Long Branch, New Jersey. U S Beach Eros Bd Tech Mem 62, 1954
A study of the Long Branch test area four years after initial dumping of sand offshore indicated little or no shoreward movement from the stockpile.

HARRISON, ALFRED S.

1. The segregation of grain sizes in a degrading bed. Calif Univ MS thesis, 205 pp, 1951
Using an experimental flume, an equilibrium bed mixture was established for a given set of flow conditions. Then by not replacing the transported material under the same flow conditions, a degrading bed was formed. Observations were made to predict the grain sizes that will be involved and the ultimate depth of bed degradation.

HARRISON, ARTHUR E. See also Bengston, K. B., 1

1. Are our glaciers advancing? Sierra Club Bul, v 36, pp 78-81, 1951
Summarizes evidence of a tendency toward increase in thickness of Sierra glaciers and others in the U. S. and Alaska. Attributes increase to a decrease in temperatures at high altitude.

HARROLD, L. L.

1. Report of the Committee on Infiltration 1950-51. Trans Amer Geophys Union, v 32, pp 919-922, 1951
An abstract of all articles on infiltration for the year 1950-51 including items as ground-water recharge, percolation rates, seepage rates, etc.
2. (and DREIBELBIS, F. R.) Agricultural hydrology as evaluated by monolith lysimeters. U S Dept Agr Tech Bul 1050, 149 pp, 1951
Precipitation, condensation, percolation, and evapotranspiration from soil for various crops is evaluated by use of weighing monolith lysimeters at Coschocton, Ohio. Application of data from the lysimeters to evaluation of the hydrologic balance of larger watersheds is described.

3. Upstream engineering. Ohio State Univ Eng Exp Sta Bul 147, pp 136-144, 1952
   A general review of methods.
4. Use of porosity for water conservation. Agr Eng, v 33, pp 287-289, 1952
   Discusses methods of increasing infiltration by mulching and mechanical means. Cites examples of need for more moisture in soil during growing season.
5. Basic water concepts for soil and water conservation. Ohio J Sci, v 53, pp 168-172, 1953
   A general review of the concepts of soil and water conservation.
6. (and DREIBLEBIS, F. R.) Water use by crops as determined by weighing monolith lysimeters. Proc Soil Sci Soc Amer, v 17, pp 70-74, 1953
   Data for three different lysimeters with different soil types for a year are presented showing accretion, depletion, and storage of water in the soil as affected by soil type and land use.
7. Available moisture for crops. Agr Eng, v 35, pp 99-101, 1954
   A summary of the consumptive use of some crops and the variation of water removal by plants at various depths in the soil as observed at Coschocton, Ohio.
8. Wanted: Factual data for evaluating the effect of water conservation programs on the land. J Soil Water Cons, v 9, pp 128-131, 1954
   A review of methods in water conservation research.

HARSHBARGER, J. W.

1. (and REPENNING, C. W., and CALLAHAN, J. T.) The Navajo Country, Arizona-Utah-New Mexico. The Physical and Economic Basis of Natural Resources, v 4, pp 105-129, U S House Rep, 1953
   Describes the area situated largely in northeastern Arizona. Climatic data at significant stations, stream-flow data, and ground-water geology are presented to develop a picture of the water-supply situation of the area. Several geologic maps and sections are presented.
2. (and REPENNING, C. A., and HATCHETT, J. L.) Water resources of the Chuska Mountains area, Navajo Indian Reservation, Arizona and New Mexico. U S Geol Surv Circ 308, 16 pp, 1954
   This report describes the potential ground-water and surface-water resources available for the proposed operation of two sawmills and a manganese mill in the Chuska Mountains area in the east-central part of the Navajo Indian Reservation. The report describes briefly the stratigraphy and water-bearing character of each rock formation in the area. The occurrence and chemical quality of ground water, depth to water, and expected yield of wells are discussed in more detail for the principal aquifers in the area. The presence of perennial streams along the western escarpment of the mountains is explained as the result of ground-water discharge from the Chuska sandstone which is situated near the top of the mountain block. Includes a section on the chemical quality of ground water and surface water.

HARTUNG, HERBERT O. See Lischer, V. C., 1

HARZA, L. F. See Cary, A. S., 1

HASTINGS, W. W. See also Doneen, L. D., 2; George, W. O., 3

1. Report of the committee on chemistry of natural waters, 1952-1953. Trans Amer Geophys Union, v 35, pp 974-978, 1954
   Consists of brief individual reports by committee members on various topics including chemistry of connate waters (PAUL WEAVER), forecasting suitability of irrigation water (B. F. BEACHER), percolation of water into soil (L. D. DONEEN), and activities of the U. S. Geological Survey (W. W. HASTINGS).

HATCHETT, J. L. See Harshbarger, J. W., 2

HATHAWAY, GAIL A.

1. Water--a critical material. Civ Eng, v 24, pp 62-64, 1954
   A general discussion of the conflicting demands for water, its frequent shortages, methods of developing water resources, and national water policy.

HAUPT, H. F.

1. Snow accumulation and retention on ponderosa pine lands in Idaho. J Forestry, v 44, pp 869-871, 1951
   Effects of plant cover and aspect on snow accumulation and retention are evaluated.

HAURWITZ, BERNHARD See Emmons, G., 1

HAUSER, ROBERT E.

1. Geology and mineral resources of the Paintsville quadrangle, Kentucky. Ky Geol Surv Bul 13, 80 pp, 1953
   Contains brief discussion of ground water.

HAVENS, A. V.

1. Drought and agriculture. Weatherwise, v 7, pp 51-55, 68, 1954
   Reviews briefly the drought of 1953-54 in the southern Plains States and compares it with previous droughts. Discusses possibility of forecasting droughts, why droughts occur,

possibility of preventing drought through 'rainmaking' and conservation measures which will minimize drought severity.

HAWTHORNE, R. R. See Dunlap, H. F., 1

HAY, A. DONALD

1. Measuring the weather. Heat, Piping, Air Cond, v 25, pp 98-101, 1953
   A description of the basic weather instruments and their functions.
2. Let's talk about the weather. Heat, Piping, Air Cond, v 25, pp 93-96, 1953
   A discussion of the radiation balance of the Earth.
3. Heating design temperature. Heat, Piping, Air Cond, v 25, pp 104-105, 1953
   Presents map of one-year minimum mean daily temperatures for the U. S.

HAY, R. C. See Larson, B. O., 1

HAYS, ORVILLE E. See Anderson, H. O., 1; Atkinson, H. B., 1; Bay, C. E., 2; Massey, H. F., 1

HAZEN, ARLON G. See Davis, S., 1

HAZEN, RICHARD

1. Analysis of surface-water data. Ill Water Surv Bul 41, pp 87-98, 1952
   A brief review of methods of frequency analysis, reservoir yield studies, diversion analysis, and water quality as related to flow. Discussion by E. F. BRATER, W. D. MITCHELL, and C. V. YOUNGQUIST.

HEARD, W. L.

1. Putting the watershed plan to work. J Soil Water Cons, v 7, pp 27-29, 1952
   Explains the steps involved in putting a plan into operation.

HEATH, RALPH C.

1. (and CLARK, WILLIAM E.) Potential yield of ground water on the Fair Point Peninsula, Santa Rosa County, Florida. Fla Geol Surv Rep Inv 7, pt 1, 55 pp, 1951
   Geology and hydrology of the Peninsula with results of pumping tests and estimated yield.
2. (and BARRACLOUGH, JACK T.) Interim report on the ground-water resources of Seminole County, Florida. Fla Geol Surv Inf Circ 5, 43 pp, 1954
   Interim report of ground-water investigations in Seminole County; artesian flows, chloride distribution, geologic formations.
3. (and SMITH, PETER C.) Ground-water resources of Pinellas County, Florida. Fla Geol Surv Rep Inv 12, 139 pp, 1954
   Comprehensive discussion of ground-water hydrology and geology of the county.

HEBERT, D. J. See Glover, R. E., 1

HEBLEY, HENRY F.

1. Stream pollution by coal-mine wastes. Min Eng, v 5, pp 404-412, 1953
   A general review of mine drainage problems in the U. S.

HEIM, ALBERT E. See Greene, T. R., 1

HEINDL, L. A. See Lane, W. W., 1

HEIPLE, L. R. See Steinbruegge, G. W., 1

HELK, J. V.

1. (and DUNBAR, MOIRA) Ice Islands: Evidence from north Greenland. Arctic, v 6, pp 263-271, 1953
   Presents photographs of some icebergs with comment.

HELLINGA, F.

1. Water control. Soil Sci, v 74, pp 21-23, 1952
   A review of Dutch experience in reclaiming the polders. Explains drainage and sub-irrigation methods in use and discusses the problems of salt-water intrusion into the ground water.

HELMERS, AUSTIN E. See also Palpant, E. H., 1

1. Precipitation measurements on wind-swept slopes. Trans Amer Geophys Union, v 35, pp 471-474, 1954
   Comparative catches of different gages equipped with a variety of shields at Priest River Experimental Forest, Idaho, are reported.

HEM, J. D. See also Lohr, E. W., 2

1. Quality of water Conchas Reservoir, New Mexico. U S Geol Surv Water-Supply Paper 1110-C, pp 83-127, 1952
   Conchas Dam is situated on Canadian River in northeastern New Mexico. The report contains analyses for stored water and inflow to the reservoir from 1939 when storage began until 1949 when the investigation was stopped. During the period the total dissolved solids concentration of stored water ranged from about 320 to about 800 ppm, but the inflow had a much wider range in quality. The report discusses the fluctuations in quality of stored water and inflow and the effect of the quality on use of water for irrigation and other purposes.

HEMBREE, C. H. See Colby, B. R., 2

HENDERSON, ANGUS D.

1. Replenishment of ground water. Water Works Eng, v 104, pp 50, 70, 1951
   A general discussion with emphasis on recharge wells.

HENDERSON, D. W. See Doneen, L. D., 1
HENDERSON, R. C. See Smith, R. M., 2
HENDERSON, S. M.
1. A basic concept of equilibrium moisture. Agr Eng, v 33, pp 29-32, 1952
A mathematical analysis of the equilibrium of hygroscopic moisture with ambient humidity. Data presented for a number of materials including soils.

HENDERSON, THOMAS J. See also Hall, F., 3
1. The use of aerial photographs of snow-depth markers in water-supply forecasting. Proc West Snow Conf, pp 44-47, Apr 1953
Aerial photographs of special snow stakes provide a means of obtaining snow-depth data in areas of difficult access. Describes the program in operation in the southern portion of the Sierra Nevada, California.
2. Cloud seeder gives balloons a try. Elec West, v 112, pp 66-67, 1954
Reports use of meteorological balloons to disperse dry ice for cloud seeding. No evaluation of results.

HENDRICKS, E. L.
1. (and GOODWIN, M. H., JR.) Water-level fluctuations in limestone sinks in southwestern Georgia. U S Geol Surv Water-Supply Paper 1110-E, pp 157-245, 1952
Hydrologic characteristics of ponds determine the length of time they hold water, influence the species and density of plants that become established, and hence affect mosquito production. This report is a study of the hydrology of several ponds in limestone sinks with particular reference to breeding places of malaria-carrying mosquitoes. Analyses of records for 13 ponds in the area made by analytical, statistical, and graphical methods indicate that precipitation and evapotranspiration are the two most important factors affecting pond levels in the region studied. Significant effects of ground water are confined to relatively short periods of extremely high water-table levels.
2. (and GOODWIN, MELVIN H., JR.) Observation on surface-water temperatures in limesink ponds and evaporation pans in southwestern Georgia. Ecology, v 33, pp 385-397, 1953
Diurnal and annual temperature variations are reported for three small ponds and one evaporation pan. Temperatures are correlated with antecedent air temperature.
3. Surface-water supply for irrigation in the Vermilion River Basin, Louisiana. Proc Amer Soc Civ Eng sep 489, 20 pp, Sep 1954
Describes the area and presents data on area irrigated and consumptive use. Available natural surface supply is smaller than possible irrigation requirements and a supplemental supply would be needed in very dry years.
4. Some notes on the relation of ground-water levels to pond levels in limestone sinks of southwestern Georgia. Trans Amer Geophys Union, v 35, pp 796-804, 1954
Relation between ground-water levels and pond levels are found to be dependent on permeability of the bed of the pond. Case studies of several situations are reported.

HENDRICKSON, B. H. See Carreker, J. R., 1
HENDRICKSON, G. E. See also Griggs, R. L., 1
1. (and JONES, R. S.) Geology and ground-water resources of Eddy County, New Mexico. N M Bur Mine Min Res Ground-water Rep 3, 169 pp, 1952

HENDRIX, T. M. See also Rowe, P. B., 1
1. (and COLMAN, E. A.) Calibration of fiberglass soil-moisture units. Soil Sci, v 71, pp 419-427, 1951
Summarizes results of extensive tests of the units. No evidence of drift is found after 15 months exposure in soil which underwent six drying cycles. Laboratory calibrations in undisturbed cores are satisfactory but those in granulated soil are not.

HENNES, R. G. See Hudson, R. Y., 1
HENSTOCK, HERBERT
1. Minimum night temperatures at or near full Moon. Sci, v 116, pp 257-260, Sep 5, 1952, and v 117, pp 302-304, Mar 20, 1953
Finds evidence of cyclical variation in minimum temperatures with a low near full Moon. Discussion in v 116, pp 305-310, Mar 20, 1953.

HERB, E. G.
1. Flood prevention at Fall River. Mil Eng, v 44, pp 277-278, 1952
Describes the flood of May-June 1951 on the Verdigris River and the flood control operation at Fall River Dam.
2. Grand River flooding cut by controlled discharges. Eng News-Rec, v 149, pp 36-40, Aug 28, 1952
Description, operating considerations and lesson learned from controlling the flood at dams.

HERNDON, LEE R., JR. See Barrett, E. W., 1

HERPERS, HENRY
1. (and BARKSDALE, H. C.) Preliminary report on the geology and ground-water supply of the Newark, New Jersey, area. N J Dept Cons Econ Dev Spec Rep 10, 52 pp, 1951

HERRICK, S. M. See Carter, R. W., 1

HERTZLER, JOHN R.
1. (and KARTORIE, V. T.) Climatic factors measure air conditioning potentials. Heat, Piping, Air Cond, v 25, pp 77-84, 93-97, 102-106, 1953
A presentation of summer temperature and humidity data. While intended as basis for sales planning, the data may be useful for other purposes.

HESS, ROBERT H.
1. Long-range water supply planning for Wichita. J Amer Water Works Assn, v 44, pp 1043-1051, 1952
A discussion of the present demands and supplies and of a stage-wise plan for extension to meet future needs.

HEUSSER, CALVIN J.
1. (and SCHUSTER, ROBERT L., and GILKEY, ARTHUR, K.) Geobotanical studies on the Taku Glacier anomaly. Geog Rev, v 44, pp 224-239, 1954
Botanical clues are explored to define the historic limits of the glaciers.

HIATT, WILLIAM E.
1. The analysis of precipitation data. Physical and Economic Foundation of Natural Resources, v 4, 21 pp, U S House Rep, 1953
Illustrates present methods of preparing seasonal and annual topographically adjusted isohyetal maps, for western New Mexico and most of Arizona, using parameters of rise, direction of rise, elevation, and zone.

HIATT, WRIGHT
1. Record floods again strike the Midwest. Civ Eng, v 22, p 369, 1952
Describes the flooded areas and the causes and mitigating factors which influenced the magnitude of the flood. A table lists the areas in which the flood exceeded previous records. Primarily relates the flow in the Missouri and Mississippi Rivers.

HICKOK, R. B. See also Jongedyk, H. A., 1
1. (and MORRIS, W. V., and SIMONS, D. B.) Ground-water hydrology and hydraulics. Colo Agr Mech Coll, Dept Civ Eng, Irrigation Inst Pub ser 1, 92 pp, June 1954
A summary of the literature concerned with ground-water hydrology and hydraulics. Mathematical theory and the various equations involved in ground-water hydraulics are summarized and presented.

HIDE, J. C.
1. Observations on factors influencing the evaporation of soil moisture. Proc Soil Sci Soc Amer, v 18, pp 234-239, 1954
A discussion of movement of vapor through the soil and its evaporation at the surface. Laboratory tests confirm the concepts presented.

HIGGINS, CHARLES S.
1. An ancient cutoff of the Russian River at Guerneville, California. Papers Mich Acad Arts, Sci, Letters, v 37, pp 239-244, 1951
Describes a valley which was apparently at one time occupied by a meander of the river.

HIGGS, J. W. See Odom, L. M., 1

HIGGS, RALPH L.
1. Severe floods of October 12-15, 1954, in Puerto Rico. Mon Wea Rev, v 82, pp 301-304, 1954
The meteorology of the storms is presented with brief summary of floods, flood damages, and flood warnings.

HILL, RAYMOND A.
1. Operation and maintenance of irrigation systems. Trans Amer Soc Civ Eng, v 117, pp 72-88, 1952
Describes the problems of operation and maintenance of irrigation systems encountered in the U. S. Causes of waste are discussed. Includes data on costs of operation and maintenance. Discussion by G. E. HOWARD, L. R. FLOOK, JR., R. E. BALLESTER, and A. R. GOLZE.

HILLIARD, CECIL
1. (and WATERFIELD, HAROLD H.) Raydist for shallow-water hydrology. Mil Eng, v 43, pp 419-421, 1951
Describes electromagnetic depth sounder and details of sounding operation including horizontal control.

HISER, HOMER W. See also Jones, D. M., 1
1. (and HUFF, F. A.) Precipitation measurement study. Final report, Ill Water Surv Met Lab, 16 pp, Urbana, Ill, Feb 1954
Several types of remote recording precipitation gages, precipitation detectors, and dust counting devices are described in detail.

HITSCHFELD, WALTER See also Marshall, J. S., 1, 3; Rigby, E. C., 1

1. (and BORDAN, JACK) Errors inherent in the radar measurement of rainfall at attenuating wavelengths. J Met, v 11, pp 58-67, 1954
   Derives a new equation for the rate of rainfall in terms of power received with allowance for attenuation by gases, cloud, and rain. The errors involved in neglecting attenuation or applying improper corrections at short wave lengths are analyzed.

HOAK, RICHARD D.

1. Water supply and pollution control. Sewage Ind Waste, v 25, pp 1438-1449, 1953
   Discussion of the various aspects of the relationship between water supply and pollution control. Outlines also the procedures for pollution control.

HOBBS, J. A.

1. Replenishment of soil-moisture supply following the growth of alfalfa. Agron J, v 45, pp 490-493, 1953
   Report of studies at Manhattan, Kansas. Alfalfa is found to use soil moisture to depth of 18 ft.

HOEFLE, K. F.

1. Meeting the Dallas water shortage. J Amer Water Works Assn, v 45, p 1139, 1953
   Increased water demands in Dallas have caused serious shortage with depletion of surface storage. Describes methods used by the city to meet the demands.

HOEFLICH, NANCY J. See Smith, W. J., 1

HOENE, JOHN V.

1. Wringing out a spruce bog. Amer Forests, v 57, pp 20-21, 1951
   A report on drainage of spruce bogs in Minnesota.

HOFFER, THOMAS E. See Hales, J. V., 1

HOFFMAN, E. N. See March, A. W., 1

HOGG, A. D.

1. Some investigations in Canada. Trans Amer Soc Civ Eng, v 119, pp 22-25, 1954
   Describes a pressure cell arrangement designed to be installed on the upstream face of a dam to measure the ice pressure.

HOLE, F. D.

1. Suggested terminology for describing soils as three-dimensional bodies. Proc Soil Sci Soc Amer, v 17, pp 131-135, 1953
   Soil classifications generally describe soils as seen in a thin cross-section or profile. This paper suggests terminology which have been found useful in describing Wisconsin soils with respect to horizontal extent.

HOLLIS, MARK D.

1. Water pollution abatement in the United States. Sewage and Ind Wastes, v 23, pp 89-94, 1951
   The article broadly summarizes the present status of the water-pollution problem as to the magnitude of the problems, the costs involved and the attitudes of the national and state governments. Interstate agencies are being formed to unify control better and to formulate policies.

HOLMBERG, G. D. See Mundorff, M. J., 2

HOLMES, W. E. See Hanks, R. J., 2

HOLTAN, H. N.

1. (and KIRKPATRICK, M. H.) Infiltration estimates from soil-permeability data and the soil-conservation survey in Virginia. Va Agr Exp Sta, Oct 1952
   Presents a method for estimating infiltration on the basis of land-use and permeability data.

HOOD, E. E. See Van Bavel, C. H. M., 6

HOOD, J. W. See also Sundstrom, R. W., 1

1. (and SCALAPINO, R. A.) Summary of the ground-water development for irrigation in the Lobo Flats area, Culberson and Jeff Davis Counties, Texas. Tex Bd Water Eng Bul 5102, 25 pp, Sep 1951

HOOGHOUDT, S. B.

1. Tile drainage and subirrigation. Soil Sci, v 74, pp 35-49, 1952

HOOKER, MARJORIE See also Thom, E. M., 1

1. Annotated bibliography of North American Geology, 1950. U S Geol Surv Bul 985, 394 pp, 1952
   Lists publications on the geology of the continent of North American and adjacent islands, Panama, the Hawaiian Islands, and Guam. In addition to specific papers, it includes text-books and general papers by American authors and those by foreign authors published in America. The papers, with full title and medium of publication, are listed under the names of their authors in alphabetical order. The author list is followed by an index to the literature cited.

HOOVER, MARVIN D. See also Croft, A. R., 3; Lieberman, J. A., 1; Olson, D. F., Jr., 1

1. Water and timber management. J Soil Water Cons, v 7, pp 75-78, 1952
   Stresses the importance of watershed management to produce maximum water yield with minimum erosion or floods.
2. (and LUNT, H. A.) A key for the classification of forest humus types. Proc Soil Sci Soc Amer, v 16, pp 368-370, 1952
   Criteria for classifying forest humus into types are presented.
3. Interception of rainfall in a young loblolly pine plantation. SE For Exp Sta Paper 21, 13 pp, Jan 1953
   Measurements of interception and associated stemflow are reported for an experimental area in Calhoun Forest, South Carolina.
4. (and OLSON, DAVID F., JR., and METZ, LOUIS J.) Soil sampling for pore space and percolation. SE For Exp Sta Paper 42, 28 pp, June 1954
   Describes instruments and field methods employed in collection of soil cores for measurement of pore space and permeability.

HOPKINS, CHARLES D., JR.

1. The celerity of very large flood waves in the Arkansas Basin. Trans Amer Geophys Union, v 34, pp 594-596, 1953
   A discussion of the possible causes and the practical implications of very large flood waves which travel considerably more rapidly than flood waves of moderate size in certain rivers in the Arkansas Basin. Discussion by G. G. COMMONS and R. E. KING, v 35, pp 513-518, 1954.

HOPKINS, EDWARD S. See Guy, D. J., 1

HOPKINS, WALT See Broadfoot, W. M., 1

HOPP, HENRY See Slater, C. S., 1

HORE, F. R.

1. (and KIDDER, E. H.) Water-table drawdown characteristics. Agr Eng, v 35, 3 pp, 1954
   Compares auger holes, small-diameter perforated wells, piezometers, and nylon blocks as means of observing water table changes. Presents formula for optimum spacing of tile drains.

HORNER, W. W.

1. Report of President's water policy commission appraised. Civ Eng, v 46, p 33, 1951
   A discussion of the report of the Water Policy Commission including such items as: benefits, repayment, coordination of various agencies, etc.
2. Industrial uses of water in the United States. Physical and Economic Foundation of Natural Resources, v 2, pp 57-60, U S House Rep, 1952
   A brief discussion of industrial water supply in the U. S.

HOSLER, C. L.

1. On the crystallization of supercooled clouds. J Met, v 8, pp 326-331, 1951
   Experiments in the cold chamber show that the crystallization of supercooled drops cannot be explained on the basis of sublimation nuclei. It is suggested that the freezing results from the liberation of polarizable ions which lower the surface free energy of the drop.

HOUGH, J. L.

1. Turbidity currents and the transportation of coarse sediment to deep water; a symposium. Soc Econ Paleontologists and Mineralogists Spec Pub 2, 107 pp, 1951

HOUGHTON, FRED A., JR. See Wohletz, L. R., 1

HOUGHTON, HENRY G.

1. An appraisal of cloud seeding as a means of increasing precipitation. Bul Amer Met Soc, v 32, pp 39-46, 1951
   A review of experiments indicates that taken alone they do not permit appraisal of cloud seeding methods. Current meteorological knowledge suggests that for appreciable precipitation the cloud moisture must be continuously replenished. Seeding may advance onset of precipitation or release precipitation in small amounts from clouds not reaching to sufficiently low temperatures for natural processes. The effect on clouds already precipitating may be beneficial or adverse. Large-scale effects seem unlikely. Further research on cloud physics is needed.

HOUK, IVAN E. See also Jens, S. W., 1

1. Irrigation engineering; Vol. I, Agricultural and hydrologic phases. 545 pp, Wiley, 1951
   A textbook on irrigation engineering with emphasis on the problem of water sources and water requirements.

HOUSTON, CLYDE E. See also Criddle, W. D., 1; Stockwell, H. J., 2; Work, R. A., 3, 4, 5, 6, 9

1. (and WORK, R. A.) Runoff forecasts. 1953 water supply in the West. West Const, v 28, pp 75-78, 1953
   Summary of April 1953 water-supply forecasts.

2. (and STOCKWELL, HOMER J.) Runoff forecasts; 1954 water supply in the West. West Const, v 29, pp 68-73, 1954
   A summary of water-supply forecasts for the 1954 season.
3. (and STOCKWELL, HOMER J.) Forecast floods in North, dry in South. Elec West, v 112, pp 72-75, 1954
   A summary of the 1954 water-supply forecasts for the western United States.

HOWARD, CHARLES S. See also Lohr, E. W., 2, 5

1. Irrigation and water quality. Recl Era, pp 1-4, Jan 1953, and pp 39-40, Feb 1953
   A review of the processes resulting in increasing salts in water of irrigated areas.

HOWARD, G. E. See Hill, R. A., 1

HOWARD, ROBERT A.

1. (and BLEIL, CARL E.) Water movement induced by compaction of clastic sediment. J App Phys, p 360, Mar 1951
   Formulas for upward flow of water through compacting sediments are derived.

HOWE, EVERETT D.

1. Fresh water from salt water. Trans Amer Geophys Union, v 33, pp 417-422, 1952
   A survey of the several proposals for refining sea water, leading to the conclusion that none of the methods using fuel as a source of heat or power are feasible at the present time.
2. Sea water as a source of fresh water. J Amer Water Works Assn, v 44, pp 690-700, 1952
   This article develops the general idea for the conversion of sea water to fresh water in conjunction with a power generating plant.

HOWELL, WALLACE E.

1. A study of the rainfall of central Cuba. J Met, v 10, pp 270-278, 1953
   The monthly patterns of precipitation are presented as a series of maps and the dynamic factors causing the changes in the pattern are analyzed.
2. Some measurements of ablation, melting, and solar absorption on a glacier in Peru. Trans Amer Geophys Union, v 34, pp 883-888, 1953
   Study of the dry season flow from glaciers in Peru to determine importance of glaciers in hydrology of river in connection with development of power plant.

HOWSON, L. R.

1. Domestic and industrial water supply and pollution. Sewage Ind Wastes, v 23, pp 210-226, 1951
   The article presents a rather complete summary of the development of the nation's water resources. Priority of use, the evils of water pollution from industrial sources and pollution-control measures are discussed.
2. National water-resources policy as related to stream pollution. Sewage Works J, v 24, pp 222-227, 1952
   Article discusses stream pollution in relation to serious pollution, pollution controls, government control, and expense.

HSU, EN-YUN See McNown, J. S., 2, 3

HUBBARD, FRAN

1. When winter grips Yosemite. Nat Hist, v 63, pp 448-451, 1954
   A popular, illustrated discussion of frazil ice.

HUBBARD, GEORGE D.

1. Terrace interpretation in southeastern Ohio. Ohio J Sci, v 54, pp 365-377, 1954
   Terraces along the Ohio, Muskingum, Hocking, and Scioto Rivers are described and interpreted in terms of cause.

HUBBARD, R. G.

1. (and LING, S. C.) Electrical analogy in problems of three dimensions. Trans Amer Soc Civ Eng, v 118, pp 1046-1054, 1953
   A method analogous to the flow net or relaxation methods is developed for the solution of three-dimensional problems of hydraulic outlet works and allied structures.

HUBBELL, D. S.

1. The relation of water-stable aggregation to soil texture. Agron J, v 43, pp 33-37, 1951
   Aggregation of Gila clay (New Mexico) is highly correlated with the two-micron soil fraction.
2. (and STATEN, GLEN) Studies on soil structure. N M Agr Exp Sta Tech Bul 363, Oct 1951
   A report of studies of a heavy phase of the Gila soil series.

HUBBELL, D. W. See Colby, B. R., 1

HUBERTY, MARTIN R.

1. Some observations on soil erosion in the middle and eastern Mediterranean area. Trans Amer Geophys Union, v 35, pp 244-246, 1954
   The question is raised as to whether erosion has ever been a problem in the karst regions of the Mediterranean. The conservation practices of the Romans and the present practices and organizations of a number of countries in the area are described.

HUDSON, H. E., JR.
1. Radar - tomorrow's rain gage. Civ Eng, v 46, p 41, 1951
An article on the possibilities of application of radar to quantitative measurement of rainfall over a considerable area. Shows limitations and necessary improvements of present radar equipment.
2. (and STALL, J. B.) The watershed - using it as a basis for soil and water conservation - getting the facts through surveys and investigations. J Soil Water Cons, v 7, pp 11-15, 1952
An outline of the data needed and the methods of collecting this data as a basis for conservation planning.
3. (and GEILS, J. L.) Mortality experience with Illinois municipal wells. J Amer Water Works Assn, v 44, p 270, 1952
A discussion of the growth of ground-water use in Illinois with emphasis on the type of aquifers and wells used. A record of mortality of wells and a discussion of types of failure is included.
4. (and ROBERTS, R. E.) Transition from laminar to turbulent flow as granular media. Ohio State Univ Eng Exp Sta Bul 142, pp 105-117, Sep 1952
A review of research in the field. Porosity, friction factor, and Reynolds number are related.
5. (and STOUT, G. E., and HUFF, F. A.) Studies of thunderstorm rainfall with dense rain-gage networks and radar. Ill Water Surv Div Rep Inv 13, 30 pp, 1952
Results of three years of observation are reported. Area depth relationships for basins up to 280-sq mi area are presented. Effects of gage density on the error of computed mean rainfall is investigated. The theory of radar rainfall measurement is reviewed.
6. Industrial water use. J Amer Water Works Assn, v 45, pp 289-295, 1953
Outlines the study made by Task Group A4.D1 on the water requirements of specific industrial establishments in order to develop consumption requirements per unit of product in different industries.
7. (and STOUT, G. E., and HUFF, F. A.) Rainfall studies using rain-gage networks and radar. Trans Amer Soc Civ Eng, v 119, pp 248-276, 1954
Summarizes results of three-year study of rainfall with dense gage networks and radar. Data on area-depth relations for thunderstorms on areas from five to 280 sq mi are presented. The errors resulting from inadquate gage network density are investigated. The theory of radar-rainfall measurement is described and the possibilities of the method evaluated. Discussion by V. T. CHOW.

HUDSON, ROBERT Y. See also Mason, M. A., 1
1. Wave forces on breakwaters. Trans Amer Soc Civ Eng, v 118, pp 653-685, 1953
Reviews and compares the common theories for forces on vertical and sloping faces. Theories are compared with experimental data and necessary further experimentation is outlined. Discussion by K. KAPLAN, R. G. HENNES, and E. E. LEONOFF.

HUFF, F. A. See also Hiser, H. W., 1; Hudson, H. E., Jr., 5, 7
1. (and STOUT, G. E.) A preliminary study of atmospheric-moisture - precipitation relationships over Illinois. Bul Amer Met Soc, v 32, pp 295-297, 1951
Monthly inflow of atmospheric moisture over Illinois is evaluated for a three-year period and compared with the resulting precipitation. On the average less than six per cent of the atmospheric moisture is precipitated.
2. (and STOUT, G. E.) Area-depth studies for thunderstorm rainfall in Illinois. Trans Amer Geophys Union, v 33, pp 495-498, 1952
A report on the study of the areal distribution of individual-thunderstorm rainfall on three small watersheds in Illinois. Results are present in the form of curves that generally show maximum rainfall data to have a linear relationship to the square root of the area.

HUFFMAN, G. G.
1. (and THRASHER, L. W., and BINDER, R. C.) Importance of edge-sharpness on small-orifice meters. Instrum, v 27, pp 1468-1469, 1954
A report of tests of orifice plates with different edge conditions.

HUFFMAN, ROY E.
1. Irrigation development and public water policy. 336 pp, Ronald Press, New York, 1953
Discusses the history of irrigation development, water law in the western states, organization and financing of irrigation projects, river-basin development, economics of irrigation in arid and humid areas, and national irrigation policy. Includes some discussion of hydrologic aspects of irrigation.

HUGHES, W. F. See Bonnen, C. A., 1; Magee, A. C., 1, 2

HUIE, IRVING V.
1. New York's interest in the Delaware River. J Amer Water Works Assn, v 44, p 18, 1952
A detailed description of New York's water problem including the search for additional sources, arrangements for joint projects with other states, and comparison of alternate projects.

HULL, HAROLD H. See Bay, C. E., 1
HUME, W., II See Reynolds, S. E., 1, 3
HUNT, HENRY J.
1. Supplemental irrigation with treated sewage. Sewage Ind Waste, v 26, pp 250-260, 1954
A study of water requirements for supplemental irrigation in various parts of the U. S. based on supplying sufficient water for optimum crop production per acre.
HUNTER, R.
1. (and RIECKEN, F. F., and McCLELLAND, J. E.) Profile properties of some loess-derived Brunizem soils of southeastern Iowa. Proc Iowa Acad Sci, v 60, pp 380-389, 1953
Discusses variations in porosity and other elements in upper four feet of the soils.
HURSH, JOHN B.
1. Radium content of public water supplies. J Amer Water Works Assn, v 46, pp 43-54, 1954
A summary of analyses from 41 cities.
HURST, H. E.
1. Long-term storage capacity of reservoirs. Trans Amer Soc Civ Eng, v 116, pp 770-808, 1951
A study of the problem of estimating the safe yield of reservoirs designed for long-term carryover of water with specific consideration of reservoirs in the Upper Nile. In the absence of adequate records of flow for long periods, the author utilizes probability theory to evaluate the problem. Discussion by VEN TE CHOW, H. MILLERET, and L. M. LAUSHEY.
HUSSEY, KEITH M.
1. (and ZIMMERMAN, H. L.) Rate of meander development as exhibited by two streams in Story County, Iowa. Proc Iowa Acad Sci, v 60, pp 390-392, 1953
Meandering of sections of Skunk River and Squaw Creek after artificial straightening is observed.
HUTCHINS, WELLS A.
1. Development of ground-water laws. Paper presented Assn West State Eng, Reno, Nev, 8 pp, Aug 1953
A general review of ground-water law with emphasis on the historical development.
HUTTER, HENRY
1. Eighty years of weather and climate at Toledo, Ohio. Ohio J Sci, v 52, pp 62-75, 1952
Discusses the climate of the Toledo area with numerous charts and graphs.
HUTTON, J. T. See Gurr, G. G., 1
HYDE, H. I. See Kuroda, P. H., 1
HYLAND, W. L.
1. (and REECE, G. M.) Water supplies for army bases in Alaska. J New Eng Water Works Assn, v 66, pp 1-16, 1951
Discusses Fairbanks and Anchorage area. Some information on ground water and water quality.
2. (and REECE, G. M.) Arctic conditions complicate supply problems in Alaska. Water Works Eng, v 104, pp 378, 414, 1951
Includes discussion of ground water in permafrost.
ILLINOIS STATE WATER SURVEY DIVISION
1. The storm of July 8, 1951, in north central Illinois. Ill Water Surv Div Rep Inv 14, 45 pp, 1952
A summary of rainfall, stream flow, and erosion data for a storm which produced as much as 13 inches of rain in six hours.
INGERSOLL, A. C. See Thomas, H. A., Jr., 2
INGLIS, C. See Einstein, H. A., 3
INGOLS, ROBERT S.
1. (and NAVARRE, ALFRED T.) 'Polluted' water from the leaching of igneous rock. Sci, v 116, pp 595-597, 1952
Leaching of granite can supply significant amounts of nitrogen to streams on basis of data from northern Georgia.
INMAN, DOUGLAS L. See also Shepard, F. P., 1
1. Areal and seasonal variations in beach and nearshore sediments at La Jolla, California. U S Beach Eros Bd Tech Mem 39, Mar 1953
An analysis of the area and seasonal variations in sediment characteristics on the beach and shallow shelf area between two submarine canyon heads. Primary emphasis was on particle size, but shape, roundness, heavy-mineral and carbonate content were also studied. Changes are related to environmental factors.
INN, EDWARD C. Y.
1. Photolytic inactivation of ice-forming silver iodide nuclei. Bul Amer Met Soc, v 32, pp 132-135, 1951

Exposure to sunlight is found to result in considerable deactivation of silver iodide as ice-forming nuclei. Discussion by B. VONNEGUT and R. NEUBAUER, p 356, 1951.

IPPEN, A. T.

1. (and CARVER, C. E., JR.) Dissolved-oxygen measurement. Instrum, v 27, pp 128-129, 143, 1954
   Describes two methods for continuous measurement of dissolved oxygen in water.

IRELAND, B. See Lohr, E. W., 4

IRMAY, S.

1. On the hydraulic conductivity of unsaturated soils. Trans Amer Geophys Union, v 35, pp 463-467, 1954
   Unsaturated steady flow of liquids and gases through porous media at low Reynolds number obey Darcy's law with the relative permeability being a function of the degree of liquid saturation.

IRWIN, RAYMOND L.

1. Louisville storm-water pumping station designed for surges. Civ Eng, v 21, pp 30-31, 1951
   High water accounted for in the construction of a storm-water pumping station on the Ohio River.

IRWIN, ROSS W.

1. Water-table shape and flow nets at the upper end of subsurface drains. Iowa State Coll MS thesis, 94 pp, 1954
   A quantitative investigation of the effect of the upper end of subsurface drains on the water table. Data were obtained from the field and in the laboratory with the electrical analogue for several types of end closures.

ISAACS, JOHN D.

1. (and WILLIAMS, ALLAN E., and ECKART, CARL) Total reflection of surface waves by deep water. Trans Amer Geophys Union, v 32, p 37, 1951
   A mechanism is described by which surface gravity waves generated in shallow water may be totally reflected from deep water. The mechanism by which waves generated in deep water may be 'captured' is also discussed.

ISLITZER, NORMAN F. See Suomi, V. E., 1

ISMAIL, HASSAN M.

1. Turbulent transfer mechanism and suspended sediment in closed channels. Trans Amer Soc Civ Eng, v 117, pp 409-446, 1952
   Reviews briefly the theory of turbulent transfer and then presents experimental data obtained in a closed rectangular channel. The influence of sand in transport on the character of the flow, the friction coefficient, and the transfer coefficients is analyzed. Discussion by E. M. LAURSEN, PIN-NAM LIN, and M. R. CARSTENS.

ISRAELSON, ORSON W. See also Gardner, W., 1; Peterson, D. F., Jr., 1

1. The historical background of reclamation. Agr Eng, v 32, pp 321-324, 1951
   The history of reclamation is traced from early times and the rates of increase in recent times are analyzed.

ITSCHNER, E. C.

1. The Corps of Engineers in water resource development. Mil Eng, v 46, pp 169-172, 1954
   A review of the Corps' past and future programs.

IVES, NORTON C.

1. A dew-point moisture indicator. Agr Eng, v 33, pp 85-87, 1952
   Describes a simple dew-point hygrometer for measuring humidity of the interstitial air in various granular substance.

IVES, RONALD L.

1. Modern glaciers of the Arapaho Massif. Sci Mon, v 73, pp 25-36, 1951
   A description of glaciers in the Arapaho Mountains northwest of Denver, Colorado. Illustrated.
2. Snow eaters of the high plains. Weatherwise, v 5, pp 32-34, 1952
   Describes the chinook or foehn wind and illustrates with weather sequence at Boulder, Colorado, during a chinook.
3. Anomalous glacial deposits in the Colorado Front Range area. Trans Amer Geophys Union, v 34, pp 220-226, 1953
   Reinvestigation of reported glacial deposits in the Colorado Front Range area, in location above or exterior to those commonly classed as glaciated, has resulted in a doubling of the number of known deposits.
4. Later Pleistocene glaciation in the Silver Lake valley, Colorado. Geog Rev, v 43, pp 229-259, 1953
   A comprehensive glacial history and description of existing glaciers and glacial landforms.

IVEY, J. B. See Robinson, W. H., 1

IWAGAKI, Y. See Owen, W. M., 2

IZZARD, CARL F.

1. Empirical formulas for bridge waterways questioned. Civ Eng, v 46, p 54, 1951
   A rebuttal to an October 1950 article on empirical design formulas pointing out limitations of empirical equations.
2. Peak discharge for highway drainage design. Trans Amer Soc Civ Eng, v 119, pp 1005-1024, 1954
   Illustrates the use of regional stream-flow frequency curves as a basis for estimating design flows for bridges and culverts on streams without records. Describes procedure using statistical correlation of rainfall, topographic data, and drainage area to estimate peak rates of runoff from areas under 1000 acres. Discussion by M. A. KOHLER, R. F. WARNER, and N. E. MINSHALL.

JACKSON, M. L. See Massey, H. F., 1

JACOB, C. E. See also Hantush, M. S., 1

1. (and LOHMAN, S. W.) Non-steady flow to a well of constant drawdown in an extensive aquifer. Trans Amer Geophys Union, v 33, pp 559-569, 1952
   A mathematical theory is given for the discharge of a well of constant drawdown, discharging by natural flow from an effectively infinite aquifer of uniform transmissibility and uniform compressibility.

JACOBSON, C. B. See Langbein, W. B., 3

JACOBSON, W. L.

1. Sprinkler irrigation research in Canada. Agr Eng, v 33, pp 497-498, 500, 1952
   Summarizes research in use of sprinkler irrigation. Some data on consumptive use of water are included.

JAMISON, V. C. See also Weaver, H. A., 1

1. (and WEAVER, H. A.) Soil-hardness measurements in relation to soil-moisture content and porosity. Proc Soil Sci Soc Amer, v 16, pp 13-15, 1952
   A relation is derived between moisture content, the number of hammer blows required to cut a soil core, and the soil porosity.
2. (and WEAVER, H. A.) The relationship of moisture and microporosity to the hardness of Lloyd clay. Agron J, v 44, p 337, 1952
   Measuring hardness by the hammer blows required to drive a core sampler, microporosity is found to control hardness more than moisture in the range between field capacity and air dryness.

JANSEN, ROBERT B.

1. Surface curves for steady non-uniform flow. Trans Amer Soc Civ Eng, v 117, pp 1091-1120, 1952
   Utilizes the differential equation of non-uniform flow by applying directly the surface slopes which it represents. Paper restricted to steady flow in prismatic channels. Results are compared with those obtained by integration. Discussion by L. M. NELIDOV, J. C. STEVENS, M. BISHAY, H. E. BABBITT, K. C. WU, and J. PIETRKOWSKI.

JANSSEN, RAYMOND C.

1. The history of a river. Sci Amer, v 186, pp 74-80, 1952
   The geologic history of the River Teays which occupied much of the central U. S. is traced.
2. The Teays River, ancient precurser of the east. Sci Mon, v 77, pp 306-314, 1953
   Describes an ancient river which drained much of the basin of the present Ohio and upper Mississippi Rivers.

JAY, LEE A.

1. (and HAFER, LEROY F., and WOOD, WILLIS A.) Operation hailstone. Weatherwise, v 6, pp 160-163, 1953
   Meteorological description of a severe hailstorm near Washington, D. C. Some large stones were collected and studied. Methods of preparing replicas of hailstones are described.

JEFFORDS, RUSSELL M.

1. Pumping tests on wells in Iowa. Proc Iowa Acad Sci, v 59, pp 266-287, 1952
   Describes procedure for pumping tests including flow measurement and explains methods of interpretation. Discusses special problems such as recharge from nearby pond or stream.

JEFFRIES, C. D. See Rolfe, B. N., 1; Watson, J. R., Jr., 1

JEHN, K. H.

1. Some aspects of engineering meteorology. Sci Mon, v 76, pp 3-10, 1953
   Defines the fields and describes some possible fields of activity.

JENISTA, C. O., JR.

1. A statistical study of precipitation distribution as related to various types of mean zonal motion. Bul Amer Met Soc, v 34, pp 10-13, 1953
   The relation of precipitation occurrence to zonal circulation and the jet stream is studied statistically in an exploratory way. It is concluded that a real correlation exists. Discussion by HERBERT RIEHL, p 184, 1953.

JENS, STIFEL W.

1. Engineering meteorology. Ill Water Surv Conf on Water Res Bul 42, pp 99-122, 1952
   Summarizes known facts on precipitation, methods of processing precipitation data for use, relations between area, duration, intensity, and frequency; application of rainfall data in the hydrologic analysis of the San Jacinto River, Texas, and evaporation. Discussion by G. S. BENTON, I. E. HOUK, and PHILIP LIGHT.
2. Hydrologic considerations in the San Jacinto project. J Amer Water Works Assn, v 46, pp 438-444, 1954
   Summarizes determination of spillway flood, dependable water supply, and evaporation losses for the San Jacinto River, Texas.

JENSEN, MAX C.

1. (and LEWIS, GLENN C., and BAKER, G. ORIEN) Characteristics of irrigation waters in Idaho. Ida Agr Exp Sta Res Bul 19, Feb 1951
   Report of analysis of a number of waters in Idaho.

JENSEN, WILLIAM E.

1. Use of isotopes in soil testing. Mil Eng, v 45, 1953
   A brief review of the use of isotopes for measuring soil moisture and density.

JERVIS, W. H. See Turnbull, W. J., 2

JESPERSON, ANNA

1. (and RANDALL, L. E., and SPRATT, R. E.) Reports and maps of the Geological Survey released only in the open files, 1949-1950. U S Geol Surv Circ 149, 18 pp, 1952
   The open-file reports listed may be consulted in Washington, D. C., or at field offices as indicated. The reports and maps concern the production history, the geology, or the topography of federally owned or controlled lands with regard to water power, oil, and gas; stream flow, ground water, quality of water, and related geology and hydrology, in the United States and Alaska.

JEWELL, H. H. See Mason, M. A., 1

JEWETT, J. M. See Moore, R. C., 1

JEWETT, STANLEY S., JR. See Brown, C. J. D., 1

JOCHENS, E. R. See Colby, B. R., 2

JOERS, JOHN C.

1. (and SMITH, R. V.) Determination of effective formation permeabilities and operation efficiencies of water input wells. Pet Eng, v 26, pp B82-97, Oct 1954
   Discusses use of pressure buildup analysis of type applied to oil wells for study of water injection wells. Illustrated by test results from wells in Oklahoma and Kansas.

JOFFE, J. S. See Berg, L. S., 1

JOHNSON, ARTHUR J. See also LaSala, A. M., 1; Luszynski, N. J., 1

1. (and WATERMAN, WALTER C.) Withdrawal of ground water on Long Island, New York. N Y State Dept Cons Rep GW-28, 13 pp, 1952

JOHNSON, C. E. See Bliss, E. S., 1

JOHNSON, EDWARD E., INC.

1. Ground-water provinces of the United States; F, North Central Drift, Paleozoic Province. Johnson Nat Drillers' J, v 23, pp 1-7, Jan-Feb, 1951
   A general description of the province covering parts of New York, Pennsylvania, Ohio, Indiana, Iowa, Michigan, Missouri, Nebraska, Kansas, and Minnesota.
2. Portable meter used in Texas. Johnson Nat Drillers' J, v 23, pp 7-11, 12, Jan-Feb, 1951
   Describes a Sparling meter mounted on a special pipe so as to assure that the pipe will flow full at all flows. Used to measure well discharge.
3. Ground-water provinces of the United States; G, H, and I, Wisconsin-Paleozoic, Superior Drift-Crystalline, and Dakota Drift-Cretaceous Provinces. Johnson Nat Drillers' J, v 23, pp 1-7, Mar-Apr, 1951
   Describes the ground-water conditions in the provinces which includes portions of Wisconsin, Illinois, Minnesota, North and South Dakota, Iowa, and Nebraska.
4. Ground-water provinces of the United States; J, Black Hills-Cretaceous Province; K, Great Plains Pliocene-Cretaceous Province; L, Great Plains Pliocene-Paleozoic Province; and M, Trans-Pecos Paleozoic Province. Johnson Nat Drillers' J, v 23, pp 1-7, May-June, 1951
   Describes the geology and the availability of ground water in the Great Plains area. Some geologic sections and yield data.
5. Ground-water provinces of the United States; N, the Northwestern Drift-Eocene-Cretaceous Province, and O, Montana Eocene-Cretaceous Province. Johnson Nat Drillers' J, v 23, pp 1-7, July-Aug, 1951
   Describes the ground-water conditions in the provinces which occupy portions of North Dakota, Montana, and Wyoming.

6. Ground-water provinces of the United States; P, Southern Rocky Mountain Province; Q, Montana-Arizona Plateau; and R, Northern Rocky Mountain Province. Johnson Nat Drillers' J, v 23, pp 1-5, Sep-Oct, 1951
   Describes the ground-water conditions of the Rocky Mountain area.
7. Ground-water provinces of the United States; S, Columbia Plateau Lava Province; T, Southwestern Bolson Province; and U, Pacific Mountain Province. Johnson Nat Drillers' J, v 23, pp 1-7, Nov-Dec, 1951
   A description of the geology and ground-water conditions in the far western United States.
8. The water situation in the United States. Johnson Nat Drillers' J, v 24, pp 1-7, 10, Jan-Feb, 1952
   A general review of the fundamentals of ground-water occurrence and a summary of the water situation in the various parts of the country.
9. Ground-water surveys. Johnson Nat Drillers' J, v 24, pp 1-6, Mar-Apr, 1952
   A general discussion of methods of prospecting for ground water.
10. Ground-water reservoirs. Johnson Nat Drillers' J, v 24, pp 1-5, May-June, 1952
    Discusses general principles of ground-water recharge and the utilization of the ground water as a reservoir for storage of water.
11. Ground-water problems. Johnson Nat Drillers' J, v 24, pp 1-5, July-Aug, 1952
    A discussion of such problems as salt-water intrusion, overdraft, ground-water conservation, and increased ground-water recharge.
12. Silt, sand, and gravel. Johnson Nat Drillers' J, v 24, pp 1-5, 9, Sep-Oct, 1952
    The mechanical and chemical characteristics of soil material are discussed. Photographs illustrate appearance of various soil types.
13. The water yielding ability of silts, sands, gravels, sandstone, and limestone. Johnson Nat Drillers' J, v 24, pp 1-6, Nov-Dec, 1952
    A discussion of porosity and permeability, the physical characteristics of the materials, and of methods of determining the hydraulic characteristics.
14. Introduction and importance of testing. Johnson Nat Drillers' J, v 25, pp 1-7, Jan-Feb, 1953
    Describes methods of drilling wells and stresses the samples and tests which should be considered during construction. Photographs of many pieces of drilling equipment.
15. Purposes of test drilling. Johnson Nat Drillers' J, v 25, pp 1-6, Mar-Apr, 1953
    Stresses by a case history the importance of properly conducted test drilling to establish basis for adequate well system.
16. Reasons why some wells are disappointments. Johnson Nat Drillers' J, v 25, pp 1-4, 11, May-June, 1953, and pp 1-4, 15, July-Aug, 1953
    Stresses the importance of adequate tests prior to the construction of wells by use of case histories of successful and unsuccessful developments. Special stress is placed on adequate pumping tests when aquifer may be of limited extent.
17. Reasons some wells are disappointments. Johnson Nat Drillers' J, v 25, pp 1-4, 13, Sep-Oct, 1953, and pp 1-5, Nov-Dec, 1953, and v 26, pp 1-4, Jan-Feb, 1954
    Discusses the problems of sand pumping and methods of control.
18. Methods of tracing ground-water flow. Johnson Nat Drillers' J, v 25, pp 5-7, 13, Sep-Oct, 1953
    Describes the dye, salt, and electrical methods of tracing ground-water flow.
19. Ancient Chinese drilling method. Johnson Nat Drillers' J, v 25, pp 6-7, Nov-Dec, 1953
    An illustrated description of the method of percussion drilling which has been used by the Chinese for many years.
20. Setting screens and developing. Johnson Nat Drillers' J, v 26, pp 1-5, July-Aug, 1954
    Discusses the special problems of screens and final development of wells drilled by the rotary process.
21. Well-point systems for supply and dewatering. Johnson Nat Drillers' J, v 26, pp 4-7, Sep-Oct, 1954
    Describes the layout and construction of well-point systems for developing a water supply from shallow ground water.

JOHNSON, GEORGE E.

1. Silt injection checks seepage losses from water-supply canal in Nebraska. Eng News-Rec, v 148, Feb 7, 1952
   Article describes silt injection on a scale never before attempted to check large seepage losses from the main supply canal of the central Nebraska Public Power and Irrigation District.

JOHNSON, H. P.

1. (and FREVERT, R. K., and EVANS, D. D.) Simplified procedure for the measurement and computation of soil permeability below the water table. Agr Eng, v 33, pp 283-286, 1952
   The piezometer and auger-hole methods are described and nomograms for solution of equations are presented.

JOHNSON, J. W.

1. (and FUCHS, R. A., and MORISON, J. R.) The damping action of submerged breakwaters. Trans Amer Geophys Union, v 32, p 704, 1951
   The results of an experimental investigation on the damping action of submerged rectangular breakwaters. Also includes a summary of all available information on damping action of trapezoidal and triangular breakwaters, reefs, and plane barriers.
2. (and RICE, E. K.) A laboratory investigation of wind-generated waves. Trans Amer Geophys Union, v 33, pp 845-854, 1952
   Study of waves originated in laboratory in steady-rate conditions. Measurements were made by means of an oscillograph at various points in the flume.
3. Report of the committee on the dynamics of streams, 1951-1953. Trans Amer Geophys Union, v 34, pp 933-937, 1953
   A review of current studies in the field of stream dynamics, principally related to sediment problems.
4. Engineering aspects of diffraction and refraction. Trans Amer Soc Civ Eng, v 118, pp 617-652, 1953
   Develops and illustrates principles for estimating wave conditions near shore lines. Includes summary of the basic theory of wave diffraction. Discussion by M. E. STELZRIEDE.

JOHNSON, JOHN C.

1. Physical meteorology. 393 pp, Wiley, New York, 1954
   A textbook of the physical aspects of meteorology including atmospheric optics, radiation, clouds, atmospheric electricity, and the upper atmosphere.

JOHNSON, P. M. See Cederstrom, D. J., 2

JOHNSON, S. J. See Avery, S. B., 1

JOHNSTON, C. N.

1. Irrigation wells and well drilling. Calif Agr Exp Sta Circ 404, May 1951
   A mannual for farmers stressing the high cost of improper well construction and inexpert well location.

JOHNSTONE, DON O. See Sanderson, E. E., 1

JONES, B. E. See also Wiesnet, D. R., 1; Young, L. L., 1

1. (and YOUNG, L. L.) Developed and potential water power of the United States and other countries of the world, December, 1952. U S Geol Surv Circ 329, 12 pp, 1954
   Contains estimates of the developed and potential water-power resources of the United States, by section and state, and of the world, by continent and country. It combines tabulations of developed and estimated potential water power of the world and potential water-power resources of the United States for various flow rates with existing storage and the potential realizable by development of known storage sites.

JONES, DOUGLAS M. A. See also Atlas, D., 3

1. (and HISER, HOMER W.) Measurement of point and areal rainfall by radar. Ill Water Surv Bul 41, pp 241-254, 1952
   Presents results of comparative measurements of rainfall intensity by recording gages and radar in Illinois.

JONES, FRED O.

1. Tukiangyien: China's ancient irrigation system. Geog Rev, v 44, pp 543-559, 1954
   A brief illustrated description of the system in Szechwan Province.

JONES, HAROLD E.

1. (and KOHNKE, HELMUT) The influence of soil-moisture tension on vapor movement of soil water. Proc Soil Sci Soc Amer, v 16, pp 245-252, 1952
   A report of laboratory studies in which vapor movement was induced by temperature difference within horizontal soil columns. The effect of porosity, initial moisture content, and vapor-pressure gradients on moisture movement was determined. Vapor movement increases sharply with increasing tension up to a point and then decreases.

JONES, J. R. See Akin, P. D., 3

JONES, LEWIS A.

1. Effects of drainage on agricultural production. Agr Eng, v 33, pp 415-416, 1952
   A general review of the value of land drainage supplemented by some specific case histories.
2. Farm drainage. U S Dept Agr Farmer's Bul 2046, Oct 1952
   A practical guide for farmers and engineers interested in farm drainage. Supersedes Farmer's Bul 1606.
3. Drainage as a tool for increased crop production. Agr Eng, v 34, pp 239-242, 250, 1953
   Reviews the historical development of drainage practices in the U. S. and summarizes some of the results. Discusses future drainage problems in the light of need for increased agricultural production.

JONES, PAUL H.

1. (and BUFORD, T. B.) Electric logging applied to ground-water exploration. Geophysics, v 16, pp 115-139, 1951
   Describes techniques for evaluating water quality and formation porosity from logs. Examples from southern Louisiana.
2. Geology and ground-water conditions in the lower valley of the Rio Elqui of Chile. Econ Geol, v 48, pp 457-491, 1953
   A description and discussion of conditions in the valley, with maps and cross sections and a conclusion as to the feasibility of ground-water utilization.
3. (and TURCAN, A. N., JR., and SKIBITZKE, HERBERT E.) Geology and ground-water resources of southwestern Louisiana. La Geol Surv Geol Bul 30, 285 pp, Jan 1954
   A detailed study of the area.
4. Ground water in the Vermilion River basin, Louisiana. Proc Amer Soc Civ Eng sep 490, 19 pp, Sep 1954
   Overdraft in the extensive gravel aquifer has created a gradient from the Vermilion River which is threatening salt-water intrusion.

JONES, R. P.

1. Evaluation of stream-flow records in Big Wood River basin, Idaho. U S Geol Surv Circ 192, 59 pp, 1952
   Many streams in the Big Wood River basin are being utilized to the extent that the flow measured at gaging stations does not represent the actual yield of the streams. This report appraises diversions, return flow from irrigation, storage and release of flood waters on basis of a detailed field investigation. Includes tabulations of municipal and industrial uses of water, data on capacity and operation of storage reservoirs, descriptions of gaging stations in the basin, acreage irrigated between successive gaging stations, and other data.

JONES, R. S. See Henderickson, G. E., 1

JONES, VICTOR H.

1. (and ROGERS, ROSS E.) Reconnaissance investigation of sedimentation in Possum Kingdom Lake. U S Soil Cons Serv SCS-TP-87, 22 pp, Dec 1949
   Summarizes a study of sediment in the reservoir and of the probable future life of the reservoir.
2. (and ROGERS, ROSS E.) Aspects of sedimentation in Lake Waco, Waco, Texas. U S Soil Cons Serv SCS-TP-100, 56 pp, July 1952
   Lake Waco was built in 1930 with a drainage area of 1666 sq mi. By 1947 sediment had reduced its capacity by about 40 pct. Report describes the results of the survey, possible economic effects of the sedimentation, and possible alternative measures for minimizing the effects.
3. (and RENFRO, GRAHAM W., and COMMONS, GLENN G.) Problems of sedimentation and water supply in Lake Nasworthy, San Angelo, Texas. U S Soil Cons Serv, Temple, Tex, 26 pp, Nov 1954
   Reports results of two sediment surveys of the reservoir. These data, together with estimates of growth of demand are used to estimate the future life of the reservoir.

JONES, W. R.

1. Easy to install drain wells placed behind leaking levee. Eng News-Rec, v 146, p 37, May 17, 1951
   Modified pile driving technique used to install seepage relief wells. Discusses the use and operation of these wells in carrying off seepage.

JONGEDYK, H. A.

1. (and HICKOK, R. B., and MAYER, I. D.) Change in drainage properties of a muck soil as a result of drainage practices. Proc Soil Sci Soc Amer, v 18, pp 72-76, 1954
   Field tests in Indiana show improvement in permeability, soil structure, and other factors as a result of drainage.

JORDAN, R. C.

1. (and THRELKELD, J. L.) Solar energy availability for heating in the United States. Heat, Piping, Air Cond, v 25, pp 111-122, 1953
   Extensive summary of solar radiation data, discussion of variations, and analysis of effect of angle of incidence. Extensive bibliography.

JORGENSON, DONALD L.

1. A long-term fluctuation in early fall precipitation in California. Bul Amer Met Soc, v 32, pp 210-213, 1951
   Moving means of September precipitation at several stations in California show marked long-period fluctuations. The probable causal factors are discussed.

JORISSEN, A. L.

1. Hydraulic engineering in the civil engineering program. Amer Soc Eng Educ Civ Eng Bul, v 20, pp 8-10, 1954
   Discusses the essential course content and methods of presentation including some discussion of the necessary hydrology which should be included.

JOSEPH, IRVING

1. Complex backwater problems solved by simple curves. Civ Eng, v 22, p 79, 1952
   Suggests a method of solving complex backwater problems, by simple curves. The curves permit solution when initial water stage and discharge are not definitely known.

JUDSON, SHELDON See also Leet, L. D., 1

1. Arroyos. Sci Amer, v 187, pp 71-76, 1952
   A general discussion of arroyo formation and history.

JURWITZ, LOUIS R.

1. Arizona's two-season rainfall pattern. Weatherwise, v 6, pp 96-99, 1953
   The meteorological causes of the summer thunderstorms and winter rains in Arizona are discussed.

KAHANOVITZ, YONA

1. (and MANNING, JOHN C.) Ground-water hydrology of Pleasant Valley, Fresno County, California. Stanford Univ Publ Geol Sci, v 4, Stanford Univ Press, 39 pp, 1954
   Report of an investigation of a small valley in the coastal mountains. Natural recharge is found to result from percolation of water from the stream channel. Analysis indicates that sustained pumping at existing rates will continue the decline of the water table.

KAMPRATH, E. J.

1. (and OLSON, R. A.) Irrigation induced changes in the chemical properties of some important chernozem soils in Nebraska. Agron J, v 45, pp 429-433, 1953
   Field tests at several stations are reported.

KANSOH, M. M. See Ezra, A. A., 1

KAPLAN, K. See Hudson, R. Y., 1

KARAKI, SUSUMU

1. Model study of seepage flow from a canal to a shallow water table. MS thesis Colo Agr Mech Coll Dept Civ Eng, 62 pp, June 1954
   Results of a model study of seepage from a canal through a shallow water table are presented. Depth of water in the canal, width of the canal and the position of the water table at a particular horizontal distance from the canal are the geometric parameters affecting this flow. The relationship of these parameters and permeability to the seepage loss is studied and equations relating to them are presented.

KARAPIPERIS, PHOTIOS P.

1. The influence of ground condition and cloudiness on the diurnal march of surface vapor pressure at Blue Hill, Milton, Massachusetts. Trans Amer Geophys Union, v 32, pp 547-551, 1951

KARLSTROM, THOR N. V.

1. Improved equipment and techniques for orientation studies of large particles in sediments. J Geol, v 60, pp 489-493, 1952
   An orientation template for field marking of samples and a goniometer for reorienting the particles in the office are described. Suggests that considerable improvement in understanding of sedimentary processes may result.

KARTORIE, V. T. See Hertzler, J. R., 1

KARUSH, W.

1. A steady-state heat-flow problem for a quarter infinite solid. J App Phys, v 23, pp 492-494, 1952
   Develops the equations for heat flow in a case which would be analogous to the case of groundwater flow into a core trench at right angles to the stream.

KASER, PAUL

1. Ground-water levels in Ohio 1949-1950. Ohio Div Water Bul 25, 103 pp, July 1952
   A summary of ground-water levels by county.
2. Ground-water levels in Ohio 1951-1952. Ohio Div Water Bul 28, 95 pp, Feb 1954
   A summary of ground-water levels by county.

KASHEF, ABDEL-AZIZ I.

1. (and TOULOUKLAN, Y. S., and FADUM, R. E.) Numerical solutions of steady-state and transient-flow problems. Purdue Univ Eng Exp Sta Bul 117, 115 pp, July 1952
   A comprehensive review of methods solving flow problems for wells by numerical integration. Results are felt to be superior to any other method of solving for well discharge. Methods are tested on actual data. Tables for solution of problems are presented.

KATZ, ISADORE
1. A momentum disdrometer for measuring raindrop size from aircraft. Bul Amer Met Soc, v 33, pp 365-368, 1952
Describes a device which measures the momentum and volume of droplets by their impact on a condenser microphone.

KAZMANN, RAPHAEL G. See also Hansen, V. E., 1
1. The role of aquifers in water supply. Trans Amer Geophys Union, v 32, p 227, 1951
The concept of 'safe yield' is analyzed and problems of ground water recharged artificially in respect to legislation are discussed.

KEDESBY, H. H. See Kumai, M., 1

KEECH, C. F.
1. Ground-water resources of the Wood River unit of the lower Platte River basin, Nebraska. U S Geol Surv Circ 139, 96 pp, 1952
The Wood River unit is 233 sq mi of flat land between Kearney and Wood River, Nebraska. It is underlain by unconsolidated sediments which rest on beds of the Ogallala formation. On the basis of field studies it is estimated that 77,600 ac ft of water was pumped in 1947. The discharge of 142 representative irrigation wells was measured and the average yield computed to be 856 gpm. Depth-to-water measurements made in 168 wells in 1948, when compared to measurements in the same wells in 1931-32, indicate that the average decline of the water level during that period was about 2.6 ft.

KEHRLEIN, OLIVER
1. (and SERR, EUGENE, SR., TARBLE, RICHARD D., and WILSON, WALTER T.) High Sierra snow-ablation observations. Proc West Snow Conf, pp 47-52, Apr 1953
Reports some observations on and near the summit of Mt. Whitney in an attempt to determine the magnitude of evaporation in high elevation snow. It is concluded that relatively small amounts of direct evaporation occur.

KEIFER, CLINT J.
1. (and CHU, HENRY HSIEN) Backwater functions by numerical integration. Proc Amer Soc Civ Eng sep 383, 14 pp, Jan 1954
Presents new procedures for computation of backwater curves with emphasis on closed conduits. Equations are derived and tables presented for use with circular conduits.

KEITH, C. H.
1. (and ARONS, A. B.) The growth of sea-salt particles by condensation of atmospheric water vapor. J Met, v 11, pp 173-184, 1954
Growth rate of particles is measured and compared with a predictor equation. The equation is then used to analyze the growth which might be expected in the atmosphere.

KELLEY, J. J. See aufm Kampe, H. J., 1

KELLEY, VINCENT C.
1. (and SILVER, CASWELL) Geology of the Caballo Mountains. N M Univ Pub Geol 4, 286 pp, 1952

KELLOGG, C. E.
1. (and NYGARD, I. J.) Exploratory study of the principal soil groups of Alaska. U S Dept Agr Mono 7, 138 pp, 1951
A general evaluation of Alaskan soils from reconnaissance and limited tests.

KENDRICK, J. S.
1. Civil engineering features of the Kitimat project. J Boston Soc Civ Eng, v 41, pp 88-112, 1954
A description of the project location in British Columbia.

KENNER, W. E. See Cooper, H. H., 1, 2

KENNISON, KARL R.
1. Problems which New York City faces in expanding its water supply sources. J Boston Soc Civ Eng, v 41, pp 354-377, 1954
A description of existing and potential water sources and a summary of anticipated future needs.
2. New York's quest for interstate water. J NE Water Works Assn, v 68, pp 221-249, 1954
A historical survey of the engineering and legal problems in the development of the New York City water supply.

KENWORTHY, A. L.
1. Moisture in orchard soils as influenced by age of sod and clean cultivation. Mich State Coll Agr Exp Sta Q Bul, v 35, 6 pp, May 1953
A report showing that a 25-year old sod increases the available moisture in an orchard, over-clean cultivation, by apparently improving the soil structure and reducing runoff.

2. Depletion of soil moisture in a mature apple orchard with a sod-mulch system of soil management. Mich State Coll Agr Exp Sta Bul, v 36, 7 pp, Aug 1953
The uniform soil moisture readings versus depth under the mulch indicates a fairly uniform root penetration at various depths. Between the trees and under the sod the available soil moisture was less at the surface and increased with depth.

KERSTEN, M. S.

1. Thermal properties of soils. Hwy Res Bd Spec Rep 2, pp 161-166, 1952
Presents data on numerical values of specific heat and thermal conductivity. Illustrates some applications.

KETCHUM, BOSTWICK H.

1. Flushing of tidal estuaries. Sewage Ind Wastes, v 23, pp 198-209, 1951
The author presents a modification to the tidal-prism method of determining the ability of an estuary to disperse pollution. Comparisons with the tidal-prism method, actual surveys and the modified method indicate that the modified theory agrees much more closely to the actual survey. Discussion by A. M. RAWN.

KEULEGAN, GARBIS H.

1. Wind tides in small closed channels. J Res, v 46, pp 358-381, 1951
Presents theoretical background for set-up caused by wind and verifies conclusions by laboratory experiments. Final results are applied to Lake Erie.
2. Determination of critical depth in spatially variable flow. Proc 2nd Midwestern Conf Fluid Mech, Ohio Univ Eng Exp Sta Bul 149, Sep 1952
3. Hydrodynamic effect of gales on Lake Erie. J Res, v 50, pp 99-109, 1953
Coefficients of wind stress and sea roughness are derived for Lake Erie. Computed wind tides are found to agree well with observed lake levels.

KHALAF, JASSIM M.

1. The water resources of the lower Colorado River basin. PhD thesis, Chicago Univ, 2 v, 234 pp, Dec 1951 (published as Research Paper 22)
A general illustrated description of the area and of past and future developments.

KIAH, MAYNARD See Vonnegut, B., 2

KIDDER, E. H. See also Hore, F. R., 1; Van Doren, C. A., 1

1. (and DAVIS, J. R.) Supplemental irrigation on sandy soils in Michigan. Agr Eng, v 4, pp 761-765, 1953
Describes climate and soils of the state and experience with irrigation in recent years.

KIEFER, FRED W., JR.

1. Reynolds number for flow through porous media. MS thesis, Colo Agr Mech Coll, Dept Civ Eng, 143 pp, June 1953
The factors of porosity, grain size, and grain-size distribution as they effect the permeability of sand are studied by critical review of the literature and by extensive laboratory experimentation. Equations expressing these effects are presented. A standardized Reynolds number for flow through sands which corrects for grain shape, porosity, and particle size and size distribution is proposed.

KIENTZLER, C. F. See Arons, A. B., 1

KILLEN, JOHN M. See Straub, L. G., 6

KINDSVATER, C. E. See also Fry, A. S., 1

1. (and CARTER, R. W., and TRACY, H. J.) Computation of peak discharge at contractions. U S Geol Surv Circ 284, 34 pp, 1953
Reports extensive model tests to establish techniques for computing stream flow from observed profiles through the contractions at bridges. Geometric types are described and relationships between geometry and flow characteristics are presented.
2. (and CARTER, R. W.) Tranquil flow through open-channel constrictions. Proc Amer Soc Civ Eng, sep 467, 27 pp, Aug 1954
Description of the flow patterns, analysis of the discharge function, and presentation of experimental data pertaining to a limited variety of simple constrictions in simple open channels.

KING, BARRINGTON

1. Soil conservation forges ahead in the southeast. Soil Cons, v 17, pp 83-88, 1951
Discusses some of the benefits derived from soil conservation practices in South Carolina.

KING, C. A. M.

1. Depth of disturbance of sand on sea beaches by waves. J Sed Pet, v 21, pp 131-140, 1951
Relation between depth of disturbance and wave height is developed statistically by experiments on colored sand.

KING, N. J.

1. (and MACE, M. N.) Sedimentation in small reservoirs on the San Rafael Swell, Utah. U S Geol Surv Circ 256, 21 pp, 1953

Discusses the factors that influence rates of sediment movement on upland areas on the San Rafael Swell, Utah. Sediment accumulations in 15 small stock reservoirs were measured and the factors influencing sedimentation evaluated. Suitable adjustments used to obtain long-term estimates of sediment production. Reservoir drainage basins show a definite relationship between sediment production and lithology.

KING, RALPH E. See also Hopkins, C. D., Jr., 1

1. Stage predictions for flood control operations. Trans Amer Soc Civ Eng, v 117, pp 690-704, 1952
   Several methods of forecasting flood stages on the Lower Mississippi River are presented and discussed. Examples of their use are also given. Discussion by R. BUEHLER.

KINGSBURY, T. M.

1. Ground-water conditions of the unglaciated areas in the southern part of Indiana. Proc Ind Acad Sci, v 63, pp 228-229, 1953
   A brief general description without data.

KINNISON, H. B. See also Allen, W. B., 1

1. Evaluation of stream-flow records in Yakima River basin. U S Geol Surv Circ 180, 38 pp, 1952
   The Yakima basin is heavily regulated by reservoirs and diversions. The paper reports results of detailed field survey of all man-made influences in the basin. Includes data on municipal use, irrigated acreage, reservoirs, etc.

KINZER, GILBERT D.

1. (and GUNN, ROSS) The evaporation, temperature, and thermal relaxation time of freely falling drops. J Met, v 8, pp 71-83, 1951
   A theoretical and experimental study of the physical behavior of freely falling drops. Equations relating the important factors are presented. Special equipment for the laboratory studies is described.

KIRKHAM, DON See also Evans, D. D., 1; Gardner, Wilford, 2; Reeve, R. C., 1; Rollins, R. L., 1; Schwab, G. O., 2; Swartzendruber, D., 3; Van Schilfgaarde, J., 2

1. (and GASKELL, R. E.) The falling water table in tile and ditch drainage. Proc Soil Sci Soc Amer, v 15, pp 37-42, 1950
   An equation for the rate of fall of the water surface is derived in terms of hydraulic head, water-table slope, soil permeability, and drainable porosity. Results for typical cases are cited.
2. (and SCHWAB, G. O.) The effect of circular perforations on flow into subsurface drain tubes, Pt I, Theory. Agr Eng, v 32, pp 211-214, 1951
   Equations are developed for the flow of soil water into perforated drain tubes.
3. Seepage into drain tubes in stratified soil. Trans Amer Geophys Union, v 32, pp 422-442, 1951
   Mathematical analysis of flow into horizontal drains.
4. (and DE ZEEUW, J. W.) Field measurements for tests of soil-drainage theory. Proc Soil Sci Soc Amer, v 16, pp 286-293, 1952
   Reports measurements of water-table height, rainfall, permeability, and ditch and tile outflows for drains installed in replicated plots in the recently reclaimed Northeast Polder in the Netherlands. Measurements were made during November and December, 1950, when transpiration and evaporation were low. This is believed to be the most extensive field test of drainage theory ever made.
5. Seepage of artesian and surface water into tubes in stratified soil. Trans Amer Geophys Union, v 35, pp 775-790, 1954
   The problem of the simultaneous upward seepage of water from an artesian basin and downward seepage of water from a ponded surface source into drain tubes is analyzed in mathematical detail for a soil consisting of two horizontally stratified layers, each of a different but uniform permeability overlying the artesian gravel. Flow nets are presented. Curves are given for the variation of seepage inflow rate to the drain tubes for different ratios of permeability of the layers, tile spacing, etc. The analysis applies only to ponded surface water.

KIRKPATRICK, ALTON

1. Deep wells plus river water fill big power-plant needs. Eng News-Rec, pp 28-32, Nov 5, 1953
   Describes the design and construction of the new water-supply and treatment facilities for Louisiana Power Station at Baton Rouge.

KIRKPATRICK, M. H. See Holtan, H. N., 1

KIRSHNER, LOUIS D.

1. Forecasting Great Lakes levels aids power and navigation. Civ Eng, v 24, pp 54-57, 1954
   Describes the methods used by the U. S. Lake Survey to forecast the maximum annual level of the Great Lakes.

KIRVER, J. K. See Richardson, J. G., 1
KISER, R. T. See Lohr, E. W., 2, 5
KITTREDGE, JOSEPH
1. Influence of forests on snow in the ponderosa - sugar pine - fir zone of the Central Sierra Nevada. Hilgardia, v 22, pp 1-96, 1953
   A comprehensive report analyzing observations of snowfall at nearly a 100 stations in a limited area for seven years (1934-41). Data on snowfall, density of new snow, interception, accumulated snow depth and water equivalent, evaporation, and rates of melt are related to a variety of exposure and cover parameters.
2. The influence of shade and litter of pine on evaporation from a clay loam soil at Berkeley, California. Ecology, v 35, pp 397-405, 1954
   Annual variation in evaporation is determined by periodic analysis of soil samples and related to shade, letter, depth, and to pan evaporation.
3. Influence of pine and grass on surface runoff and erosion. J Soil Water Cons, v 9, pp 179-185, 1954
   Reports results of plot experiments in California.

KLAER, F. H.
1. (and MIKELS, F. C.) Recharging of aquifers. Ohio Univ Eng Exp Sta Bul 147, pp 128-135, May 1952
   A review of methods with particular emphasis on conditions in Ohio.
2. Providing large industrial water supplies by induced infiltration. Min Eng, v 5, pp 620-624, 1953
   Describes use of vertical wells, horizontal collectors, and infiltration galleries. Outlines advantages of infiltrated water with respect to cost, temperature, and quality.

KLEIN, GEORGE J. See also Work, R. A., 2
1. The Canadian snow-cover survey. Proc West Snow Conf, pp 75-83, Apr 1951
   Reviews briefly Canadian research on snow and describes the snow-cover survey program which includes measurements of specific gravity, temperature, free water, hardness, and grain size and shape in each layer of the pack. Discussion by J. E. CHURCH.

KLEIN, HOWARD See also Schroeder, M. C., 1
1. Ground-water resources of the Naples area, Collier County, Florida. Fla Geol Surv Rep Inv 11, 64 pp, 1954
   Comprehensive ground-water geology and hydrology.

KLEIN, WILLIAM H.
1. The early summer drought of 1952. Weatherwise, v 5, pp 111-113, 1952
   Brief description of the meteorological sequence which resulted in the drought.

KLEINSCHMIDT, R. STEVENS See Thomas, H. A., Jr., 1

KLIEVER, WALDO H.
1. Instrumentation in agricultural engineering research. Agr Eng, v 33, pp 366, 368, 1952
   Describes a report on instrumentation compiled by a committee of American Society of Agricultural Engineers. Report is unpublished but information is available.

KLINGEBIEL, A. A. See also Larson, B. O., 1; Stall, J. B., 1, 2, 3; Van Doren, C. A., 2
1. (and O'NEAL, A. M.) Structure and its influences on tilth of soils. Proc Soil Sci Soc Amer, v 16, pp 77-80, 1952
   Several corn-belt soils were studied in the field and laboratory, to determine structure, permeability, volume weight, and other factors. Cultivation and poor management resulted in decrease in permeability in many soils. Surface soil was least permeable of the soils studied.

KLUTE, ARNOLD See also Russell, M. B., 1
1. A numerical method for solving the flow equation for water in unsaturated materials. Soil Sci, v 73, pp 105-116, 1952
   Derives an equation from Darcy's law and the continuity principle and describes the numerical solution of the equation for semi-infinite horizontal systems.
2. Some theoretical aspects of the flow of water in unsaturated soils. Proc Soil Sci Soc Amer, v 16, pp 144-148, 1952
   Discusses validity of the Darcy law, and the relationship of the Darcy coefficient of permeability to various soil parameters. An equation of flow is derived and methods of solution are explained.

KNUTSON, CARROLL F.
1. Definition of water table. Bul Amer Assn Pet Geol, v 38, pp 2020-2027, 1954
   A discussion of alternative definitions of the water table with reference to petroleum geology.

KOCH, E. J.
1. (and RIGNEY, J. A.) A method of estimating optimum plot size from experimental data. Agron J, v 43, pp 17-21, 1951

Outlines statistical methods for evaluating soil heterogeneity in connection with plot experiments in agriculture.

KOELZER, VICTOR A.

1. Cumulative snow-melt distribution graphs and their use in runoff forecasting. Proc West Snow Conf, pp 30-46, Apr 1951
   Curves of cumulative snow-melt runoff versus cumulative degree days for inflow to Seminoe Reservoir, Wyoming, are presented and their use for predicting runoff is illustrated. Discussion by W. U. GARTSKA and M. S. SACHS.
2. Use of melt-season snow surveys. Proc West Snow Conf, pp 86-89, Apr 1954
   Describes method in which snow surveys during the melt season are used to refine and extend runoff forecasts into Seminoe Reservoir. Discussion by H. J. STOCKWELL.

KOHLER, MAX A. See also Izzard, C. F., 2; Linsley, R. K., 1; Paulhus, J. L. H., 1

1. (and LINSLEY, R. K.) Predicting the runoff from storm rainfall. U S Wea Bur Res Paper 34, 10 pp, Sep 1951
   A description of the coaxial multiple correlation technique used by the Weather Bureau in forecasting the amount of runoff to result from a storm rainfall.
2. Application to stream-flow routing. Trans Amer Soc Civ Eng, v 118, pp 1028-1045, 1953
   Describes the electrical analog for stream-flow routing as developed by the Weather Bureau and illustrates its application for point-to-point routing and for routing rainfall from a basin. Discussion by A. J. COOPER and C. O. CLARK.

KOHNKE, HELMUT See Brawand, H., 1; Jones, H. E., 1

KOLB, C. R. See Fisk, H. N., 3; Turnbull, W. J., 1

KOLOSEUS, H. J. See Cermak, J. E., 1, 2

KOOPMAN, F. C. See Moulder, E. A., 1

KOVNER, JACOB L.

1. (and EVANS, THOMAS C.) A method for determining the minimum duration of watershed experiments. Trans Amer Geophys Union, v 35, pp 608-612, 1954
   A simple graphic solution is described for approximating the length of time required to detect significant differences between treatments on experimental watersheds.

KOZACHYN, JOHN See Moore, W. R., 2

KRAGHT, PETER E.

1. On the spread of precipitation areas and forecasting onset time of precipitation. Bul Amer Met Soc, v 32, pp 159-162, 1951
   A discussion of the movement of the isochrone of onset time of precipitation.

KRAMER, HAROLD

1. A study of absolute humidity conditions in the Gulf Coast rice area. Agr Eng, v 32, pp 677-678, 1951
   Presents statistical analysis of humidity data at Crowley, Louisiana.

KRAMER, HARRY

1. A historical record of the use of snow-cover forecasts in the mid-Columbia area. Proc West Snow Conf, pp 8-10, Apr 1953
   A review of the flood situations on the Yakima River and the utility of snow-survey data in anticipating critical conditions.

KRAMER, PAUL J. See also Croft, A. R., 3

1. Plant and soil and water relations on the watershed. J Forestry, v 50, pp 92-95, 1952
   Vegetation influences soil moisture by its influence on interception, evaporation, and infiltration and directly by transpiration. The effects are discussed.

KRAMSKY, MEYER See Gleason, G. B., 1

KRAVATH, FRED F.

1. Soil stabilization methods. Mil Eng, v 44, pp 451-454, 1952
   Discusses briefly the use of chemicals, electrical methods, drains, and mechanical manipulation as techniques for soil stabilization.
2. Military use of de-salting by ion-exchange. Mil Eng, v 45, pp 190-191, 1953
   Describes process and possible operation.
3. Soil stabilization by electro-osmosis. Mil Eng, v 46, pp 273-275, 1954
   Reviews known facts about the process and cites some cases of its practical application.

KRICK, IRVING P.

1. Snow pack increase in the Colorado Rockies by artificial nucleation. Proc West Snow Conf, pp 108-110, Apr 1951
   Reports briefly on cloud seeding in the upper Arkansas, South Platte, and Rio Grande Basins during the winter of 1950-51. Evaluation based largely on ratio of precipitation to water equivalent of the snowpack.
2. The procedure of artificial nucleation for purpose of increasing rainfall. Sheep, Goat Raiser, v 31, pp 24-25, 1951

Describes the process of raindrop nucleation and the role of silver idodide in accelerating the process. Claims that seeding will increase rainfall between 50 and 500 pct.

3. (and SMITH, T. B.) Some evaluations of sustained cloud-seeding operations. Trans Amer Geophys Union, v 33, pp 53-56, 1952
   Evaluations of several cloud-seeding projects are discussed. These projects included portions of northeastern New Mexico, southeastern Colorado, and eastern Oregon and were conducted during July to December, 1950. These evaluations are statistical and involve comparisons with the precipitation occurring in nearby unseeded areas. A multiple regression equation was developed from past data relating precipitation in seeded and unseeded areas. Discussion by J. SUMMERSETT, v 34, pp 137-140, 1953.
4. Increasing water resources through weather modification. J Amer Water Works Assn, v 44, pp 996-1020, 1952
   An extensive presentation of cloud-seeding operations, beginning with a historical background and principles involved and following through to the results obtained by the weather modification companies organized by the author. Operation techniques of the silver iodide generator, field results, and some of the legal problems are also given.
5. Evidence of man-made climatic change. Proc West Snow Conf, pp 11-18, Apr 1953
   Report of the cloud-seeding activities of the author's firm in the South Platte area, Colorado. Discussion by M. S. SACHS.
6. Increased water resources through cloud seeding. Pub Works, v 84, pp 61, 94, 1953
   Brief description of process.
7. Cloud-seeding operations at Dallas. J Amer Water Works Assn, v 45, p 1144, 1953
   Describes the apparent successes of cloud-seeding operations in Dallas during 1953. Silver iodide was used to produce up to 135 pct of normal rainfall in target area, while surrounding area was below normal.
8. Progress in weather control. J Amer Water Works Assn, v 46, pp 803-817, 1954
   A summary of some of the seeding projects conducted by the author's company and a brief review of the legal and technical aspects of cloud seeding.

KRIEGER, R. A. See Visher, F. N., 2

KRIMGOLD, D. B.

1. Determining time and amount of irrigation. Agr Eng, v 33, pp 705-707, 1952
   A general discussion of the use of the Thornthwaite approach to estimate the need for irrigation.
2. Economic feasibility of supplemental irrigation. Agr Eng, v 35, pp 22-27, 1954
   Discusses plant - soil-moisture relations and outlines the use of the Thornthwaite evapotranspiration formula to compute soil-moisture deficiency as a basis of estimate of irrigation water requirements.

KRONE, RAY B. See also Stone, R., 2

1. (and LUDWIG, H. F., and THOMAS, JEROME F.) Porous-tube device for sampling soil solutions during water-spreading operations. Soil Sci, v 73, pp 211-219, 1952
   Describes a probe consisting of a porous tube which can be subjected to negative pressures for extracting soil-solution samples during water spreading.

KRUMBEIN, WILLIAM C.

1. (and SLOSS, L. L.) Stratigraphy and sedimentation. W. H. Freeman Co., 497 pp, San Francisco, 1951
   A textbook on the geological aspects of sedimentation.
2. Statistical significance of beach sampling methods. U S Beach Eros Bd Tech Mem 50, Aug 1954
   An analysis of statistical models used in beach sampling, indicating best methods (that is, statistically significant) of setting up grids for determining beach-sediment characteristics.

KRYNINE, D. P. See Baumann, P., 1; Lambe, T. W., 1

KUCHLER, A. W.

1. Vegetation mapping in Europe. Geog Rev, v 43, pp 91-97, 1952
   Reviews methods used for mapping vegetation in Europe. Contains ideas useful in mapping plants with respect to runoff and consumptive water use.

KUEHL, DONALD W. See Dean, W. W., 1

KULP, J. LAURENCE

1. (and CARR, DONALD R.) Surface area of deep sea sediments. J Geol, v 60, pp 148-159, 1952
   Data on specific surface of 75 deep-sea core samples is presented. Method of measurement is discussed.

KUMAI, MOTO

1. Electron-microscope study of snow-crystal nuclei. J Met, v 8, pp 151-156, 1951
   Electron micrographs of snow crystal nuclei are presented together with data on size and character of the nuclei. The mechanism of snow-crystal growth is considered on the basis

of this information. Discussion by H. J. AUFM KAMPE, H. K. WEICKMANN, and H. H. KEDESBY, v 9, pp 374-376, 1952.

KURODA, P. H. See also Damon, P. E., 1

1. (and DAMON, P. E., and HYDE, H. I.) Radioactivity of the spring waters of Hot Springs National Park and vicinity, Arkansas. Amer J Sci, v 252, pp 76-86, 1954
Presents data on radon content of the waters.

KURTYKA, JOHN C.

1. Precipitation measurements study. Ill Water Surv Div Rep Inv 20, 178 pp, 1953
A comprehensive review of literature on instruments and methods of measurement of precipitation.

KURTZ, MOSHE See Mason, V. V., 1

LADUE, WENDELL

1. Watershed approach to sedimentation problems. Ill Water Surv Bul 41, pp 71-73, 1952
Discussion of erosion problems and erosion control possibilities on the Cuyahoga River, Ohio. Discussion by H. A. EINSTEIN and ALEX VAN PRAAG, JR.

LAHEE, F. H.

1. Field geology. McGraw-Hill, 5 ed, 1952
A general text on geologic exploration including discussion of various methods of well logging.

LAHLUM, A. H.

1. The mission of the Snow, Ice, and Permafrost Research Establishment. Proc West Snow Conf, pp 38-44, 1952
A statement of the mission of the Establishment and some of the steps to be taken to fulfill this mission.

LAIRD, A. D. K.

1. (and PUTNAM, J. A.) Fluid saturation in porous media by X-ray technique. Trans Amer Inst Min Metal Eng, v 192, pp 275-284, 1951
Outlines method for measuring fluid content through effect on transmissivity of X-rays.

LAIRD, L. B. See Rorabaugh, M. I., 3; Stramel, G. J., 1; Wisler, C. O., 1

LAKIN, H. W.

1. (and ALMOND, HY, and WARD, F. N.) Compilation of field methods used in geochemical prospecting by the U. S. Geological Survey. U S Geol Surv Circ 161, 38 pp, 1952
Summarizes simple field methods for determination of trace quantities of heavy metals in water, soils, and plants.

LAMAR, WILLIAM L. See also Lohr, E. W., 1, 6, 7

1. (and SCHROEDER, MERLE E.) Chemical character of surface waters of Ohio, 1946-1950. Ohio Div Water Bul 23, 100 pp, June 1951
A compilation to date of publication of all the chemical analyses of surface waters in Ohio.

LAMB, OWEN P. See Straub, L. G., 1, 6

LAMBE, T. WILLIAM

1. Capillary phenomena in cohesionless soils. Trans Amer Soc Civ Eng, v 116, pp 401-432, 1951
Discusses the fundamentals of capillarity and supports the conclusions by data from soil tests. Methods for computing the rate of capillary flow are evaluated. The limiting values of capillary head in cohesionless soils are discussed. Discussion by M. R. LEWIS, PENG SWE-TZE, and D. P. KRYNINE.

LA MOREAUX, P. E. See Toulmin, L. D., 1

LAND, WILLIAM B.

1. (and CARREKER, JOHN R.) Results of evapotranspiration and root-distribution studies. Agr Eng, v 34, pp 319-322, 1953
Summarizes results of field tests on root distribution, evapotranspiration, and crop yields at the Southern Piedmont Conservation Experiment Station.

LANDSBERG, H. E.

1. Advances in geophysics. Academic Press, 362 pp, New York, 1952 (Vol. 1)
A compendium of survey articles on various aspects of geophysics. Includes articles on statistical methods in meteorology, processing meteorological data, and hydrography of tidal estuaries.
2. Geophysics and warfare. Res and Dev Coordinating Comm on Gen Sci, Off Asst Sec Defense, 67 pp, Mar 1954
A general review of aspects of geophysics which are important in military operations, planning, or supply. Includes discussion of hydrology with respect to water supply, flood forecasting, inundation, water power, and snow, ice, and permafrost.

LANE, D. A.

1. (and TORCHINSKY, B. B., and SPINKS, J. W. T.) Determining soil moisture and density by nuclear radiations. Eng J, v 36, pp 1-6, 1953
Describes a device for measuring soil moisture and density by use of fast neutrons.

LANE, E. W. See also Stanley, J. W., 1

1. Progress reports on results of studies on design of stable channels. U S Bur Recl Hydr Lab Rep 352, 36 pp, June 1952
   Summarizes the results of the progress made in stable channel designs to June, 1952. Discusses (1) the clarification of the general principles of stable channel design, (2) the working out of a tentative method of designing unlined earth canals to insure freedom from scour, and (3) the development of an analysis of the channel shape for certain conditions involving minimum excavation quantities.
2. Sediment problems on irrigation projects in the United States. U S Bur Recl Hydr Lab Rep Hyd-357, 13 pp, Dec 15, 1952
   Discusses, in general, the following sediment problems on irrigation projects: (1) filling of reservoirs, (2) scour or deposit in canals, (3) control of sediment entering canals, (4) enlargement of streams or drains, (5) aggrading streams, and (6) degradation of stream beds below dams.
3. (and CARLSON, E. J.) Some observations on the effect of particle shape on the movement of coarse sediments. Trans Amer Geophys Union, v 35, pp 453-462, 1954
   Summarizes data gathered from several canal sections in the San Luis Valley, Colorado, to show resistance to movement of particles of various shapes. Flat particles resist movement more than spherical particles of equal weight.
4. Some hydraulic engineering aspects of density currents. U S Bur Recl Hydr Lab Rep 373, Aug 31, 1954
   Describes causes of density currents and the different types of density currents occurring in nature. Examples are given of density currents which have occurred in United States reservoirs.
5. (and BORLAND, W. M.) River-bed scour during floods. Trans Amer Soc Civ Eng, v 119, pp 1069-1089, 1954
   A review of the topic of bed scour. General theories are discussed and some data on actual changes in section as observed during floods are presented. It is concluded that scour occurs in narrow sections and the material is deposited in the next wide section downstream. Discussion by E. E. DITTBRENNER, E. M. LAURSEN, and A. TOCH.

LANE, W. W.

1. (and HEINDL, L. A.) Exploratory deep wells of the State of Arizona, as of January 1, 1951. Ariz Land Dept, 17 pp, 1951 (processed)

LANG, W. A. See also Clyde, G. D., 3

1. The use of soot for snow-removal purposes. Proc West Snow Conf, pp 29-37, 1952
   Describes use of soot spread on roads as a means of accelerating snow melt. Comparative data on melt rates of treated and untreated snow are given. Discussion by R. W. GERDEL.

LANGBEIN, W. B.

1. (and HAINS, C. H., and CULLER, R. C.) Hydrology of stockwater reservoirs in Arizona. U S Geol Surv Circ 110, 18 pp, May 1951
   This report describes a program to obtain information on the performance of stock-water reservoirs from records of water levels. The results of gage readings at 18 reservoirs show the amount and frequency of runoff into the reservoirs and the amount of evaporation and seepage. Special attention is given to the development of techniques of analysis.
2. Stream gaging networks. Paper prepared for 10th Gen Assembly, Int Assn Sci Hydr, Rome, 1954, 27 pp, May 1954 (processed)
   A discussion of the requirements for adequate network coverage in stream gaging with mathematical treatment of the problem from the viewpoint of required sampling accuracy and cost.
3. How long should gaging stations be operated. Proc West Snow Conf, pp 19-26, Apr 1954
   Statistical treatment is used to derive a technique for estimating the length of record desirable from temporary or secondary gaging stations. Discussion by C. B. JACOBSON.

LANGELIER, WILFRED F.

1. The electrochemical desalting of sea water with permselective membranes - a hypothetical process. J Amer Water Works Assn, v 44, pp 945-948, 1952
   A presentation of the basic principles involved in producing fresh water from the sea by the membrane method.

LANGHAAR, HENRY L.

1. Dimensional analysis and theory of models. Wiley, 165 pp, New York, 1951
   Contains on pp 111-113 the development of the equation of the unit hydrograph by dimensional analysis. Also discusses briefly distorted models of rivers and estuaries.

LANGILLE, R. C.

1. (and THAIN, R. S.) Some quantitative measurements of three-centimeter radar echoes from falling snow. Can J Phys, v 29, pp 482-490, 1951
   Reports field measurements near Ottawa and compares results with theoretical analysis.

LANGLEBEN, M. P. See Marshall, J. S., 4
LANGLOIS, ARTHUR C. See Stubbs, G. C., 1
LANGMUIR, IRVING See Emmons, G., 1; Hall, F., 1
LANGONE, ANTONIO RODRIGUEZ
1. Human aspects of Mexican irrigation. Trans Amer Soc Civ Eng, v 117, pp 31-42, 1952
A discussion of the extent of and administration of the irrigation program in Mexico.

LANPHERE, C. R. See Toulmin, L. P., 1
LARA, J. M. See Miller, C. R., 2
LA ROQUE, G. A., JR. See Townsend, R. C., 1, 2
LARSEN, JOHN H.
1. Ground-water conditions of a part of the Kendrick Project, Natrona County, Wyoming. MA thesis, Wyo Univ, 1951
Four terraces in the area control the ground-water hydrology. Recharge occurs from seepage, precipitation, and underflow. Irrigation has raised the water table of the area.

LARSEN, S. T.
1. Blast the silt. Recl Era, v 37, pp 25-41, 1951
Describes use of dynamite for cleaning silt from a small concrete weir pool.

LARSON, B. O.
1. (and KLINGEBIEL, A. A., SAUER, E. L., MELSTED, S. W., and HAY, R. C.) The silting of Carbondale Reservoir. Ill Water Surv Rep Inv 9, 29 pp, 1951
Reports a survey of sedimentation in a small reservoir (drainage area three square miles) in southern Illinois. Physical and chemical analyses of the sediments and a watershed survey indicate the source of the sediment. Remedial measures and possible alternate reservoir sites are discussed.
2. (and SMITH, H. M., SAUER, E. L., and MELSTED, S. W.) The silting of Lake Bracken. Ill Water Surv Rep Inv 10, 27 pp, 1951
Reports a sediment survey of a small reservoir (drainage area nine square miles) near Galesburg in northern Illinois. The method of survey, chemical and physical characteristics of the sediment, and the sediment sources are discussed. Possible remedial measures are outlined.

LA SALA, A. M.
1. (and RANDALL, L. E., and JOHNSON, ARTHUR) Reports and maps of the Geological Survey released only in open file, 1953. U S Geol Surv Circ 337, 20 pp, 1954
A listing of reports available for inspection in Geological Survey offices.

LASKOWSKI, B. R.
1. Soil-moisture reporting by a Weather Bureau - State service. Bul Amer Met Soc, v 33, p 216, 1951
Use of measurements of depth of moist soil for predicting probable crop yields in South Dakota are described.

LASSEN, LEON
1. (and LULL, HOWARD W., and FRANK, BERNARD) Some plant-soil-water relations in watershed management. U S Dept Agr Circ 910, 64 pp, Oct 1952
A general review of factors in watershed management for the information of land managers, engineers, etc. Discusses soil moisture, evapotranspiration, soil-water movement and their relation to watershed management for flood control, increased watershed yield, and forest and range management.

LATOUR, MARINUS H. See Bunting, D. C., 1, 2
LATTMAN, LAURENCE H.
1. The one-sided development of tributaries in tilted sedimentary rocks in the eastern Allegheny Plateau of West Virginia. Papers Mich Acad Arts Sci Let, v 39, pp 361-365, 1953
A study of the development of streams near Philippi, West Virginia, including some in which tributaries from the down-dip side are better developed.

LAURENCE, JOE
1. A report on some fluorescein tests at Starnes Cave. Nat Spel Soc Bul 11, p 36, Nov 1949
Information on stream flow in a cave in Virginia.

LAURITZEN, C. W.
1. Lining irrigation canals to save water and land. Agr Eng, v 34, pp 407-408, 410, 1953
A general summary of methods of canal lining with some information on the efficiency of such linings and their costs.

LAURSEN, EMMETT M. See also Blench, T., 2; Ismail, H. M., 1; Lane, E. W., 5
1. Model studies aid in design of Brazilian hydro project. Civ Eng, v 46, p 44, 1951
Methods of construction and operation of a model are discussed. Problems of studies include sedimentation, flow patterns, and energy dissipation.

2. (and TOCH, ARTHUR) Model studies of scour around bridge piers and abutments - second progress report. Proc Hwy Res Bd, 5 pp, Dec 1951
   The equilibrium depth of scour around piers and abutments is primarily dependent on the flow depth and velocity has little effect. Discusses effects of unsteady flow during floods.
3. Observations on the nature of scour. Proc 5th Hydr Conf, Univ Iowa Studies in Eng Bul 34, 17 pp, 1953
   Describes the fundamental characteristics of scour and presents analysis and measurement of the scour downstream from a submerged jet and in the wake of an obstruction.
4. (and TOCH, ARTHUR) A generalized model study of scour around bridge piers and abutments. Proc Minn Int Hydr Conv, 8 pp, Aug 1953
   Discusses geometry of piers and abutments, stream-flow characteristics, sediment characteristics, and site geometry as factors in the scour problem. Model studies are reported and the effects of the main factors analyzed.

LAUSHEY, L. M. See Hurst, H. E., 1

LAUTERBACK, W. J.

1. (and SANDERS, M. D., PETERSEN, L. W., and McLEAN, C. J.) Industrial water use. J Amer Water Works Assn, v 44, pp 1033-1042, 1952
   A panel discussion on the water qualities and quantities required by the corn products, meat-packing and electrical utility industries.

LAVERTY, FINLEY B.

1. Recharging wells expected to stem sea-water intrusion for the water wells of the City of Manhattan Beach, California. Civ Eng, v 22, pp 313-315, 1952
   Discusses intrusion of sea water into the drinking-water source for a basin south of Los Angeles, the tests that have been made on recharging wells, and the proposed line of wells to prevent intrusion should the tests prove to be successful.
2. Ground-water recharge. J Amer Water Works Assn, v 44, pp 677-684, 1952
   A discussion of the several methods by which water may be returned from the surface to the ground water.
3. Water-spreading operations in the San Gabriel Valley. J Amer Water Works Assn, v 46, pp 112-122, 1954
   Describes the facilities and operation of the program and summarizes the results and costs.

LAWRENCE, DONALD B.

1. Diagrammatic history of the northeast slope of Mount St. Helens, Washington. Mazama, v 36, pp 41-45, 1954
   Diagrams, tree rings, and text illustrate sequence since 1550 AD of volcanic events affecting stream pattern and level of Spirit Lake.

LAWRENCE, F. F.

1. Water-power resources of Crystal River, Colorado. U S Geol Surv Circ 292, 17 pp, 1953
   The Crystal River flows into Roaring Fork near Glenwood, Springs, Colorado. Above the mouth of Thompson Creek, many dam sites are available, but the narrow valley and steep gradient do not favor storage for regulation of streamflow. The potential power from the natural flow of the stream is estimated.

LAWRENCE, JACK H. See Banks, H. O., 1

LAWTON, WARREN L. See Aldous, W. M., 1

LEATHERWOOD, FRANK N.

1. (and PETERSON, DEAN F., JR.) Hydraulic head loss at the interface between uniform sands of different sizes. Trans Amer Geophys Union, v 35, pp 588-594, 1954
   The head loss at the interface of uniform sands is studied experimentally. Work also provides data on the design of graded sand filters.

LEE, C. E. See Hardin, J. R., 1

LEE, MING

1. (and BABBITT, H. E., and BAUMANN, E. ROBERT) Gradually varied flow in uniform channels on mild slopes. Ill Univ Eng Exp Sta Bul 404, 90 pp, Nov 1952
   Presents a new method for the integration of the gradually varied flow equation with charts and figures for rectangular and circular channels.

LEET, L. D.

1. (and JUDSON, SHELDON) Physical geology. Prentice-Hall, 466 pp, 1954
   An elementary text in geology. Includes discussion of surface and ground water.

LEGGET, R. F.

1. (and CRAWFORD, C. B.) Soil temperatures in water-works practice. J Amer Water Works Assn, v 44, pp 923-939, 1952
   The article contains several graphs of soil temperatures with the seasons in Ottawa as dependent upon type of soil, weather and other factors. Some data useful to determine necessary depths of mains to be protected from freezing are included.

LEGRAND, H. E.
1. (and MUNDORFF, M. J.) Geology and ground water in the Charlotte area, North Carolina. N C Dept Cons Dev Bul 63, 88 pp, 1952
A discussion of the area, sources and character of water, possible yields, etc.
2. Geology and ground water in the Statesville area, North Carolina. N C Dept Cons Dev Bul 68, 68 pp, 1954
A comprehensive discussion of the area with well records and data on water quality.

LEHANE, J. J. See also Staple, W. J., 1, 2
1. (and STAPLE, W. J.) Water retention and availability in soils related to drought resistance. Can J Agr Sci, v 33, pp 265-273, 1953
Observed difference in the water-holding capacity of various soils is not sufficient to account for relative severity of droughts. It is suggested that the greater drought resistance of plants on the fine textured clays results from the fact that the available moisture in these soils is held under greater stress, than the moisture in lighter soils.

LEIGHT, WALTER G. See Namias, J., 1

LEIGHTON, FREEMAN B.
1. Ogives of the East Twin Glacier, Alaska; their nature and origin. J Geol, v 59, pp 578-589, 1951
The origin of ogives is discussed and previous hypotheses are analyzed critically. It is concluded that the ogives are surface expressions of shear planes.

LELIAVSKY, SERGE See also Haas, R. H., 1; Lindner, C. P., 1
1. Sloping-sill sand screens exclude silt from Egyptian Canals. Civ Eng, v 24, pp 70-72, 1954
Describes basis of design as determined experimentally.

LENDO, A. C.
1. Low-water minimum flows in southeast Georgia. Ga Geol Surv Bul 60, pp 150-152, 1953
A brief discussion of droughts in the area.

LENHARD, ROBERT W.
1. (and BAUM, WERNER) Some considerations on normal monthly temperatures. J Met, v 11, pp 392-398, 1954
Normal monthly January and July temperatures as studied for seven U. S. stations with a view to establishing the adequacy or record length, confidence limits, and other measures of reliability.

LENZ, ARNO T. See Fry, A. S., 1

LEONARD, A. R.
1. Geology and ground-water resources of the North Fork Solomon River in Mitchell, Osborne, Smith, and Phillips Counties, Kansas. Kans Geol Surv Bul 98, 124 pp, 1952
A general geologic and ground-water study. Extensive field data included.

LEONOFF, E. E. See Hudson, R. V., 1

LEOPOLD, LUNA B. See also Stidd, C. K., 1
1. The erosion problem of the southwest. PhD thesis, Harvard Univ, 1950
A study of erosion from the hydrologic, geomorphic, and paleoclimatological viewpoints.
2. (and MORDY, WENDELL A.) 1948--1949 trials of the Schaefer-Langmuir cloud-seeding technique in Hawaii. Tellus, v 3, pp 44-51, 1951
Reports results of tests of cloud seeding by dry ice in Hawaii.
3. Vegetation of the southwestern watersheds in the nineteenth century. Geog Rev, v 41, pp 295-316, 1951
An analysis of historical record is employed in attempt to determine whether presently depleted grazing lands are man-caused or natural and hence to evaluate qualitatively to potential of erosion-control measures.
4. Rainfall frequency: an aspect of climatic variation. Trans Amer Geophys Union, v 32, pp 347-357, 1951
Analysis of rainfall variation in New Mexico. Shows no trend in annual rainfall. Shows short trends in different intensity groups.
5. Dew as a source of plant moisture. Pac Sci, v 6, pp 259-261, 1952
A general discussion of dew in Hawaii with some statistics on the frequency of dew.
6. Downstream change of velocity in rivers. Amer J Sci, v 251, pp 606-624, 1953
Cites data showing a general tendency to increase mean velocity in the downstream direction.
7. River meanders and vorticity theorem. Trans Amer Geophys Union, v 34, pp 955-958, 1953
The development in a preliminary form of a theory to explain the mechanics of meanders in streams of clear water and streams with sediment loads. Discussion by R. R. LONG, v 35, p 662, 1954.
8. (and MADDOCK, THOMAS) Relation of suspended-sediment concentration to channel scour and fill. Proc 5th Iowa Hydr Conf Iowa Univ Studies Eng Bul 34, pp 159-178, 1953
Analyzes a number of flood passages for which discharge and sediment-load data are available.

9. (and MADDOCK, THOMAS, JR.) The hydraulic geometry of stream channels and some physiographic implications. U S Geol Surv Prof Paper 252, 57 pp, 1953
The variation of width, depth, mean velocity, and sediment load with discharge is explored for a number of streams both in terms of variations at a station and variations from station to station downstream. Equations and average constants are developed for each relationship and the implications of these with respect to the development and changes of channel shape are explored.
10. (and MADDOCK, THOMAS, JR.) The flood control controversy. Ronald Press, New York, 278 pp, 1954
A comparison of the program of downstream flood control by the Corps of Engineers and of upstream flood control by the Department of Agriculture with stress on the economic aspects of the programs. Hydrologic techniques are reviewed briefly and in non-technical terms as is the problem of basic data for design.
11. (and MILLER, JOHN P.) A postglacial chronology for some alluvial valleys in Wyoming. U S Geol Surv Water-Supply Paper 1261, 90 pp, 1954
The alluvial deposits of some streams are investigated to attempt to establish a chronology governing erosion. Such information is important in assessing the causes of erosional features and evaluating the possibilities of erosion control.

LETTAU, HEINZ

1. Improved models of thermal diffusion in the soil. Trans Amer Geophys Union, v 35, pp 121-132, 1954
The case of a soil with conductivity and capacity for heat varying with depth is analyzed rigorously. An exact formula giving the diffusivity as a function of depth is derived. Application of the method with actual data is demonstrated.

LEVINE, GILBERT

1. Effects of irrigation droplet size on infiltration and aggregate breakdown. Agr Eng, v 33, pp 559-560, 1952
The changes in infiltration capacity and aggregate structure for several New York State soils after exposure to irrigation sprinklers are reported.

LEVINGS, WILLIAM S.

1. Late Cenozoic erosional history of the Raton Mesa region. Colo Sch Mines Q, v 46, 111 pp, 1951
A geomorphologic study of a high-altitude, arid region along the Colorado-New Mexico border.

LEWIS, GLENN C. See Jensen, M. C., 1

LEWIS, M. R. See Lambe, T. W., 1

LEWIS, W. V. See Battle, W. R. B., 1; Clark, J. M., 1

LI, HUON See also Einstein, H. A., 4

1. Stability of oscillatory laminar flow along a wall. U S Beach Eros Bd Tech Mem 47, July 1954
A laboratory study of the stability of oscillatory flow over various bottom types, indicating when initiation of sediment movement may be expected under wave action.

LI, WEN-HSIUNG

1. Open channels with non-uniform discharge. Proc Amer Soc Civ Eng sep 381, 20 pp, Jan 1954
Analyzes the case of steady flow in open channels with addition of water along the course of flow and develops equation based on the momentum principle. Where friction loss is small solutions are developed for prismatic channels of various cross sections.
2. (and GOODELL, B. C., and GEYER, JOHN C.) Hydraulic behavior of storm water inlets; III, Flow into deflector inlets. Sewage Ind Waste, v 26, pp 836-842, 1954
Summarizes model test of the behavior of deflector inlets for storm water interception.
3. (and GOODELL, BERTRAM C., and GEYER, JOHN C.) Hydraulic behavior of storm-water inlets; IV, Flow into depressed combination inlets. Sewage Ind Waste, v 26, pp 967-975, 1954
Report of model tests of hydraulic capacity of combinations of curb opening inlets and grated inlets in a depressed gutter.
4. (and BOCK, PAUL, and BENTON, GEORGE S.) A new formula for flow into partially penetrating wells in aquifers. Trans Amer Geophys Union, v 35, pp 805-812, 1954
An electrical analogy is used to study the case of flow to a partially penetrating well. Except for small area near the well the drawdown curve is found to have the same shape as for a fully penetrating well. Outside this area the two curves differ by a constant which can be computed from an empirical formula.
5. Interaction between well and aquifer. Proc Amer Soc Civ Eng sep 578, 14 pp, Dec 1954
An investigation of the effect of piezometric head along a well on the discharge from the aquifer. It is found that what is ordinarily considered screen loss is actually caused by this variation. A solution is obtained for symmetric flow from a confined aquifer to a fully penetrating well.

LIEBER, MAXIM See also Davids, H. W., 1
1. (and WELSCH, W. FRED) Contamination of ground water by cadmium. J Amer Water Works Assn, v 46, pp 541-547, 1954
Describes extent of pollution of ground water on Long Island, New York, by plating wastes.

LIEBERMAN, GERALD J. See also Chernoff, H., 1
1. An evaluation of the 1951-1952 cloud-seeding experiment in Santa Clara County. Stanford Univ Dept Statistics, 21 pp, 1952
A statistical evaluation of cloud-seeding operations in Santa Clara County, California.

LIEBERMAN, J. A.
1. (and HOOVER, M. D.) Stream-flow frequency changes on Coweeta experimental watersheds. Trans Amer Geophys Union, v 32, p 73, 1951
Runoff is measured for three forest-vegetation conditions and the results presented as distribution curves.

LIEBLEIN, JULIUS See Gumbel, E. J., 4

LIGDA, MYRON G. H.
1. (and MAYHEW, WILLIAM A.) On the relationships between the velocities of small precipitation areas and geostrophic winds. J Met, v 11, pp 421-423, 1954
A good relationship is found between geostrophic wind and the movement of small precipitation areas as observed on radar.

LIGHT, PHILIP See Jens, S. W., 1

LILLARD, J. H. See Edminster, T. W., 1

LIN, C. C.
1. Note on the mean square values of integrals in the statistical theory of turbulence. App Math, v 11, pp 367-370, 1953
A mathematical evaluation of some integrals encountered.

LIN, PIN-NAM See also Ismail, H. M., 1; McNown, J. S., 2
1. Numerical analysis of continuous unsteady flow in open channels. Trans Amer Geophys Union, v 33, pp 226-234, 1952
In this paper is presented a simplified method of solving Massau's equations of characteristics for unsteady flow having a continuous surface profile. This method eliminates much of the trial-and-error process formerly required.

LINDEMAN, H. See Rosenblatt, D. B., 1

LINDGREN, R. E. See Bissell, L. M., 1

LINDNER, C. P.
1. Diversions from alluvial streams. Trans Amer Soc Civ Eng, v 118, pp 245-288, 1953
Discusses the effects of diversions as for floodways on the discharge and sediment transport of streams. Rules for locating the point of diversion for minimum adverse effects are suggested. Discussions by T. BLENCH, S. LELIAVSKY, A. R. THOMAS, and D. C. BONDURANT.

LINFORD A.
1. (and PEACOCK, D. W.) The Llantisilio canal venturi meter. Civ Eng, v 46, p 848, 1951
The article discusses head-loss tests by direct measurement of water levels and pressures in a venturi meter and gives conclusion and rules to care for such a meter.

LING, S. C. See Hubbard, R. G., 1

LINSLEY, RAY K. See also Kohler, M. A., 1; Riesbol, H. S., 1; Rutter, E. J., 1
1. (and KOHLER, MAX A.) Variation in storm rainfall over small areas. Trans Amer Geophys Union, v 32, pp 245-250, 1951
For small areas, variations in average precipitation for storms computed from networks of differing densities and the relation between point and areal - average values of rainfall in storms are analyzed.
2. The hydrologic cycle and its relation to meteorology - River forecasting. Amer Met Soc Compendium of Met, pp 1048-1056, 1951
The hydrologic cycle is reviewed and some problems of interest to the meteorologist are noted. The techniques of river forecasting are briefly outlined.
3. Annotated Bibliography on Hydrology, 1941-50. Bul 5, Subcommittee on Hydrology, Federal Interagency Comm, 408 pp, U S Govt Prtg Off, Wash, June 1952
A bibliography of literature on hydrology published in the United States and Canada between 1941 and 1950. Includes approximately 4800 items.
4. Rainmaking -- it worries contractors. West Const, v 28, pp 60-62, 140, 1953
A survey of the status of cloud seeding as a means of augmenting precipitation.
5. Some aspects of precipitation and surface stream flow in ground-water recharge. Proc Ankara Symposium on Arid Zone Hydrology, pp 140-150, UNESCO, Paris, 1953
A general survey of the hydrologic balance with emphasis on the problem of maximum development of water resources.

LIPMAN, W. See Wetmore, L. B., 1
LIPSCOMB, E. B. See Turnbull, W. J., 1
LISCHER, VANCE C.
1. (and HARTUNG, HERBERT O.) Intakes on variable streams. J Amer Water Works Assn, v 44, pp 873-892, 1952
A discussion of how intakes to water systems have been designed to accomodate changing stages, sediment in the river, weather, etc. A list gives 12 desirable features.

LIU, HSIAN-KUAN
1. Ripple formation and its relation to bed-load movement. PhD thesis, Minn Univ, June 1953

LIVINGSTON, D. A.
1. On the orientation of lake basins. Amer J Sci, v 252, pp 547-554, 1954
The wind-driven circulation in a lake is suggested as the cause of its orientation in many instances.

LLOYD, CHARLES H. See also Eley, G. W., 1
1. (and ELEY, GAIL W.) Graphical solution of probable soil loss formula for northeastern regions. J Soil Water Cons, v 7, pp 189-191, 1952
Presents a graphical relation for estimating probable soil loss.

LLOYD, J. R.
1. Weather and floods. Proc Forum on Flood Control, Kans State Coll, pp 17-23, Nov 1951
Describes the meteorology of the 1951 floods in Kansas and discusses the problems of forecasting flood-producing rain.

LOCKE, L. F.
1. (and MATHEWS, O. R.) Relation of cultural practices to winter wheat production, Southern Great Plains Station, Woodward, Oklahoma. U S Dept Agr Circ 917, 54 pp, 1953
Precipitation, evaporation, transpiration, wind velocity, and relative humidity data are reported for the period 1915-48 and soil-moisture data for a portion of that time. Correlation coefficient between rainfall and winter wheat yields and between soil moisture and winter wheat yields are reported.

LOCKMAN, JOHN R.
1. Selection of gravel pack for water wells in fine, uniform, unconsolidated aquifers. MS thesis, Colo Agr Mech Coll, Dept Civ Eng, 122 pp, Aug 1954
A systematic investigation of the characteristics necessary for a gravel envelope around a well screen in order to obtain high hydraulic efficiency and effective filtration. The major factors involved are the ratio of the mean sizes of the gravel pack and the aquifer and the gradation of sizes. For effectiveness the product of the pack-aquifer ratio and the uniformity coefficient of the aquifer should be between 5 and 8.

LOELTZ, O. J. See also Eakin, T. E., 1; Robinson, T. W., 1
1. (and EAKIN, T. E.) Geology and water resources of Smith Valley, Lyon and Douglas Counties, Nevada. U S Geol Surv Water-Supply Paper 1228, 89 pp, 1953
Summarizes the geologic and hydrologic conditions and the development of water in Smith Valley, Nevada. Records of precipitation, water levels, wells and logs, and chemical analyses of water are listed.

LOFGREN, B. E. See Thomas, H. E., 1
LOFQUIST, BERTIL
1. Studies of the effects of temperature variations. Trans Amer Soc Civ Eng, v 119, pp 6-21, 1954
Report of laboratory tests in Norway on the effect of temperature variations on the stresses produced in ice. Application of the results to analysis of ice forces on dams is discussed. Discussion by G. E. MONFORE and E. ROSE.

LOGAN, J. A.
1. Origin of boron in ground waters of California. Geol Soc Amer Bul, v 62, p 1505, 1951
Suggests that normal ground water may be contaminated by juvenile water arising along fault planes.

LOHMAN, S. W. See also Jacob, C. E., 1
1. Report of committee on ground water, 1949-50. Trans Amer Geophys Union, v 32, p 769, 1951
An abstract of articles on the various phases of ground water.
2. High plains of west-central United States, General aspects. Physical and Economic Basis of Natural Resources, v 4, pp 70-78, U S House Rep, 1953
Describes the region extending generally through western Nebraska, Kansas, Oklahoma, and Texas. Traces the development of the area, discusses the general water situation and the developing water problems.

3. Sand hills area, Nebraska. Physical and Economic Basis of Natural Resources, v 4, pp 79-91, U S House Rep, 1953
   A review of the surface and ground-water situation in an area of the high plains in western Nebraska.
4. (and BURTIS, V. M.) Areas of principal ground-water investigations in the Arkansas, Red, and White River basins. U S Geol Surv Atlas HA 2, 2 sheets, 1954
   Numbered areas on the map are accompanied by a list of references to publications or titles of projects. Only those published reports are included to which reference generally would be made in the solution of ground-water problems in specific areas. The map also shows, by counties, the number of observation wells in which ground-water levels are currently being measured.
5. (and BURTIS, V. M.) General availability of ground water and depth to water table in the Arkansas, White, and Red River basins. U S Geol Surv Atlas HA 3, 1 sheet, 1:2,500,000 scale, 1954
   Shows the general availability of ground water in the Arkansas, White, and Red River basins. Colors show areas where yields of individual wells are generally less than 50 gpm, 50 to 500 gpm, or more than 500 gpm. Patterns show areas of different depths to the water table.

LOHR, E. W.

1. (and BILLINGSLEY, G. A., GUERIN, J. W., and LAMAR, W. L.) The industrial utility of public water supplies in the east south central states, 1952. U S Geol Surv Circ 197, 69 pp, 1952
   The first of a series of nine circulars giving data on the public water supplies of the United States. It includes data for the larger cities of Alabama, Kentucky, Mississippi, and Tennessee. The data included are the population (1950) of the city, population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and chemical analyses of the waters for 19 cities in Alabama, 16 in Kentucky, 17 in Mississippi, and 15 in Tennessee.
2. (and HOWARD, C. S., KISER, R. T., HEM, J. D., and SWENSON, H. A.) The industrial utility of public water supplies in the mountain states, 1952. U S Geol Surv Circ 203, 79 pp, 1952
   Includes data for the larger cities of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. The data included are the population (1950) of the city, population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters and chemical analyses of the waters for 75 cities.
3. (and BENEDICT, P. C., SWENSON, H. A., and DOVER, T. B.) The industrial utility of public water supplies in the west north central states. U S Geol Surv Circ 206, 109 pp, 1952
   Includes data for the larger cities of Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota. The data included are the population (1950), population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and chemical analyses of the water for 112 cities.
4. (and AVRETT, J. R., IRELAND, B., BILLINGSLEY, G. A., and DOVER, T. B.) The industrial utility of public water supplies in the west south central states, 1952. U S Geol Surv Circ 221, 123 pp, 1952
   A summary of data on public water supplies in Arkansas, Louisiana, Oklahoma, and Texas.
5. (and KISER, R. T., HOWARD, C. S., and WALLING, I. W.) The industrial utility of public water supplies in the Pacific states, 1952. U S Geol Surv Circ 232, 89 pp, 1952
   The data included are the population (1950) of the city, population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and chemical analyses of the supplies for more than 80 cities in California, Oregon, and Washington.
6. (and BROWN, P. N., and LAMAR, W. L.) The industrial utility of public water supplies in the east north central states, 1952. U S Geol Surv Circ 253, 125 pp, 1953
   It includes data for the larger cities of Illinois, Indiana, Michigan, Ohio, and Wisconsin. The data included are the population of the city (1950), population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished water, and chemical analyses of the waters for 151 cities.
7. (and CONNOR, J. G., LAMAR, W. L., and McCARREN, E. F.) The industrial utility of public water supplies in the south Atlantic states, 1952. U S Geol Surv Circ 269, 162 pp, 1953
   It includes data for the larger cities of Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and the District of Columbia. The data included are the population (1950) of the city, population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and the chemical analyses of the supplies for 162 cities.
8. (and WHITE, W. F., and BEAMER, N. H.) The industrial utility of public water supplies in the middle Atlantic states, 1952. U S Geol Surv Circ 283, 129 pp, 1953

It includes data for the larger cities of New Jersey, New York, and Pennsylvania. The data included are the population (1950) of the city, population supplied, ownership, sources and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and chemical analyses of the supplies for 140 cities.

9. (and WHITE, W. F.) The industrial utility of public water supplies in the New England states, 1952. U S Geol Surv Circ 288, 80 pp, 1953
It includes data for the larger cities of the States of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont. The data included are the population (1950) of the city, population supplied, ownership, sources, and treatment of supplies, capacity of treatment plants, storage facilities for both raw and finished waters, and chemical analyses of the supplies for 103 cities.

LONG, R. R. See Leopold, L. B., 7

LONGARD, J. R.

1. (and BANKS, R. E.) Wind-induced vertical movement of the water on an open coast. Trans Amer Geophys Union, v 33, pp 377-380, 1952
The effect of winds on the vertical structure of the water column near the Atlantic coast of Nova Scotia is discussed. Evidence is presented that this is a wind driven effect and is not necessarily due to the presence of a low-pressure area in the vicinity.

LONGLEY, RICHMOND W.

1. Measures of the variability of precipitation. Mon Wea Rev, v 80, pp 111-117, 1952
Four measures of variability are investigated and compared.
2. Variability of annual precipitation in Canada. Mon Wea Rev, v 81, pp 131-134, 1953
Maps and tables of the coefficient of variability of mean annual precipitation are presented and discussed.

LORENZ, H. W.

1. (and SWENSON, F. A., and SWENSON, H. A.) Geology and ground-water resources of the Helena Valley, Montana. U S Geol Surv Circ 83, 68 pp, Apr 1951

LOTT, GEORGE A.

1. An extraordinary rainfall centered at Hallet, Oklahoma. Mon Wea Rev, v 81, pp 1-10, 1953
A meteorological study of one of the heaviest rainstorms in the U. S. (Sep 4, 1940).
2. The unparalleled Thrall, Texas rainstorm. Mon Wea Rev, v 81, pp 195-203, 1953
A meteorological description of the heaviest rainstorm recorded in the U. S.
3. The world-record 42-min Holt Missouri rainstorm. Mon Wea Rev, v 82, pp 50-58, 1954
A meteorological analysis of the storm.
4. The great-volume rainstorm at Elba, Alabama. Mon Wea Rev, v 82, pp 153-159, 1954
A meteorological analysis of a storm which is the largest in the U. S. for long durations and large areas.

LOUGEE, RICHARD J.

1. (and VANDER PYL, ADRIAN W.) Glacial water levels in the Thames-Willimantic River valley. Sci Mon, v 73, pp 275-283, 1951
A discussion of the glacial history of a stream in eastern Connecticut.
2. A chronology of postglacial time in eastern North America. Sci Mon, v 76, pp 259-276, 1953
Describes the history of New England from glacial times to the present.

LOUISIANA DEPARTMENT OF PUBLIC WORKS

1. Louisiana rainfall; intensity-duration-frequency data and depth-area-duration data. La Dept Pub Works, 141 pp, 1952
Data at 22 stations are analyzed to provide information for the design of flood control and drainage works.

LOUPO, M. W.

1. Effect of mulch on soil moisture, soil temperature, and evaporation. Thesis, Va Poly Inst, 1952

LOVE, L. D.

1. Watershed management in the Colorado Rockies. J Soil Water Cons, v 8, pp 107-112, 1953
Studies show that increase of total yield of 30 pct can be obtained by harvesting mature timber from stands of lodgepole pine and Englemann spruce. Under normal operation it is assumed that a permanent increase of about 15 pct can be achieved with no increase in erosion.
2. Watershed management experiments in the Colorado Front Range. J Soil Water Cons, v 8, pp 213-218, 1953
A summary of studies at Manitou Experimental forest on effect of vegetation on runoff and erosion.

LOVE, S. K. See Schroeder, M. C., 2

LOVVOM, RAY R. See Wilson, C. M., 1

LOW, P. F.

1. (and DEMING, J. M.) Movement and equilibrium of water in heterogenous systems with special reference to soils. Soil Sci, v 75, pp 187-202, 1953
   The total potential concept is applied to soil water. Gravitational, electrostatic, and van der Waals force fields are considered. An equation for velocity of flow and one for the equilibrium pressure difference between any two phases as a function of concentration ratio and positional energy difference are developed.

LOWDERMILK, WALTER C.

1. The raindrop and the river. Land, v 9, pp 475-482, 1950-51
   Discusses erosion and suggests storage of flood water in flood plain polders to reduce floods and build up land by sediment deposits.
2. Some problems of hydrology and geology in artificial recharge of underground aquifers. Proc Ankara Symposium on Arid Zone Hydrology, pp 158-161, UNESCO, Paris, 1953
   Cites some examples of unusual methods for improving ground-water yield.

LOWRY, ROBERT L.

1. Special case in Rio Grande basin. Trans Amer Soc Civ Eng, v 117, pp 1014-1023, 1952
   A discussion of the depletion of stream flow along a portion of the Rio Grande and of the measures utilized to minimize this depletion and conserve water for beneficial uses. Discussion by I. H. HAKE, G. A. WHETSTONE, and H. R. McDONALD.

LUDWIG, H. F. See Krone, R. B., 1; Stone, R., 2

LUDWIG, JOHN H.

1. (and LUDWIG, RUSSEL G.) Design of Palmer-Bowles flumes. Sewage Works J, pp 1096-1107, Sep 1952
   Design, use, and rating of the flumes which are a type of venturi flume for use in sewers.

LUDWIG, RUSSEL G. See Ludwig, J. H., 1

LUGO-LOPEZ, M. A. See also Bonnet, J. A., 1

1. Functional relationship between moisture at several equilibrium points and the clay content of tropical soils. Puerto Rico J Agr, v 35, pp 66-70, 1951
   A statistical analysis of numerous soils.
2. Comparative value of various methods of approximating the wilting percentage. Puerto Rico J Agr, v 36, pp 122-133, 1952
   Fifteen-atmosphere moisture percentage, hygroscopic coefficient, clay content, and other indices are compared.
3. Available water capacity of the surface layer of various soils from the arid and semi-arid regions of Puerto Rico. Puerto Rico J Agr, v 33, pp 134-140, 1952
   Reports tests on over 30 samples.
4. (and MARTINEZ, M. B.) Drainage practices and problems in Puerto Rico. Agr Eng, v 33, p 430, 1952
   A brief general statement of problems in Puerto Rico with some average costs.

LULL, HAROLD H. See Bray, C. E., 1

LULL, HOWARD W. See also Lassen, L., 1; Palpant, E. H., 1

1. Evapotranspiration: Excerpts from selected references. U S Waterways Exp Sta Occ Paper 131, 115 pp, Aug 1953
   A collection of excerpts of selected papers on the topic.

LUNDQUIST, ROY E.

1. (and FULK, ROBERT L.) Flood forecasting on the Ohio River directly from rainfall. Bul Amer Met Soc, v 34, pp 413-419, 1953
   Techniques of runoff computation, unit hydrographs, and routing as used at the Ohio River Forecast Center of the Weather Bureau are described and illustrated with examples.

LUNT, H. A. See Hoover, M. D., 1

LUSCZYNSKI, NORBERT J.

1. (and JOHNSON, ARTHUR H.) The water table on Long Island, New York, in January, 1951. N Y Dept Cons Rep GW-27, 28 pp, 1951
2. The recovery of ground-water levels in Brooklyn, New York, from 1947 to 1950. U S Geol Surv Circ 167, 29 pp, 1952
   The New York Water Service Corporation on June 29-30, 1947, stopped operating its ground-water facilities, with a reduction of more than 50 pct in the withdrawals in Kings County. The water table recovered as much as 19 ft at some places from June, 1947, to December, 1950. Detailed water-level data, contour maps, profile, and hydrographs of ground-water levels for the period 1903-50 are presented and discussed. The report includes a compilation of the withdrawals by public water-supply companies and industrial concerns, and a brief review of the geology of Kings County.

LUSK, TRACY WALLACE

1. Ground-water investigations along Bogue Phalia between Symonds and Malvina, Bolivar County. Miss Geol Surv Bul 72, 19 pp, 1951
   An investigation to determine the safe yield for rice irrigation. Most of the water of the Bogue comes from ground water in the upper 25 ft of the alluvial fill.
2. Water levels and artesian pressures in observation wells in Mississippi, 1938-1952. Miss Geol Surv Bul 77, 65 pp, 1953
   A summary of observed data.

LUTHIN, JAMES N. See also Day, P. R., 2, 3

1. A proposed method of leaching tile-drained land. Proc Soil Sci Soc Amer, v 15, pp 63-68, 1950
   Leaching tile-drained land is difficult because most of the flow to the tile occurs near the tile line. Proposes diking of the land to provide pondage in selected areas. Relaxation techniques are used to determine the head distribution with various arrangements.
2. (and SCOTT, V. H.) Numerical analysis of flow through aquifers toward wells. Agr Eng, v 33, pp 279-282, 1952
   Describes a method of successive iteration to determine the flow net in a vertical plane through the well.
3. An electrical resistance network for solving drainage problems. Soil Sci, v 75, pp 259-274, 1953
   A resistance network for solving Laplace's equation is described.

LYERLY, PAUL J. See Christensen, P. D., 1

LYFORD, W. H.

1. Characteristics of podzolic soils of the northeastern United States. Proc Soil Sci Soc Amer, v 16, pp 231-235, 1952
   Reviews the characteristics of the primary zonal soils of the 12 northeastern states.

LYON, C. A.

1. (and HANDY, R. L., and DAVIDSON, D. T.) Property variations in the Wisconsin loess of east-central Iowa. Proc Iowa Acad Sci, v 61, pp 291-312, 1954
   Particle size, engineering properties, mineralogy, and chemical character of loess samples are compared.

LYON, T. LYTTLETON

1. (and BUCKMAN, HARRY O., and BRADY, NYLE C.) Nature and properties of soils. Macmillan, 5 ed,.591 pp, 1952
   A discussion of soils from the viewpoint of agricultural utility. Stresses physical and chemical characteristics that affect plant growth.

LYTLE, W. F. See Whitaker, R. W., 1

MAASLAND, MARINUS

1. Tile drainage in anisotropic soils. MS thesis, Iowa State Coll, 1953
   Theoretical and experimental work on anisotropy from several countries was unified with a common notation. The theory of refraction at the boundary of two layers with different anisotropy was worked out. Applications of the theory to the problem of tile drainage was given.

MABEY, CHARLES A.

1. It isn't the heat - it's the humidity. Instrum, v 24, pp 280-283, 324, 1951
   A general review of industrial techniques of psychrometry.

MacCREADY, PAUL B., JR. See also Brier, G. W., 1

1. Results of cloud seeding in central Arizona, winter 1951. Bul Amer Met Soc, v 33, pp 48-52, 1952
   The effect of seeding is evaluated by a comparison with adjacent controls and found to be positive.

MacDONALD, H. R. See Lowry, R. L., 1

MacDONALD, RAEBURN W.

1. Mineral characteristics of Maine public water supplies. J NE Water Works Assn, v 68, pp 204-210, 1954
   A general summary of the quality of surface and ground waters in Maine, stressing the more unusual situations.

MacDONALD, T. H.

1. Some characteristics of the Eppley pyrheliometer. Mon Wea Rev, v 79, pp 153-159, 1951
   Tests of the effect of ambient temperature and angle of incidence of radiation on the results of solar observations are reported.

MacDOUGAL, FRANK

1. Correlation of heights of deep-water wind waves. Trans Amer Geophys Union, v 32, p 878, 1951
   An additional proof of the validity of the Sverdrup-Munk technique for forecasting heights of local deep-water wind waves.

MACE, M. N. See King, N. J., 1

MacFADDEN, CLIFFORD

1. The Gal Oya Valley: Ceylon's little TVA. Geog Rev, v 44, pp 271-281, 1954
   A description of the area, its hydrology, and present and future development.

MACKANESS, F. G.

1. (and ROWSE, F. G.) Equipment for installing gypsum moisture blocks. Agr Eng, v 35, p 337, 1954
   Describes device for placing moisture blocks at desired depths with minimum soil disturbance.

MacKICHAN, K. A.

1. (and GRAHAM, J. B.) Public water-supply shortages, 1953. U S Geol Surv Water Res Rev, Sup 3, 8 pp, 1954
   A statistical survey of water-supply shortages during the summer of 1953.

MACKIN, J. H. See Tator, B. A., 1

MacLEOD, GEORGE M.

1. Near-surface exploration. West Const, v 27, pp 68-70, 1952
   Description of seismic methods for shallow exploration.

MacMILLAN, D. H. See Russell, R. C. H., 1

MADDOCK, THOMAS See also Leopold, L. B., 8, 9, 10

1. (and BORLAND, W. M.) Sedimentation studies for the planning of reservoirs by the Bureau of Reclamation. Proc 4th Cong Large Dams, v 4, pp 103-118, Jan 1951
   Methods of estimating amount and distribution of sediment in reservoirs are discussed.

MADER, D. L.

1. Physical and chemical characteristics of the major types of forest humus found in the United States and Canada. Proc Soil Sci Soc Amer, v 17, pp 155-158, 1953
   To broaden existing classifications, a systematic analytical study was undertaken. Some results of the study are reported.

MAEVERS, M. See Corfitzen, W. E., 1

MAGEE, A. C. See also Bonnen, C. A., 1

1. (and McARTHUR, W. C., BONNEN, C. A., and HUGHES, W. F.) Cost of water for irrigation on the High Plains. Tex Agr Exp Sta Bul 745, 43 pp, Feb 1952
2. (and BONNEN, C. A., McARTHUR, W. C., and HUGHES, W. F.) Production practices for irrigated crops on the High Plains. Tex Agr Exp Sta Bul 763, 62 pp, June 1953

MAGONO, CHOJI

1. On the shape of water drops falling in stagnant air. J Met, v 11, pp 77-79, 1954
   A device for photographing falling drops is described and the conclusions as to drop shape are summarized briefly.

MAHAN, R. C.

1. Ground-water control in underground mining. Min Eng, v 6, pp 632-634, 1954
   Report of ground water encountered in two mines at Iron Mountain, Michigan, and of the control methods utilized.

MAHONEY, J. R.

1. Economic characteristics of water. The Physical and Economic Foundation of Natural Resources, v 2, pp 1-3, U S House Rep, 1952
   A brief summary of the role that water plays in human affairs.
2. Water resources of the Bonneville Basin, pt. 1, the water crop and its disposition. Utah Econ Bus Rev, v 13, 1-A, 56 pp, 1953
   A review of the available water and its disposition in the Bonneville Basin of central Utah.

MAIERHOFER, C. R.

1. The drainage of irrigated lands. Agr Eng, v 32, pp 613-614, 1951
   A general review of methods and needs.

MAINFORT, ROBERT C. See Aldous, W. M., 1

MAKELA, DONALD W.

1. Short term stream-flow prediction from snow melt, Middle Fork, Flathead River. Wash Univ Dept Met, 40 pp, Feb 1954

MAKSOUD, H. See Owen, W. M., 2

MALAIKA, JAMIL See McNown, J. S., 1

MALIN, JAMES C.

1. Man, the state of nature, and climax: As illustrated by some problems of the North American grassland. Sci Mon, v 74, pp 29-37, 1952
   A philosophical discussion of plant succession, erosion, floods, soil development, raising the basic question of the true evaluation of man made effects versus natural ones.

MALINSTEN, H. E. See Brehm, C. D., 1

MALLMANN, W. L.
1. Water-quality yardsticks. J Amer Water Works Assn, v 45, pp 917-924, 1953
Evaluation of present methods of determining sanitary qualities of water supplies. Discussion of trend in methods of determining water quality.

MALONE, T. J. See Amer Met Soc, 1

MALOTT, CLYDE A.
1. A stormwater cavern in the Lost River region of Orange County, Indiana. Nat Spel Soc Bul 11, pp 64-68, Nov 1949
Describes the flow of a stream in a sink-hole region.
2. The swallow-holes of Lost River, Orange County, Indiana. Ind Acad Sci Proc, v 61, pp 187-231, 1952
Describes the swallow-holes and sink-holes that have developed in this stream in limestone karst. Discusses the history and cause of the developments.

MAMISAO, JESUS P.
1. Development of an agricultural watershed by similitude. MS thesis, Iowa State Coll, 113 pp, 1952
An application of the principles of similitude to the design of a watershed model. A model of a 125-acre watershed in western Iowa was constructed and tested. Runoff hydrographs from the model corresponded well with those from the prototype under similar rainfall patterns.

MANER, SAM B. See Barnes, L. H., 1

MANGAN, J. W. See also Graham, J. B., 1
1. (and VAN TUYL, D. W., and WHITE, W. F., JR.) Water resources of the Lake Erie shore region in Pennsylvania. U S Geol Surv Circ 174, 36 pp, 1952
Estimated flow-duration curves and curves of maximum period of deficient discharge show the low-flow characteristics of nine small streams in the region. The report contains analyses of water from Lake Erie and small streams in the region. The areas having the highest ground-water potential are described. Figures and tables show the chemical characteristics of water from sands and gravels and bedrocks. The present use of water for public and industrial supplies is given. Laws affecting the use or pollution of water in the areas are described briefly and a summary of the potential water resources of the area is given.

MANN, JOHN F., JR.
1. The sediments of Lake Elsinore, Riverside County, California. J Sed Pet, v 21, pp 151-161, 1951
Reports of analysis of about 100 bed and beach sediments.

MANNING, JOHN C. See Kahanovitz, Y., 1

MANOS, NICHOLAS E. See Spreen, W. C., 1

MANSON, P. W. See also Schwantes, A. J., 1
1. (and ROST, C. O.) Farm drainage - an important conservation practice. Agr Eng, v 32, pp 325-327, 1951
A general review of the theory and practice of drainage and its relation to ground-water levels and floods.

MANSUR, C. I. See Turnbull, W. J., 2

MARCH, A. W.
1. (and SWARNER, L. R., TILESTON, F. M., BOWER, C. A., and HOFFMAN, E. N.) Irrigation management investigations on nonsaline soils. Ore Agr Exp Sta Tech Bul 23, Mar 1952
Lands in the Owyhee project have low water absorption with resulting high runoff of irrigation water. Reports results of research aimed at making improved use of such land.

MARDOCK, E. S. See Watkins, J. W., 1

MARKWELL, KENNETH
1. Fifty years of reclamation progress. Civ Eng, v 22, pp 468-471, 1952
On the progress of the Bureau and their irrigation, power, and flood control projects that they have developed since 1902. Various typical projects are discussed briefly.

MARLETTE, RALPH R.
1. Missouri Basin Survey Commission reports. Civ Eng, v 23, p 78, 1953
Article contains an abstract of the Missouri Basin Survey Commission report whose goal includes a comprehensive program of development of all the land and water resources of the basin as a whole.

MARNO, VALDI
1. Biogeochemical investigation in Finland. Econ Geol, v 48, pp 211-224, 1953
A discussion on the relationships of the Cu, Zn, Ni, and Mo, contents of the rock, and the ground water based on observations made by the author.

MARSELL, R. E.

1. Ground-water contamination by saline thermal waters. Geol Soc Amer Bul, v 62, pp 1506-1507, 1951
   Discusses ground-water problems near oil refineries northwest of Salt Lake City, Utah.

MARSH, F. B.

1. Jarvis-Myers formula recommended for bridge waterway areas. Civ Eng, v 21, p 747, 1951
   A discussion of the Jarvis-Myers empirical formula for design flood for highway and culvert design.

MARSHALL, J. S. See also Rigby, E. C., 1

1. (and HITSCHFELD, WALTER) Reduction of fluctuations in echoes from randomly distributed scatterers. Ill Water Surv Res Bul 41, pp 255-262, 1952
   The fluctuations in radar intensity are analyzed from a statistical viewpoint and it is concluded that the superposition of independent traces on the radar-scope will do much to minimize random fluctuations.
2. Frontal precipitation and lightning observed by radar. Can J Phys, v 31, pp 194-203, 1953
   Reports results of radar observations at Ottawa and discusses the interpretation of the observed echo patterns.
3. (and HITSCHFELD, WALTER) Interpretation of the fluctuating echo from randomly distributed scatterers. Pt 1, Can J Phys, v 31, pp 962-994, 1953
   A theoretical analysis of a radar problem related to measurement of rain.
4. (and LANGLEBEN, M. P.) A theory of snow-crystal habit and growth. J Met, v 11, pp 104-120, 1954
   The type of snow-crystal growth is suggested to be dependent on the ambient vapor pressure as compared with the vapor pressure of the ice crystal.

MARSHALL, T. J. See also Gurr, C. G., 1

1. (and GURR, C. G.) Movement of water and chlorides in relatively dry soil. Soil Sci, v 77, pp 147-152, 1954
   Laboratory studies of movement of chlorides in soils at or below the wilting point indicate substantial moisture movement.

MARSTON, RICHARD B. See also Croft, A. R., 3

1. Ground-cover requirements for summer storm-runoff control on aspen sites in northern Utah. J Forestry, v 50, pp 303-307, 1952
   A report of plot tests to determine the nature and extent of ground cover required to prevent excessive runoff and erosion.

MARTIN, ROBERT O. R. See also Amsden, T. W., 1; Cooke, C. W., 1; Dingman, R. J., 1

1. (and FERGUSON, H. F.) The water resources of St. Mary's County. Md Dept Geol Mines Water Res Bul 11, 195 pp, 1953
   A detailed summary of water resources.

MARTINEZ, M. B. See Lugo-Lopez, M. A., 3

MARTS, M. E.

1. Upstream storage problems in Columbia River power developments. Assn Amer Geog An, v 44, pp 43-50, 1954
   A general review of the required storage for complete regulation of the Columbia and of possible reservoirs.

MASON, J. L. See Wilcox, J. C., 1, 2

MASON, MARTIN A.

1. The problem of wave action on earth slopes. Trans Amer Soc Civ Eng, v 116, pp 1398-1415, 1951
   A brief summary of the methods of computing wave height and of the Irribarren formula for computing size of rock required for riprap. Discussion by R. Y. HUDSON, F. C. WALKER, H. H. JEWELL, C. L. BRETSCHNEIDER, and R. R. PUTZ.
2. Surface water-wave theories. Trans Amer Soc Civ Eng, v 118, pp 546-574, 1953
   A summary of current knowledge of wind waves with charts for estimating wave heights from wind speed, duration, and fetch. Summarizes formulas for wave forces on structures, diffraction and refraction phenomena, and transport of beach material by waves. Extensive bibliography.

MASON, RALPH S.

1. Recent survey of Coe and Eliot Glaciers. Mazama, v 36, pp 37-39, 1954
   Surveys of cross profiles near the lower ends of these glaciers on Mount Hood in Oregon have been made annually on Eliot Glacier since 1940 and on Coe Glacier since 1947. These surveys show continued slow ablation, the average annual net loss on the three lines being in the order of two to three feet. Surface movement of the ice is about three to five feet per year.

MASON, V. V.
1. (and KURTZ, MOSHE) A rapid measurement of thermal resistivity of soil. Elec Eng, v 71, p 985, 1952
Describes a simple probe for measuring thermal resistivity at several depths to about eight feet simultaneously.

MASSEY, H. F.
1. (and JACKSON, M. L., and HAYS, O. E.) Fertility erosion in two Wisconsin soils. Agron J, v 45, pp 543-547, 1953
Samples of eroded soil are analyzed for plant food elements. Even small amounts of erosion may represent substantial loss of fertility.

MATEJKA, D. Q. See Benedict, P. C., 1, 2; Colby, B. R., 1

MATHER, JOHN R. See also Croft, A. R., 3
1. The disposal of industrial effluent by woods irrigation. Trans Amer Geophys Union, v 34, pp 227-239, 1953
Disposal of industrial effluent by woods irrigation is described, and the results of hydrologic investigations during the first year of operation are evaluated.
2. The measurement of potential evapotranspiration. Johns Hopkins Univ Pub Climatology, v 7, 225 pp, 1954
3. The determination of soil moisture from climatic data. Bul Amer Met Soc, v 35, pp 63-68, 1954
Thornthwaite's equation for evapotranspiration is used as a basis for computing soil moisture in the root zone and compared with measured moisture contents at two stations. Discussion by F. F. SNYDER, p 249, 1954.

MATHEWS, O. R. See Cole, J. S., 1; Locke, L. F., 1

MATHEWS, W. H.
1. Historic and prehistoric fluctuations of alpine glaciers in the Mount Garibaldi map area, southwestern British Columbia. J Geol, v 59, pp 357-380, 1951
Historical, botanical, and geologic evidence is used to trace retreats and advances of the glaciers.

MATSON, HOWARD
1. Soil and water management under the complete watershed program. Agr Eng, v 33, pp 625-626, 1952
Discusses in general terms the role of soil and water management as a part of large basin planning.
2. Making a creek flow gently. Agr Eng, v 32, pp 477, 480, 1951
Describes flood control measures on the small streams of the Washita River in Texas.

MATTHES, GERARD H. See also Blench, T., 2; Quintero, A. G., 1
1. Paradoxes of the Mississippi. Sci Amer, v 184, pp 18-23, 1951
The history of the River is discussed in popular terms with special emphasis on the delta.
2. How good is flood control? Eng News-Rec, v 147, pp 30-33, Nov 8, 1951
Answers question by saying that too much is expected of any flood control works. Points out hazards of building in the flood plain and the limitations of some of the types of flood control measures commonly employed.

MATTHEWS, C. K.
1. Meeting air-conditioning growth. J Amer Water Works Assn, v 46, pp 662-666, 1954
A survey of present and future water requirements for air conditioning.

MAXEY, G. B. See Eakin, T. E., 1

MAXWELL, B. W.
1. Public and industrial water supplies of the western coal region, Kentucky. U S Geol Surv Circ 339, 41 pp, 1954
Two maps show graphically the amount of water pumped at each location and the chemical character of the water. Tables give detailed information on the 88 supplies inventoried and the results of 41 chemical analyses. A generalized section shows the geologic formations in the area and their water-bearing characteristics.

MAYER, A. See Cary, A. S., 1

MAYER, I. D. See Jongedyk, H. A., 1

MAYHEW, WILLIAM A. See Ligda, M. G. H., 1

McARTHUR, W. C. See Bonnen, C. A., 1; Magee, A. C., 1, 2

McCALLA, T. M.
1. Studies on the effects of microorganisms on rate of percolation of water through soils. Proc Soil Sci Soc Amer, v 15, pp 182-186, 1950
The effects of various treatments on the percolation of water through soils is determined in laboratory tests. Treatments included use of organic matter, sucrose, and addition of 10 ppm mercuric chloride to the water.

McCARDELL, W. M.
1. (and WINSAUER, W. O., and WILLIAMS, M.) Origin of the electric potential observed in wells. Amer Inst Min Metal Eng Trans, v 198, pp 41-50, 1953
A basic discussion of the source of the potential.

McCARREN, E. F. See Lohr, E. W., 7

McCLAIN, E. PAUL
1. Synoptic investigation of a typical chinook situation in Montana. Bul Amer Met Soc, v 33, pp 87-94, 1952
The meteorology of a chinook situation is studied in some detail and the properties of chinook air are evaluated. Other research on the subject is reviewed briefly.

McCLELLAN, L. N.
1. Progress in irrigation engineering. Civ Eng, v 22, pp 107-111, 1952
An account of the growth in technical skills accomplished by the Bureau of Reclamation in the construction, operation, and maintenance of large irrigation projects.

McCLELLAND, J. E. See Hunter, R., 1

McCLYMONDS, A. E.
1. Not all the uplands were damaged. Soil Cons, v 17, pp 155, 158-160, 1952
A report on a series of observations on the effectiveness of soil conservation methods to reduce erosion on the uplands of a small watershed in the area of the July 1951 Kansas flood.
2. Twenty-three farmers defeat floods. Soil Cons, v 18, pp 78-79, 1952
Discusses how on a small watershed in Kansas the damage was held to a minimum by flood-detention basins and other conservation methods.

McCOOL, A. A. See Bradley, J. N., 1

McCRACKEN, RALPH J. See Coultas, C. L., 1

McCREERY, P. N. See Dotson, B. J., 1

McDONALD, C. C. See also Nelson, M. W., 2; Peck, E. L., 2
1. Use of base flow in forecasting runoff during the non-flood season. Proc West Snow Conf, pp 53-56, Apr 1953
Illustrates method of forecasting volume of runoff during periods of recession by correlation with flow at the beginning of the period.

McDONALD, JAMES E.
1. Homogeneous nucleation of supercooled water drops. J Met, v 10, pp 416-433, 1953
Presents theoretical arguments to support belief that freezing of water drops near -40°C is result of homogeneous nucleation, that is, without presence of foreign substances in the drop.
2. The shape of raindrops. Sci Amer, v 190, pp 64-68, 1954
Report of experimental works and discussions of factors controlling drops shape.

McDONALD, TORRENCE H. See Fritz, S., 1

McDOUGALL, J. M. See Wilcox, J. C., 2

McFARLAN, A. I.
1. Improving use of well water for air conditioning. Heat, Piping, Air Cond, v 24, pp 75-80, 1952
Describes methods of water economy in air conditioning.

McFARLAN, E., JR. See Fisk, H. N., 3

McGAUHEY, P. H. See Butler, R. G., 1

McGEORGE, W. T. See Breazeale, E. L., 1

McGRAIN, PRESTON See also Perrey, J. I., 1
1. (and MITCHELL, MAX) Geologic characteristics of Indiana streams. Proc Ind Acad Sci, v 62, pp 244-249, 1952
A brief geologic description of each major stream in Indiana.

McGUINNESS, C. L.
1. Water law with special reference to ground water. U S Geol Surv Circ 117, 30 pp, June 1951
A general review of water law as it affects ground water.

McINTYRE, G. A. See Philip, J. R., 1

McKEE, EDWIN D.
1. Report on studies of stratification in modern sediments and in laboratory experiments. Off Naval Res Proj Nonr 164(00), NR 081 123 (reprinted for sale by Ariz Geol Soc, 61 pp, 1953)
Discussion of characteristics of beaches, sand dunes, alluvial fans, lagoons, and tidal flats, and a chapter discussing laboratory experimental studies of stratification.

McLEAN, C. J. See Lauterback, W. J., 1

McNALL, P. E. See Anderson, H. O., 1, 2

McNOWN, JOHN S. See also Carr, J. H., 1
1. (and MALAIKA, I., and PRAMANIK, H. R.) Particle shape and settling velocity. Proc Int Assn Hydr Res, 4th Meeting, Bombay, India, 10 pp, 1951

An extension of an earlier study (McNown, Trans Amer Geophys Union, v 31, pp 74-82, 1950) to include effects of particle shape over a range of Reynolds number up to 1000.

2. (and LIN, PIN-NAM) Sediment concentration and fall velocity. Ohio Univ Eng Exp Sta Bul 149, pp 407-411, Sep 1952
   Sediment concentration is shown to affect fall velocity, both by theoretical analysis and experimental data.
3. (and HSU, EN-YUN, and YIH, CHIA-SHUN) Applications of the relaxation techniques in fluid mechanics. Proc Amer Soc Civ Eng sep 223, 25 pp, July 1953
   The principles of the relaxation technique are reviewed and illustrated by a number of problems on flow transitions.

McQUIGG, JAMES

1. A simple index of drought conditions. Weatherwise, v 7, pp 64-67, 1954
   Describes the use of an antecedent precipitation index as a measure of drought severity.

McVICKER, JOHN S.

1. The problem area as a basis for developing a soil erosion map. J Soil Water Cons, v 9, pp 251-254, 1954
   A method of utilizing available data is outlined.

McWHIRTER, MAX See Reynolds, S. E., 3

MEANS, LYNN L.

1. A study of the mean southerly wind-maximum in low levels associated with a period of summer precipitation in the Middle West. Bul Amer Met Soc, v 35, pp 166-170, 1954
   A meteorological study of the storm which produced the Kansas floods of July, 1951.

MEIER, E. BRUCE

1. Determining the percentage of induced infiltration in multiple-well discharge. J Amer Water Works Assn, v 46, pp 19-30, 1954
   Describes a method of estimating the portion of well flow derived from stream flow by induced infiltration and applies method to estimate of induced infiltration at Lincoln, Nebraska. Discussion by A. S. METCALF.

MEIER, FRANK G.

1. Chemical control of willows. Mil Eng, v 46, pp 357-359, 1954
   Summarizes results of use of ammonium sulfamate in the Yazoo Basin.

MEIER, MARY F.

1. Recent eskers in the Wind River Mountains of Wyoming. Proc Iowa Acad Sci, v 58, pp 291-294, 1951
   Describes several eskers left by recent glacial recession and discusses their mode of formation.
2. (and RIGSBY, G. P., and SHARP, R. P.) Preliminary data from Saskatchewan Glacier, Alberta, Canada. Artic, v 7, pp 3-26, 1954
   A progress report showing some results of detailed observations of glacial structure, movement, and growth.

MEIGS, PEVERIL

1. Water problems in the United States. Geog Rev, v 42, pp 346-366, 1952
   A very general review of water use, water needs, and water problems.

MELONE, THEODORA G.

1. (and WEIS, LEONARD W.) Bibliography of Minnesota geology. Minn Geol Surv Bul 34, 124 pp, 1951
   An unannotated but well-indexed bibliography.

MELSTED, S. W. See Larson, B. O., 1, 2; Stall, J. B., 1, 2, 3, 5, 6

MERDINGER, C. J.

1. Civil engineering through the Ages. Mil Eng, v 44, pp 1-6, 102-105, 1952
   A historical review of civil engineering including some references to hydrology.

MERRELL, J. C.

1. Hydrology for highway structures. Ohio Univ Eng Exp Sta Bul 145, pp 64-67, Sep 1951
   A general discussion of the effect of bridges on local stream stages.

MERRIAM, CARROLL F.

1. Evaluation of two elements affecting the characteristics of the recession curve. Trans Amer Geophys Union, v 32, pp 597-600, 1951
   An empirical approach to the stream-flow recession curve considering no subsequent rainfall. Factors of ground-water depletion and interflow are used.

MERRICK, C. P.

1. Maryland's public drainage program. Agr Eng, v 35, pp 106, 108, 1954
   A summary of Maryland law governing drainage districts.

MERRILL, LOUIS P.
1. Some agricultural engineering problems in soil and water conservation. Agr Eng, v 32, pp 481-482, 1951
A general review.

MERRITT, MALCOLM, JR.
1. East Orange, New Jersey, conserves its well supply by water spreading. Water Works Eng, v 106, pp 286-289, 1953
Describes the various works involved without technical data.

MERRYFIELD, FRED
1. Resources of the Pacific Northwest. J Amer Water Works Assn, v 46, pp 713-717, 1954
A description of the area and a general summary of its natural resources.

MESSER, E. S.
1. Interstitial water determination by an evaporation method. Trans Amer Inst Min Metal Eng, v 192, pp 269-274, 1951
Presents method for determining content of water which will not drain from sample.

METCALF, A. S. See Meier, E. B., 1

METZ, LOUIS J. See Hoover, M. D., 4

MEYER, GERALD See Cooke, C. W., 1; Dingman, R. J., 1

MEYER, R. R. See Bennett, R. R., 1

MEYER, WALTER R. See Hanson, R. E., 1

MICHAELSON, VICTOR J.
1. Some legal aspects of public and private waters in Minnesota. Minn Div Water Bul 4, 19 pp, Feb 1951
A general review of water law in Minnesota with special reference to state control of navigable waters and the rights of riparian owners.

MICUNE, C. W. See Basham, R. B., 1

MIDDLETON, F. M.
1. (and BRAUS, HARRY, and RUCHHOFT, C. C.) Fundamental studies in taste and odor in water supplies. J Amer Water Works Assn, v 44, pp 538-546, 1952
Method of concentrating and examining the taste and odor producing substances in water.

MIDDLETON, W. E. KNOWLES
1. (and SPILHAUS, A. F.) Meteorological instruments. Univ Toronto Press, Toronto, 256 pp, 1953
A revision and extension of Middleton's earlier book on meteorological instruments.

MIKELS, F. C. See Klaer, F. H., 1

MILES, KEITH R.
1. Origin and salinity distribution of artesian water in the Adelaide Plains of South Australia. Econ Geol, v 46, pp 193-207, 1952
A discussion of the geology of the Adelaide Plains region, and the occurrence of fresh-water basins which are surrounded by aquifers containing a high degree of connate salts.

MILLAR, C. E.
1. (and TURK, L. M.) Fundamentals of soil science. Wiley, 2 ed, 1951
A textbook on soil science including soil development, soil properties, soil classification, soil chemistry, soil moisture, and irrigation.

MILLER, C. R.
1. Analysis of flow-duration, sediment-rating curve method of computing sediment yield. U S Bur Recl, 55 pp, Apr 1951
Arrives at a procedure to estimate the long-term sediment yield by applying the sediment-rating curve to a long-time flow-duration curve. Studies the accuracy of the method and determines the limitations of using short-period sediment records. Uses data of the San Juan and San Rafael Rivers.
2. (and LARA, J. M.) Interim report -- distribution of sediment in reservoirs. U S Bur Recl, Denver, Colo, 15 pp, June 1954
Contains a compilation and discussion of the various methods developed by the Bureau of Reclamation for predicting the sediment distribution in reservoirs, namely: (1) Trigonometric, (2) Volume-reduction, (3) Trial and error, (4) Manual design curve, (5) Van't Hul and modified Van't Hul, and (6) Area-increment.

MILLER, DAVID
1. Snow cover and climate in the Sierra Nevada, California. PhD thesis, Calif Univ, 1953

MILLER, E. V.
1. (and COLEMAN, N. T.) Colloidal properties of soils from western equatorial South America. Proc Soil Sci Soc Amer, v 16, pp 239-244, 1952
A report of studies of soils of Ecuador and Peru.

MILLER, JOHN P. See Leopold, L. B., 11
MILLER, LEMUEL E. See Whelan, D. E., 1
MILLER, MAYNARD M. See Nichols, R. L., 1
MILLER, R. D.
1. A technique for measuring soil-moisture tension in rapidly changing systems. Soil Sci, v 72, pp 291-301, 1951
Describes a new form of tensiometer to eliminate lag and lessen the amount of water transferred.
2. (and RICHARD, FELIX) Hydraulic gradients during infiltration in soils. Proc Soil Sci Soc Amer, v 16, pp 33-39, 1952
Hydraulic head was measured in artificially packed columns of three California soils and silica flour. Gradients were different in different materials and changed with time.

MILLER, ROBERT L.
1. A model for the analysis of environments of sedimentation. J Geol, v 62, pp 108-113, 1954
A discussion of statistical methods for analysis of grain-size distributions.

MILLER, W. MacNAB See also Woodward, G. O., 1
1. A pressure distribution panel for soil-moisture investigations. Agr Eng, v 34, pp 104-106, 1953
Describes an arrangement through which multiple pressure regulators control the pressure from a single compressor to provide different pressures for different membrane apparatus simultaneously.
2. Some empirical relations of soil-moisture tensions. Proc Soil Sci Soc Amer, v 18, pp 239-243, 1954
Various methods of computing a time mean of moisture tensions are compared.

MILLERET, H. See Hurst, H. E., 1
MILLIKEN, D. L. See Schroeder, M. C., 2
MINNESOTA DEPARTMENT OF CONSERVATION
1. Surface water supplies of the Mesabi Iron range. Minn Div Water Bul 5, 117 pp, June 1951
A summary of all available basic data on streams in the Mesabi range.

MINSHALL, N. E. See Izzard, C. F., 2
MITCHELL, J. MURRAY, JR.
1. On the causes of instrumentally observed secular temperature trends. J Met, v 10, pp 244-261, 1953
A general survey of the influence of instrumental, observational, and local environmental factors on apparent changes of temperature. City effects are studied extensively and are concluded to be of considerable importance.

MITCHELL, MAX L. See McGrain, P., 1; Perrey, J. I., 1
MITCHELL, WILLIAM D. See also Hazen, R., 1
1. Floods in Illinois: Magnitude and frequency. Ill Div Water-Ways, 379 pp, 1954
Data on flood peaks and frequency curves are presented for each major gaging station. Regional composite relations are developed. Discussion of theory of frequency analysis.
2. Stage-fall-discharge relations for steady flow in prismatic channels. U S Geol Surv Water-Supply Paper 1164, 162 pp, 1954
In a prismatic channel, the shape of the surface profile remains fixed as long as the discharge, the slope, and the boundary conditions remain fixed. This 'principle of rigidity of the profile' was applied in a previous report to the observation, under laboratory conditions, of 41 M-1 type profiles. In the present report the same principle is applied to the derivation, from these same profiles, of extensive data on relations among stage, fall, and discharge. These data are used to test the applicability of various methods of determining discharge under variable fall, under the particular conditions of boundary and slope that existed in the laboratory.

MOGG, JOEL See Reed, E. W., 2
MONFORE, G. E. See also Lofquist, B., 1
1. Experimental investigations by the Bureau of Reclamation. Trans Amer Soc Civ Eng, v 119, pp 26-42, 1954
Describes the equipment used in field and laboratory studies of ice pressures exerted on dams and summarizes some of the more important results of these investigations. Discussion by E. ROSE.

MONNINGER, L. V. See Croft, A. R., 2
MONSON, O. W.
1. Sprinkler irrigation in Montana. Mont Agr Exp Sta Bul 483, 40 pp, 1952
Gives a picture of the performance of sprinkler irrigation equipment on Montana farms, based on two brief surveys of 93 farm installations. Discusses adaptability of the sprinkler

method, typical layouts, factors to consider, and the advantages and limitations as well as the results of a series of tests of two types of sprinkler systems to determine their performance characteristics.

2. (and CRIDDLE, WAYNE D., and DAVIS, STERLING) Estimated water requirements of crops in irrigated areas of Montana. Mont State Coll Agr Exp Sta Bul 494, 23 pp, 1953
Presents "estimates of total consumptive use of water and net consumptive irrigation requirements by each of the major crops, and a method of calculating water requirements in the irrigated areas of Montana." These are discussed under two main headings: Consumptive Water Requirements, and Gross Irrigation Requirements.

MOONEY, HAROLD M.

1. Depth determinations by electrical resistivity. Min Eng, v 6, pp 915-918, 1954
Summarizes various methods of interpreting resistivity and evaluates the methods in attempt to organize the overall picture of the current status of resistivity surveys.

MOORE, D. C. See Richards, L. A., 2

MOORE, EDWARD W.

1. The desalting of saline waters: A review of the present status. J NE Water Works Assn, v 66, pp 319-339, 1951
Discusses methods of desalting water and the probable limits of acceptable water quality.

MOORE, O. G. See Scruton, P. C., 1

MOORE, R. C.

1. (and JEWETT, J. M., O'CONNOR, H. G., and SMITH, R. K.) Geology, mineral resources, and ground-water resources of Chase County, Kansas. Kans Geol Surv, v 11, 48 pp, 1951
Describes stratigraphy, economic geology, and ground water of county in east-central Kansas. Includes field data.

MOORE, WALTER G.

1. Limnological studies of Louisiana lakes; 2, Lake Chicot. Proc La Acad Sci, v 15, pp 37-49, Aug 1952
Describes the lake and presents data on temperature, chemistry of the water, and biology. The lake is a shallow, artificial lake.

MOORE, WILLIAM H.

1. (and FERRIS, H. JAMES) Report on sedimentation in Schoharie Reservoir. U S Soil Cons Serv SCS-TP-105, 19 pp, June 1951
Results of sediment survey on a reservoir in New York State and estimates of probable future life are presented.
2. (and FERRIS, H. JAMES, and KOZACHYN, JOHN) Report on sedimentation in Carnegie Lake, Princeton, New Jersey. U S Soil Cons Serv SCS-TP-109, Mar 1952
Report of the sediment accumulation in a small reservoir with an analysis of rates of production and trap efficiency.

MORDY, WENDELL A. See Leopold, L. B., 2

MORGAN, A. M. See Rapp, J. R., 1

MORGAN, ARTHUR E.

1. The Miami Conservancy District. McGraw-Hill, 489 pp, 1951
A history of the development of the Miami Conservancy District. Includes graphic description of the 1913 flood, and brief discussion of the technical features of the project.
2. The wisdom of dams without gates. J Amer Water Works Assn, v 44, pp 797-802, 1952
Defends the gateless dams in the Miami Conservancy District by citing the original purpose of the district. The drainages are small, the floods peak rapidly so that operated gates would require an extensive forecasting organization not warranted in that basin.

MORISON, J. R. See Johnson, J. W., 1

MORRIS, AUSTIN E. See Rourke, J. D., 1

MORRIS, J. CORNELL

1. The Schwarzenbach method for determination of hardness. J NE Water Works Assn, v 66, pp 128-133, 1951
Describes a simple but precise titration method for hardness testing.

MORRIS, VERNON B., JR.

1. Some experiments on the speed of response of the electrolytic hygrometer. Bul Amer Met Soc, v 35, pp 226-229, 1954
Response speed is analyzed theoretically and checked experimentally. Methods of increasing response speed are suggested.

MORRIS, WALLACE VICTOR See also Hickok, R. B., 1

1. Forecasting snow-melt runoff. MS thesis, Colo Agr Mech Coll, Dept Civ Eng, 87 pp, Sep 1954
A method for forecasting the spring runoff as a result of snow melt and spring rains on the Lake of the Woods watershed is presented. Because of the high proportion of runoff resulting

from spring rains, the rate of snow-melt runoff at any particular time could not be predicted. However, the total volume and specific rate to be expected during any spring were determined with reasonable accuracy.

MORRISON, H. L. See Plain, G. J., 1

MORRISON, STANTON R.

1. Rice irrigation tests at the Beaumont station, 1952. Tex Agr Exp Sta Prog Rep 1542, Feb 1953
   Report of tests to determine the most effective water allotment for rice in order to save on present water uses.

MORTENSON, JAMES E. See Bloodgood, D. W., 1, 2

MOSBAUGH, HARRELL F.

1. Missouri Valley development. Midwest Eng, v 4, pp 7-9, 19, 1952
   A summary of federal development plans in the Missouri Basin.

MOULDER, E. A.

1. (and TORREY, A. E., and KOOPMAN, F. C.) Ground-water factors affecting the drainage of Area IV, First Division, Buffalo Rapids irrigation project, Montana. U S Geol Surv Circ 198, 46 pp, 1953
   Describes the geology and ground-water conditions in a small area on the west bank of the Yellowstone River about 15 mi south of Glendive, Montana. Leakage from the main canal is suggested as the main cause of water logging and corrective measures are proposed.

MOZOLA, ANDREW J.

1. The ground-water resources of Seneca County, New York. N Y State Dept Cons Rep GW-26, 57 pp, 1951
2. The hydrologic units in Oakland County, Michigan. Papers Mich Acad Arts Sci Let, v 39, pp 367-386, 1953
   The geology of this county in southeastern Michigan is described and four distinct ground-water units are noted.
3. A survey of ground-water resources in Oakland County, Michigan. Occ Papers, Geol Mich, Mich Geol Surv Pub 48, pt 2, pp 97-348, 1954 (PhD thesis, Dept Geol, Syracuse Univ, 1953)
   A discussion of the geology and ground-water resources of Oakland County and of the problems of water supply which have arisen in the past few years owing to increased industry and urbanization.
4. The hydrologic units in Oakland County, Michigan. Mich Acad Sci Papers (1953), v 39, pp 367-386, 1954
   The hydrologic units of Oakland County are: (1) the underlying bedrock units, (2) the interlobate outwash, (3) the unassorted till, and (4) the sediments within the glacial lake plain. An estimated minimum of 30 million gallons of water is recovered daily from wells in Oakland County, mainly from the unconsolidated glacial deposits.

MUCKEL, DEAN C. See also Simpson, T. R., 1

1. Research on water spreading. Trans Amer Soc Civ Eng, v 118, pp 209-219, 1953
   Reports field tests in the San Joaquin Valley, California, to determine percolation characteristics of disturbed and undisturbed soils and the effects of chemical, mechanical, vegetative, and operational conditions on percolation rates.

MUMMEY, SAMUEL, JR.

1. Surface water resources of Iowa, October 1, 1942, to September 30, 1950. Iowa Water Supply Bul 3, 583 pp, 1953
   A summary of stream-flow records for the state.

MUNDORFF, M. J. See also Legrand, H. E., 1; Weigle, J. M., 1

1. (and REIS, D. J., and STRAND, J. R.) Progress report on ground water in the Columbia Basin Project, Washington. Wash Div Water Res Ground Water Rep 3, 229 pp, Dec 1952
   A continuation of previous work done within the area to bring up to date available hydrologic information in the area; to determine areas and sources of recharge; to evaluate the quantity and quality of water available for development, and to arrive at a basis for estimating the effects of project irrigation upon the water table. Contains geologic maps, bedrock contour maps, water-table contours maps, cross sections, well logs, chemical analysis, and other factual data on the Columbia Basin Project.
2. (and WEIGLE, J. M., and HOLMBERG, G. D.) Ground water in the Yelm area, Thurston and Pierce Counties, Washington. Wash Div Water Res Ground Water Rep 4, 121 pp, Jan 1953
   A comprehensive report on the geology and ground-water resources of Yelm Prairie to determine the amount of ground water available to replace the Yelm Irrigation District diversion from the Nisqually River. Contains geologic maps, water-table maps, cross sections, well logs, chemical analysis, and other factual data pertaining to the ground-water resources of the area.

MUNN, R. E.
1. The measurement of snow depth. Bul Amer Met Soc, v 35, pp 133-134, 1954
The statistical problem of sampling the snow depth is presented with a procedure for evaluating the possible accuracy of the mean of a number of samples.

MUNNS, EDWARD N.
1. Yield and value of water from western National Forests. J Forestry, v 50, pp 464-468, 1952
Discusses the water production within the national forests and estimates its value.

MURRAY, WILLIAM E.
1. Some upstream aspects of the 1952 spring floods in Utah. Proc West Snow Conf, pp 48-54, Apr 1954
Reports results of inspections in the watersheds during and after the floods. Discusses the damage caused by the floods, the causes of the floods, relation of land condition and cover to flood flow, and the probable frequency of the floods. Discussion by G. L. PEARSON.

MUSSER, H. B. See Watson, J. R., Jr., 1

MUSSLEMAN, GEORGE H.
1. Ground-water resources of the Ann Arbor area. MS thesis, Mich Univ, Dept Geol, 21 pp, May 4, 1953

MYERS, D. H. See Friedrichs, K. O., 1

MYERS, L. E., JR. See Shutts, E. E., 1

MYERS, VANCE A.
1. Frequency variation of snow depth in the Missouri and upper Mississippi River basins. Mon Wea Rev, v 81, p 162, 1953
Maximum depths and those exceeded five and ten per cent of the time on various dates from February through April are given for about 40 stations.

MYLANDER, HARVEY A.
1. Well improvement by use of vibratory explosives. J Amer Water Works Assn, v 44, p 39, 1952
A comprehensive study of the use of explosives in opening up clogged wells. Discusses common causes of well clogging including: sanding off, accumulation of fines, and deposition in the perforations. Discusses common methods of reactivating wells with special emphasis on explosives.
2. Oil-field techniques used for water-well drilling. J Amer Water Works Assn, v 45, pp 764-772, 1953
Many oil-field techniques such as electric and radioactive logging and shaped charges for perforating casings can be applied to water-well drilling.

NACE, R. L.
1. (and DURUM, W. H.) Ground water for irrigation in Box Butte, Nebraska. U S Geol Surv Circ 166, 39 pp, 1953
The yield of irrigation wells in Box Butte County ranges from 150 to 3500 gpm. It is estimated that the withdrawal of ground water in 1946 was less than one-third the annual recharge from precipitation, and it is concluded that the water pumped is salvaged from ground water that would otherwise have been lost by underflow, evaporation, or discharge into streams. While the water is moderately mineralized and hard, it is generally satisfactory for domestic use and good or excellent for irrigation.

NADER, J. S. See Goldin, J. S., 1

NAIR, M. S. See Dreibelbis, F. R., 2

NAKAYA, UKICHIRO
1. Snow crystals. Harvard Univ Press, 510 pp, 1954
The physical and electrical characteristics of crystals, their growth, and the influence of weather on growth are discussed and illustrated by 1550 photomicrographs.

NALDER, W. H.
1. Design of irrigation systems. Trans Amer Soc Civ Eng, v 117, pp 230-244, 1952
A description of the planning and design considerations entering the development of irrigation features of multiple-purpose projects of the U. S. Bureau of Reclamation. Principle features of the California Central Valley Project, the Columbia Basin Project, and the Republican River Project are presented. Discussion by A. SHUKRY.

NAMIAS, JEROME
1. (and LEIGHT, WALTER G.) The current long-range forecasting program of the U. S. Weather Bureau. Sci Mon, v 74, pp 21-28, 1952
A review of methods employed for 5- and 30-day forecasts.
2. Problems associated with extending the time range of weather predictions. Trans N Y Acad Sci, ser 2, v 14, pp 177-179, 1952
A general review of the problem of long-range forecasting.

3. The annual course of month-to-month persistence in climatic anomalies. Bul Amer Met Soc, v 33, pp 279-285, 1952
   Annual march of month-to-month persistence of temperature and precipitation anomalies over the U. S. is examined for about ten years. Definite persistence is indicated except in April and May, and October and November. The findings are discussed in relation to possible controlling factors.
4. Thirty-day forecasting: A review of a ten-year experiment. Amer Met Soc Met Mono, v 2, July 1953
   A summary and analysis of the results of the 30-day forecast program of the Weather Bureau over the first ten years of operation.

NASH, W. B.

1. (and CHAMBERLAIN, L. W.) Some aspects of the heavy rains in the Chicago area, October 9-11, 1954. Mon Wea Rev, v 82, pp 305-316, 1954
   A summary of special rainfall measurements during the storm is presented together with a meteorological analysis.

NAVARRE, ALFRED T. See Ingols, R. S., 1

NEAL, O. R.

1. (and BRILL, G. D.) Conservation effects of crop rotation on a sandy soil in vegetable production. J Soil Water Cons, v 6, pp 187-199, 1951
   Rotation of crops reduces runoff and erosion on a sandy coastal plain soil.
2. Effects of land resting on conservation and productivity of vegetable-growing soils. Agron J, v 44, pp 362-364, 1952
   Rotation of non-cultivated crops is found to improve fertility and reduce soil and water losses in coastal plain soils of New Jersey.

NEALE, ALFRED T.

1. (and ELDRIDGE, E. F.) Quality control of water from watersheds. Water Sewage Works, v 101, pp 312-314, 1954
   A general review of problems of stream pollution including the problem of sediment. Discusses causes of erosion and methods of reduction.

NEIBURGER, MORRIS

1. A note on the reflection of diffuse radiation by the sea surface. Trans Amer Geophys Union, v 35, pp 729-732, 1954
   Earlier data presented by the author showed some disagreement with theoretical considerations. Further study indicates that the disagreement may result from scattering by bubbles and particulate matter.

NEILL, J. C. See also Buswell, A. M., 2; Stout, G. E., 1, 2

1. Analysis of 1952 radar and raingage data. Ill Water Surv Div Rep Inv 21, 22 pp, 1953
   Rainfall as estimated by radar is compared with raingage data. Networks of raingages of various densities are compared for reliability.

NELIDOV, IVAN M. See Jansen, R. B., 1

NELSON, ELMER R.

1. Red River of the North basin flood, April-June, 1950. Mon Wea Rev, v 79, pp 169-178, 1951
   The topographic and climatologic characteristics of the basin, the meteorology of the storms, flood crests, and prior floods are discussed.

NELSON, L. B.

1. Erosion control problems of the humid region. Agr Eng, v 55, pp 876-877, 1954
   A general survey of methods, results, and need for further work.

NELSON, MARTIN E.

1. (and BENEDICT, PAUL C.) Measurement and analysis of suspended sediment loads in streams. Trans Amer Soc Civ Eng, v 116, pp 891-918, 1951
   Reviews the history of sediment observations and describes tests on various sediment samplers and the development of new integrating samplers. Describes a bottom-withdrawal tube for sediment-size analysis.

NELSON, MORLAN W. See also Work, R. A., 1

1. (and WILM, H. G., and WORK, R. A.) Soil priming in relation to snow surveys and flood regulation. Trans Amer Geophys Union, v 34, pp 240-248, 1953
   In earlier studies in the Columbia River basin, the authors found water yields and flood discharges to be highly correlated with the water content of snow as determined by snow surveys, and with the spring precipitation. This paper demonstrates the additional correlation obtained by including autumn precipitation in the analyses.
2. (and McDONALD, C. C., and BARTON, M.) Base flow as a parameter in forecasting the April-June runoff. Proc West Snow Conf, pp 61-69, Apr 1953
   Base flow (November 1 flow) is shown to be a significant parameter in forecasting relations for four basins in the Columbia River basin. Discussion by W. W. DEAN.

NELSON, ROBERT L.

1. Glacial geology of the Frying Pan River drainage, Colorado. J Geol, v 62, pp 325-343, 1954
   A discussion of the glacial history of a tributary of Roaring Fork.

NELSON, W. B. See also Thomas, H. E., 1

1. (and THOMAS, H. E.) Pumping from wells on the floor of the Sevier Desert, Utah. Trans Amer Geophys Union, v 34, pp 74-84, 1953
   Describes the history of the development and use of water at the Topaz Relocation Center in central Utah, to salvage water from an area of natural ground-water discharge.

NEMENYI, P. F.

1. Annotated and illustrated bibliographic material on the morphology of rivers. Geol Soc Amer Bul, v 63, pp 595-644, 1952
   Selected books and articles are abstracted and some are reviewed critically. Many of the abstracted papers were originally published in foreign languages.

NEUBAUER, RAYMOND L. See Inn, E. C. Y., 1; Vonnegut, B., 3

NEUBERGER, HANS

1. Introduction to physical meteorology. Pa State Coll, 271 pp, 1951
   Discusses atmospheric condensation, visibility, solar and terrestrial radiation, acoustics, optics, and atmospheric electricity.

NEUMANN, J.

1. Drop size and relative mass contributed by rain. J Met, v 8, pp 205-206, 1951
   A brief note suggesting a relationship between drop size and relative mass of water in rainfall.
2. On a relationship between evaporation and evapotranspiration. Bul Amer Met Soc, v 34, pp 454-457, 1953
   The heat balance and turbulence theory are applied to show that evaporation from a large water body is 33 pct greater than from an equivalent vegetated area with ample water. Sensible heat transferred from vegetated land is concluded to be between five and ten per cent of the total insolation.
3. An abridged method for computing daytime and nighttime averages of some meteorological elements. J Met, v 11, pp 185-188, 1954
   Presents method for calculating mean value of an element for the period sunrise to sunset and sunset to sunrise where the diurnal variation can be satisfactorily represented by two Fourier waves. The method is simple and requires little data.
4. (and ROSENAU, N.) The Black Sea: Energy balance and evaporation. Trans Amer Geophys Union, v 35, pp 767-774, 1954
   Evaporation from the Black Sea is computed from energy balance considerations and compared with previously computed hydrologic balances.

NEVADA STATE ENGINEER

1. Common methods of measuring water as practiced in western states. Nev State Eng, 1952
   Summary of measurement methods with tables and charts for the various methods.

NEWCOMB, R. C.

1. Preliminary report on the ground-water resources of the Walla Walla Basin, Washington-Oregon. Wash Div Water Res, 203 pp, Apr 1952
   A comprehensive study of the ground-water resources of the Walla Walla Basin of southeastern Washington and northeastern Oregon. Contains geologic maps, bedrock contour maps, and water-level contour maps, as well as logs, analyses, and locations of representative wells and springs of the area, and a brief treatment of the possibility of potential artificial recharge of the basalt aquifers.
2. Ground-water resources of Snohomish County, Washington. U S Geol Surv Water-Supply Paper 1135, 133 pp, 1952
   The ground-water resources of about 900 sq mi in western Snohomish County is described. The tables include descriptions of representative wells and springs, all available records of subsurface explorations, and chemical analyses of the ground water. A map shows the distribution of geologic units and the location of wells and springs. Sections show the stratigraphic relation of the geologic units in depth and charts give the correlary characteristics of the weather and of the ground-water recharge and discharge.
3. (and others) Seismic cross sections across the Spokane River Valley and the Hillyard Trough, Idaho and Washington. U S Geol Surv, 15 pp, Aug 1953
   Two cross sections were run with refraction seismograph, one trending north-south across the Spokane River Valley, just east of the Idaho-Washington boundary; the other trending east-west across the strath just north of the Hillyard section of Spokane. The data permit the compilation of a graphic cross section showing the position of the water table, the base of glacial and glaciofluviatile deposits, and the generalized base of the Latah formation and associated deposits (the top of the consolidated bedrock).

NEWCOMBE, CURTIS L.

1. Water wealth lost by silt pollution. Soil Cons, v 16, pp 272-275, 1951
   A review of the reduction in fisheries resources of the rivers and intertidal zone caused by the discharge of sediment.

NEW ENGLAND WATER WORKS ASSOCIATION

1. Report of Committee on Ground-Water Supplies. J NE Water Works Assn, v 65, pp 384-387, Dec 1951
   Presents summary of municipal ground-water recharge projects with data on water quality.
2. Report of Committee on Rainfall and Yield of Drainage Areas. Rainfall in New England, Part I: Rainfall in Massachusetts. J NE Water Works Assn, v 68, pp 39-92, 1954
   A summary of monthly rainfalls for the period 1942-50 at 193 stations in Massachusetts and average monthly precipitation over selected watersheds for the same period.

NEW MEXICO STATE ENGINEER

1. A review of the San Juan River problem in New Mexico. N Mex State Eng, 168 pp, Mar 1953
2. Tentative plan for development of land and water resources New Mexico portion - AWR Basins. N Mex Coordination Comm, 530 pp, June 1953
3. Initial development water salvage and salinity alleviation action program, Pecos River basin. N Mex State Eng, 60 pp, Dec 1954

NEWTON, CARROL T.

1. An experimental investigation of bed degradation in an open channel. Boston Soc Civ Eng Proc, v 38, pp 28-60, 1951
   Discussion of a laboratory investigation which simulated the conditions that occur in alluvial rivers downstream from large dams. Indicates the general process and pattern of stream degradation under conditions where the normal bed load carried by the stream is withheld.

NEW YORK STATE DEPARTMENT OF CONSERVATION

1. Record of wells in Suffolk County, New York. N Y Dept Cons Rep GW-31, Sup 2, 137 pp, 1952

NICHOLS, HERBERT B. See also Smith, W. O., 1

1. Oklahoma studies on evaporation data. Sci Mon, v 72, pp 57-61, 1951
   A description of the Lake Hefner project operated jointly by the Bureau of Reclamation, Navy, Geological Survey, and Weather Bureau.
2. (and COLTON, F. B.) Water for the world's growing needs. Nat Geog, v 102, pp 269-286, 1952
   A popular article on the world's water problems. Liberally illustrated.

NICHOLS, ROBERT L.

1. (and MILLER, MAYNARD M.) Glacial geology of Ameghino Valley, Lago Argentina, Patagonia. Geog Rev, v 41, pp 274-294, 1951
   Describes the area and existing glaciers and through analysis of glacial landforms deduces past history of the glacier.

NICKENSON, DOROTHY See Pendleton, R. L., 1

NOBLES, LAURENCE H. See Sharp, R. P., 3

NOECKER, MAX

1. (and GREENMAN, D. W., and BEAMER, N. H.) Water resources of the Pittsburgh area, Pennsylvania. U S Geol Surv Circ 315, 56 pp, 1954
   This report contains information on the quantity and quality of water used and available for use in Allegheny County. Flow-duration curves are given for several streams and curves showing the maximum period of deficient flow are given for Buffalo, Turtle, and Chartiers Creeks. Contains a flood-stage frequency graph for the Ohio River at Pittsburgh and profiles of floods on the Monogahela, Allegheny, and Ohio Rivers in 1936 and 1942. The water-bearing properties of the geologic formations important as sources of water supply are described. A map shows the location of valley-fill deposits which are the potential source of the largest ground-water supplies. Other maps show the elevations of bedrock surface in the Triangle area and the elevations of the water surface in the Triangle area on January 5, and August 17, 1950. Tables and graphs show the chemical quality and temperatures of water from ground and surface sources. The public water-supply systems in the area are described and a chemical analysis of the water from each of several supplies is given. Laws affecting the use of water in the area are described briefly and the water-resources potential is evaluated.

NOLL, JOHN J.

1. Water in the Southeast. J Soil Water Cons, v 7, pp 30-34, 1952
   A general review of water resources in the southeastern U. S.
2. Report on sedimentation in Burlington Reservoir, North Carolina. U S Soil Cons Serv Spartanburg, S C, 9 pp, Sep 1953
   Describes results of a sedimentation survey on a reservoir with a drainage area of 105 sq mi after 21 years of service. A watershed survey to determine the sources of sediment and outline possible remedial measures is also presented.

3. The silting of Caonillas Reservoir, Puerto Rico. U S Soil Cons Serv SCS-TP-119, 22 pp, Oct 1953
Report results of sediment survey on a reservoir in west central Puerto Rico after about four years of operation. Includes detailed survey of the watershed and suggested methods for erosion control.

NOREN, DANIEL See Werner, P. W., 1

NORRIS, STANLEY E. See also Cross, W. P., 1

1. (and CROSS, WILLIAM P., GOLDTHWAIT, RICHARD P., and SANDERSON, EARL E.) The water resources of Clark County, Ohio. Ohio Div Water Bul 22, 82 pp, Mar 1952
A description of the climate and the surface, and ground-water resources in the vicinity of Springfield, Ohio. Includes flow-duration curves, unit-storage graphs, precipitation records, water-well logs, and geologic maps. Contains descriptions of floods and droughts, general geology, and ground-water conditions.
2. An electric tape for measuring water levels in wells. Johnson Nat Drillers' J, v 24, pp 7, 11, Nov-Dec, 1952
Describes an electric tape which utilizes the emf developed when a magnesium anode is placed in water rather than battery power for operation.

NORTON, GRADY See Bunting, D. C., 1

NUTTONSON, M. Y.

1. Some physical and agricultural characteristics of the drought area of Russia and its climatic analogues in the United States. Land Econ, v 25, pp 347-364, 1949
A review of the Soviet program of soil and water conservation, a discussion of the characteristics of the steppe and forest-steppe regions, and a comparison with similar regions in the U. S.

NYGARD, I. J. See Kellogg, C. E., 1

OAKES, MALCOLM C.

1. Geology and mineral resources of Tulsa County, Oklahoma. Okla Geol Surv Bul 69, 234 pp, 1952
A comprehensive geologic report with section by J. H. WARREN describing principal aquifers and summarizing water-quality data.

O'BRIEN, JOHN T.

1. Studies of the use of pervious fence for streambank revetment. U S Soil Cons Serv SCS-TP-103, 66 pp, Feb 1951
Reports field and laboratory tests of pervious wire fences, vegetative revetment, and various types of groins as a means of bank stabilization.

O'CONNOR, H. G. See also Moore, R. C., 1

1. (and GOEBEL, E. D., and PLUMMER, NORMAN) Geology, mineral resources, and ground-water resources of Lyon County, Kansas. Kans Geol Surv, v 12, 59 pp, 1953
Describes stratigraphy, economic geology, and ground water of county in east-central Kansas. Field data included.

ODOM, LEO M. See also Fisk, H. N., 2; Schega, R., 1

1. Atchafalya diversion and its effect on the Mississippi River. Trans Amer Soc Civ Eng, v 116, pp 503-547, 1951
Data on the flow of the Atchafalaya Diversion are studied and evaluated. It is concluded that no major progressive changes in the capacity of the Old River result from these diversions. A possible explanation is given on basis of movable bed model studies. Discussion by E. F. SALISBURY, J. F. HALSEY, and J. W. HIGGS.

O'DONNELL, D. JOHN

1. (and CHURCHILL, WARREN S.) Certain physical, chemical, and biological aspects of the Brule River, Douglas County, Wisconsin. Wisc Acad Sci, Arts, Let Trans, v 43, pp 201-255, 1954
Includes information on the occurrence of anchor ice on the Brule River.

O'DONNELL, T. See Childs, E. C., 2

ODUM, HOWARD T.

1. Dissolved phosphorus in Florida waters. Fla Geol Surv Rep Inv 9, pt 1, 40 pp, 1953
Analyses of fresh and marine waters, effects of phosphorus on water life, red tide, and sediments.
2. (and PARRISH, BRUCE) Boron in Florida waters. Fla Acad Sci J, v 17, pp 105-109, 1954
Presents data on boron and the boron-chloride ratio for some Florida waters and discusses possible sources of the boron.

OGLE, JAMES A. See also Rogers, R. E., 1

1. Report on sedimentation in Kerens City Lake, Kerens, Navarro County, Texas. U S Soil Cons Serv, Ft Worth, Tex, 8 pp, Aug 1954 (processed)

Reports a sedimentation survey of a small reservoir (drainage area equals six square miles) after about 20 years. Brief discussion of possible remedial measures.

2. (and RENFRO, GRAHAM W.) Report on sedimentation survey of Lake Eddleman, Graham, Young County, Texas. U S Soil Cons Serv, Temple, Tex, 13 pp, Aug 1954
   Reports a sediment survey of the reservoir and a watershed survey of the drainage area to estimate probable reservoir life and possible measures for lengthening this life.
3. (and RENFRO, GRAHAM W.) Report on sedimentation survey of Lake Throckmorton, Throckmorton, Throckmorton County, Texas. U S Soil Cons Serv, Temple, Tex, 12 pp, Aug 1954
   Reports sedimentation survey on a small reservoir (drainage area 11 sq mi) after about 36 years. Brief discussion of possible remedial measures.

OHIO DIVISION OF WATER

1. Lake Erie pollution survey. Ohio Div Water, 201 pp, Apr 1953 (Sup, 125 pp, 1953)
   A comprehensive report of the organic and inorganic pollution of Lake Erie and the tributaries to Lake Erie in Ohio. Contains sections on the hydrology of Lake Erie and tributaries, bacterial and sanitary analysis, chemical and physical quality, and biological studies. Well documented with graphs and tables. Supplement contains compilation of chemical and physical analysis from 34 sampling stations on streams and lake intakes.

OLIVER, PAUL A. See Slater, W. R., 1

OLSON, DAVID F., JR. See also Hoover, M. D., 4

1. (and HOOVER, MARVIN D.) Methods of soil-moisture determination under field conditions. SE For Exp Sta Paper 38, 28 pp, Apr 1954
   A review of methods of moisture measurement including direct sampling, electrical resistance, tensiometric, and neutron scattering.

OLSON, R. A. See Kamprath, E. J., 1

OLTMAN, ROY EDWIN

1. (and TRACY, H. J.) Trends in climate and in precipitation-runoff relations in the Missouri River basin. U S Geol Surv Circ 98, 113 pp, 1951
2. (and others) Missouri River basin floods of April-May, 1950, in North and South Dakota. U S Govt Prtg Off, 114 pp, 1951
   Describes floods, flood damage, meteorology, and flood discharges, records of previous floods, and ground-water fluctuations.

O'NEAL, ALFRED M. See also Klingebiel, A. A., 1; Uhland, R. E., 2

1. A key for evaluating soil permeability by means of field clues. Proc Soil Sci Soc Amer, v 16, pp 312-315, 1952
   Estimates of permeability made at 182 locations and subsequently checked by measurement indicate that rapid and reasonably accurate estimates can be made on basis of certain features of soil structure and climate.

ONISHI, GAISHI See Yamamoto, G., 1

ORDON, CHESTER J.

1. A modified rational formula for storm-water runoff. Water Sewage Works, v 101, pp 275-277, 1954
   Discusses the rational formula proposing new values of the runoff coefficient. Suggests an area factor to modify (reduce) computed flows for areas over 500 acres.

OREGON KLAMATH RIVER COMMISSION

1. Water resources and requirements of the upper Klamath Basin. Ore Klamath River Comm, Dec 1954

ORLOB, G. T. See Butler, R. G., 1

OROS, CHARLES M.

1. River-current data from aerial photography. Photo Eng, v 18, pp 96-99, 1952
   Describes use of aerial photographs of floats for estimating current velocities in inaccessible sections of the Columbia River.

ORVILLE, HOWARD T.

1. Present status of weather modification. Trans N Y Acad Sci, ser 2, v 17, pp 45-51, 1951
   A review of activity and plans of the Advisory Committee on Weather Control.
2. Aims and activities of the U. S. Advisory Committee on Weather Control. Proc West Snow Conf, pp 1-4, Apr 1954
   A brief description of the Committee and of its plans. Discussion by R. D. ELLIOTT.

OSBORN, BEN

1. Bomb shelters for the land. Soil Cons, v 16, pp 195-197, 1951
   Discusses a field operation to tests the effect of artificial raindrops on breaking up of soil, solution of components, and runoff over a variety of Texas rangeland. Some high-speed photographs of drops hitting soil and some conclusions on the amount of protective cover required are included.

2. Range soil conditions influence water intake. J Soil Water Cons, v 7, pp 126-132, 1952
   A general discussion of the potentialities of wise range management supported by examples and photographs.
3. Storing rainfall at the grass roots. J Range Man, v 5, pp 408-414, 1952
   A general review of water conservation through wise range management.
4. Field measurements of soil splash to evaluate ground cover. J Soil Water Cons, v 8, pp 255-260, 1953
   Describes methods of measuring splash erosion and summarizes results of observations.
5. Soil splash by raindrop impact in bare soils. J Soil Water Cons, v 9, pp 33-38, 1954
   A review of experimental results in the Western Gulf region.
6. Effectiveness of cover in reducing soil splash by raindrop impact. J Soil Water Cons, v 9, pp 70-76, 1954
   A report of field investigations in the western Gulf region. Data on amount of cover required for effective protection is given.

OSOBA, J. S. See Richardson, J. G., 1

OSTERBERG, J. O.

1. New piston-type soil sampler. Eng News-Rec, v 148, pp 77-78, Apr 24, 1952
   Describes hydraulically operated piston sampler successful in obtaining full recovery in both sand and clay of five-inch diameter samples four feet long.

OSWALT, WENDELL

1. Spruce samples from the Copper River Drainage, Alaska. Tree-ring Bul, v 19, pp 5-10, 1952
   Presents data covering a span of about 200 years.

OTIS, C. K. See Pomroy, J. H., 1

OUTLAW, D. E.

1. (and others) Winter Garden district, Dimmit and Zavala Counties and eastern Maverick County, Texas; records of wells, drillers' logs, water analyses, and map showing locations of wells. Tex Bd Water Eng Bul 5203, 157 pp, Mar 1952

OVERBECK, ROBERT M. See Amsden, T. W., 1

OWEN, JOHN E.

1. (and GREER, WALTON J.) The guard electrode logging system. Trans Amer Inst Min Metal Eng, v 192, pp 347-356, 1951
   Describes technique of resistivity logging which samples very thin layers.

OWEN, W. M.

1. Correlation between pipe flow and uniform flow in a triangular open channel. Trans Amer Geophys Union, v 34, pp 213-219, 1953
   Presentation of a dimensionless open-channel resistance diagram based on an existing diagram based on an existing diagram given by Moody for circular pipes. Discussion by H. H. CHENOWETH, v 35, pp 659-660, 1954.
2. Laminar to turbulent flow in a wide open channel. Trans Amer Soc Civ Eng, v 119, pp 1157-1175, 1954
   A report of laboratory study in the transition zone between laminar and turbulent flow. Equations for laminar flow in wide channels are presented and the relation between Reynolds number and friction factor is determined. The value of Reynolds number at the transition is determined. Discussion by Y. IWAGAKI, J. W. DELLEUR, R. W. POWELL, C. J. POSEY, and H. MAKSOUD.

PACKER, PAUL E.

1. An approach to watershed protection criteria. J Forestry, v 49, pp 639-644, 1951
   Plots on ungrazed wheat grass and cheatgrass are tested with infiltrometers and soil loss and runoff are related to nine site characteristics. Total cover and maximum size of bare opening were found to be most significant.
2. Status of research on watershed protection requirements for granitic mountain soils in southwestern Idaho. U S For Serv Intermountain For Range Exp Sta Res Paper 27, 20 pp, Oct 1951
   Data pertinent to the headwaters of the Boise, Payette, and Salmon Rivers are summarized in terms of vegetal cover required to prevent erosion for various soil conditions. Necessary research is outlined.
3. Effect of trampling disturbance on watershed condition, runoff, and erosion. J Forestry, v 51, pp 28-31, 1953
   Reports a study made in the Boise River watershed of Idaho. Trampling is found not to be very significant where cover exceeds 90 pct.

PALMQUIST, W. N., JR.

1. (and HALL, F. R.) Public and industrial water supplies of the Blue Grass region, Kentucky. U S Geol Surv Circ 299, 101 pp, 1953
   Large supplies of ground water for public and industrial use can be obtained from the alluvium bordering the Ohio River in the Blue Grass region, Kentucky. Away from the Ohio

River large supplies can be obtained only where geologic conditions are especially favorable. Included in the report are two maps, which show graphically the amount of water pumped at each location and the chemical character of the water. Tables give detailed information on the 105 supplies inventoried and the results of 49 chemical analyses. A generalized section shows the geologic formations present in the area and their water-bearing characteristics.

PALPANT, E. H.

1. (and LULL, H. W., THAMES, JOHN L., HELMERS, AUSTIN E., CARLSON, CHARLES A., and REINHART, K. G.) Soil-moisture with the fiberglas instrument. South For Exp Sta Occ Paper 128, 48 pp, Feb 1953
   Results of studies of utility of electric-resistance elements for soil moisture. Various types of elements are compared, the reliability of laboratory calibration is compared with field calibration, and some special instruments for installation of elements are described.

PARKER, FRANK L. See Thomas, H. A., Jr., 1, 3

PARKER, G. G.

1. Geologic and hydrologic factors in the perennial yield of the Biscayne aquifer. J Amer Water Works Assn, v 43, pp 817-835, 1951
   An analysis of the geology and water supply of the aquifer. Discussion by W. A. GLASS.

PARKER, JOHN DYAS

1. Exploring an underground river. Nat Spel Soc Bul 12, pp 80-84, Nov 1950
   Describes underground stream at Aitkin Cave, Miflin County, Pennsylvania.

PARMALEE, G. W.

1. (and VILD, D. J.) Design data for slat-type sunshades for use in load estimating. Heat, Piping, Air Cond, v 25, pp 130-136, 1953
   The efficiency of shields similar in form to venetian blinds is investigated to determine amount of radiative energy which they prevent from passing.

PARRISH, BRUCE See Odum, H. T., 2

PARROTT, WILLIAM H.

1. The big winter of 1951-52 in the high Sierra. Weatherwise, v 6, pp 12-14, 1953
   A description of the conditions experienced at the Central Sierra Snow Laboratory near Donner Summit, California.

PARSHALL, RALPH L.

1. Model and prototype studies of sand traps. Trans Amer Soc Civ Eng, v 117, pp 204-214, 1952
   Describes laboratory and field tests of three different devices to intercept and divert bed load to prevent its entry into canals. Discussion by T. BLENCH.
2. Parshall flumes of large size. Colo Agr Mech Exp Sta Bul 426-A, 40 pp, Mar 1953
   Design criteria and rating curves for large-size Parshall measuring flumes are presented.

PARSONS, BRINCKERHOFF, HALL, and MACDONALD

1. Report on floods and flood damage. 108 pp, New York, Apr 1952
   A report prepared for the Insurance Executives Association in which the feasibility of flood insurance is explored. Discusses problems of flood frequency determinations and illustrates the use of such determinations in computing insurance costs. Includes discussion of flood damage and flood forecasting.

PARSONS, DONALD A. See also Cook, H. L., 1

1. Coshocton-type runoff samplers. Laboratory investigations. U S Soil Cons Serv SCS-TP-124, 16 pp, Apr 1954
   A report of laboratory studies aimed at developing an improved runoff sampler and evaluating the accuracy of the device.

PARSONS, OLIVER J.

1. Pumping stations for drainage areas designed graphically. Civ Eng, v 23, pp 553-554, 1953
   A proposed graphical method for correlating rainfall, storage, pumping, horsepower, etc., for the design of drainage pumping stations.

PARTRIDGE, S.

1. Rain-makers. Bul Amer Met Soc, v 35, p 145, 1953
   A collection of interesting anecdotes concerning rain-making in ancient and recent times.

PASTO, J. K.

1. Soil mapping by stereoscopic interpretation of airphotos. Proc Soil Sci Soc Amer, v 17, pp 135-138, 1953
   An area of 4000 acres in southern New York was mapped by usual ground techniques and independently by analysis of aerial photographs with field check. The two methods gave very comparable results.

PATERSON, J. J. See Shanks, G. L., 1

PATTERSON, R. E. See Bloodgood, D. W., 3

PAULHUS, J. L. H.
1. (and KOHLER, M. A.) Interpolation of missing precipitation records. Mon Wea Rev, v 80, pp 129-133, 1952
Two methods of estimating missing records are studied and evaluated.
2. (and ERICKSON, C. E., and RIEDEL, J. T.) Estimation of mean annual precipitation from snow-survey data. Trans Amer Geophys Union, v 33, pp 763-767, 1952
Mean annual precipitation is correlated with March 1 snow water equivalent for stations in the Snake River basin. A relation between elevation, latitude, and average beginning date of continuous snow cover is also developed.
3. Evaluation of probable maximum precipitation. Trans Amer Geophys Union, v 34, pp 701-708, 1953
Probable maximum precipitation is defined and a distinction drawn between it and probable maximum storm. Moisture adjustment and transpiration are used where applicable. Several graphs and tables are included.

PAULSEN, CARL C.
1. Water balance sheet for Ohio. Ohio Univ Studies, Eng Ser, Bul 147, pp 1-6, May 1952
A general survey of Ohio's water resources.

PAULSON, QUENTIN F.
1. Ground water in the Neche Area, Pembina County, North Dakota. Geol Surv Ground-Water Study 16, 37 pp, 1951
A preliminary report on the geology and ground water of the area.
2. Geology and occurrence of ground water in the Streeter area, Stutsman, Logan, and Kidder Counties, North Dakota. N D Geol Surv Ground-Water Study 20, 73 pp, 1953
A progress report on the study covering the three counties.
3. Ground water in the Fairmount area, Richland County, North Dakota and adjacent areas in Minnesota. N D Geol Surv Ground-Water Study 22, 67 pp, 1953
A progress report on the study of Richland County.

PAUSZEK, F. H.
1. Chemical character of surface waters of South Carolina, 1945-50. S C Plan Res Dev Bd Bul 16A, 46 pp, 1951
After brief discussion of terminology presents data on tests of water quality on most South Carolina streams during the five-year period.

PAYNE, MOND A. See Rich, L. G., 1

PAYNE, R. A.
1. A study of the hydrology of Virginia. Thesis, Va Poly Inst, Blacksburg, Va, 1954

PAYNTER, HENRY M.
1. Methods and results from MIT studies in unsteady flow. Boston Soc Civ Eng Proc, v 39, pp 120-165, 1952
A brief survey of recent and current work of practical interest in the field of unsteady flow and hydraulic transients. The major parts are: (a) Regulation and governing of hydroelectric plants, (b) Graphical solutions of transient problems, and (c) Flood routing by admittance methods.

PEACOCK, D. W. See Linford, A., 1

PEARCE, J. M. See Black, A., 1

PEARCY, WILLIAM G.
1. Some limnological features of Clear Lake, Iowa. Iowa J Sci, v 28, pp 189-208, 1953
Includes data on lake temperature.

PEARSON, G. L. See Murray, W. E., 1

PECK, EUGENE L. See also Hales, J. V., 1
1. Hydrometeorological study of Great Salt Lake. Utah Eng Exp Sta Bul 63, 57 pp, Jan 1954
Derives a method of forecasting the level of Great Salt Lake on the basis of precipitation in the tributary area with an allowance for ground-water carryover from previous years.
2. Low winter stream flow as an index to the short- and long-term carry-over effects in water supply forecasting. Proc West Snow Conf, pp 41-48, Apr 1954
Introduces average February stream flow as a parameter in water-supply forecasting relations. Discusses the significance of this parameter as a measure of ground-water carryover. Discussion by C. C. McDONALD.

PECKOVER, F. L.
1. (and SCHRIEVER, W. R.) Instructions for observation of ground-water levels on housing sites. Can Nat Res Coun Bldg Res Note 2, 4 pp, 1952

PECSOK, D. A. See Thomas, H. A., Jr., 2

PEDEN, GEORGE H. See Reed, E. W., 2

PEDERSON, CLARENCE See Polos, A. J., 1; Work, R. A., 1

PEEK, HARRY M.

1. Cessation of flow of Kissengen Spring in Polk County, Florida. Fla Geol Surv Rep Inv 7, pt 3, 7 pp, 1951
   Heavy withdrawal of artesian ground water in Polk and adjacent counties captures the Kissengen Spring drainage.
2. The artesian water of the Ruskin area of Hillsborough County, Florida. Fla Geol Surv Inf Circ 4, 22 pp, 1953
   Interim report of ground-water investigations in Hillsborough County presenting artesian flows, chloride distribution, and geologic formations.

PEIRCE, L. B.

1. Floods in Alabama, magnitude and frequency. U S Geol Surv Circ 342, 105 pp, 1954
   Stages and discharges of the peak annual floods of record within the state are listed. Using these, an analytical study is made of magnitude-frequency relationships on a regional basis. Two sets of curves are developed - one showing the relationship of the size of any flood to the 'mean annual flood,' and the other defining the mean annual flood anywhere within the state.

PENDLETON, ROBERT L.

1. (and NICKENSON, DOROTHY) Soil colors and special Munsel soil color charts. Soil Sci, v 71, pp 35-43, 1951
   Discusses soil color measurement work in the U. S. with emphasis on possibilities and limitations.

PENDLEY, L. C.

1. Subsurface earth exploration by electrical resistivity method. Trans Ky Acad Sci, v 13, pp 189-200, 1952
   Describes the method and presents illustrative examples of surveys in Kentucky.

PENNSYLVANIA DEPARTMENT OF FORESTS AND WATERS

1. Forest and water research project. Delaware-Lehigh Exp For Rep 2, Dept For Waters, 48 pp, 1953
   A summary of the information gathered during 1951 including precipitation, stream flow, ground-water levels, rainfall interception, soil moisture, water quality, soil freezing, evapotranspiration, and other factors. The basin is approximately 2000 acres. The U. S. Forest Service and Geological Survey cooperate.

PERREY, JOSEPH I. See also Fry, A. S., 1

1. (and MITCHELL, MAX L., and McGRAIN, PRESTON) Indiana's water resources. Ind Flood Cont Water Res Comm Bul 1, 135 pp, June 1951
   A comprehensive review of water resources including precipitation, surface and ground water, lakes and ponds, water quality, and possible developments.

PETERS, T. W. See Toogood, J. A., 1

PETERSEN, JACK S.

1. (and ROHWER, CARL, and ALBERTSON, M. L.) Effect of well screens on flow into wells. Proc Amer Soc Civ Eng, sep 365, v 79, 24 pp, Dec 1953
   The mechanics of flow of water through a well screen are developed and discussed. The results of laboratory experiments are compared with theoretical development.

PETERSEN, L. W. See Lauterback, W. J., 1

PETERSON, DEAN F., JR. See also Leatherwood, Frank N., 1

1. (and ISRAELSON, ORSON W., and HANSEN, VAUGHN E.) Hydraulics of wells. Utah Agr Exp Sta Bul 351, 48 pp, Mar 1952
   A review of the hydraulics of steady-flow or equilibrium conditions.

PETERSON, ELMER T.

1. Tall dams and soil soup. Land, v 13, pp 19-26, 1954
   A discussion of the need for land-management methods in flood control instead of large dams.

PETERSON, H. B. See Fletcher, J. E., 1

PETERSON, H. V. See also Culler, R. C., 1; Fletcher, J. E., 1; Hains, C. F., 1

1. Symposium on land erosion--Introduction. Trans Amer Geophys Union, v 35, pp 243-244, 1954
   A brief review of the problems of erosion.

PETTERSEN, SVERRE

1. The general circulation of the lower atmosphere. Trans N Y Acad Sci, v 14, ser 2, pp 113-119, 1951
   Discusses the quasi-stationary circulation patterns of the Earth.

PEWE, T. L.

1. Multiple glaciation in Alaska, a progress report. U S Geol Surv Circ 289, 13 pp, 1953
   This report presents salient results of recent studies of the glacial deposits in eight areas in Alaska. These studies demonstrate similarities in the glacial histories for the separate

areas, as evidenced by fresh moraines, modified moraines, and remnants of still older moraines. A tentative correlation of the glacial sequence in the several areas is summarized in tabular form and an index map of the areas of study is included.

2. Effect of permafrost on cultivated fields, Fairbanks area, Alaska. U S Geol Surv Bul 989-F, pp 315-351, 1954
   The distribution and character of permafrost is described in relation to soils, landforms, vegetative cover, and other factors. Effect of clearing land for agriculture on the permafrost and the resulting development of mounds, sinks, and other features are discussed.

PHILIP, J. R.

1. An infiltration equation with physical significance. Soil Sci, v 77, pp 153-157, 1954
   An approximate equation relating infiltration to physical soil properties is derived mathematically.
2. (and McINTYRE, G. A.) Analysis of border irrigation. Agr Eng, v 34, p 33, 1953
   A brief note in which the mathematics of the advance of the water in border irrigation as suggested by LEWIS and MILNE (Agr Eng, v 19, pp 267-272, June 1938) is corrected.

PICK, L. A.

1. Sedimentation problems in the Missouri River basin. 4th Int Cong Large Dams, 1951
   A survey of the problems of channel scour and shifting and of the methods of control employed.
2. Flood control. Mil Eng, v 44, pp 323-327, 1952
   A general review of the problems of flood control and the Corps of Engineers accomplishments and plans.

PIERCE, DONALD M.

1. (and VOGT, JOHN E.) Statistics can foretell Great Lakes level. Eng News-Rec, pp 30-32, Jan 1, 1953
   Describes studies for predicting the annual fluctuation in level of the Michigan-Huron lake system. Statistics was used as the tool, and 92 years of record their raw material.
2. (and VOGT, JOHN E.) Method of predicting Michigan-Huron Lake level fluctuations. J Amer Water Work Assn, v 45, pp 502-520, 1953
   Statistical analysis of changes in lake level with probability curves, and a final conclusion. A brief description of the physical characteristics of the Great Lakes system and a discussion of natural and artificial forces with their aggregate effect on level variation.

PIERCE, R. S. See also Wilde, S. A., 2

1. Oxidation-reduction potential and specific conductance of ground-water: Their influence on natural forest distribution. Proc Soil Sci Soc Amer, v 17, pp 61-65, 1953
   Describes equipment for in situ determination of conductance, oxidation-reduction potential, hardness, and dissolved oxygen for shallow ground water in Wisconsin. Field observation has shown definite relation between character of the ground water and the natural forest stands.
2. Determination of electrometric properties of ground water by a field method. Trans Wisc Acad Sci, Arts, Let, v 42, pp 173-176, 1953
   Describes field procedure for determining pH, oxidation-reduction potential, and conductance in shallow ground water by direct field measurement.

PIETROWSKI, J. See Jansen, R. B., 1

PILLSBURY, A. F.

1. (and RICHARDS, S. J.) Some factors affecting rates of irrigation water entry into Ramona sandy loam soil. Soil Sci, v 78, pp 211-217, 1954
   An evaluation of the effect of weed control and fertilizer on infiltration near Riverside, California.

PIPER, ARTHUR M.

1. The nation-wide water situation. Physical and Economic Basis of Natural Resources, v 4, pp 1-20, U S House Rep, 1953
   A general discussion of water requirements for various uses, a review of the hydrologic cycle and the phenomena of runoff and evaporation, the annual variation in precipitation, and the frequency of droughts and water excesses. A general picture of water quality in the U. S. is presented and type-area studies of eight sample areas are introduced.
2. (and GARRETT, A. A., and others) Native and contaminated ground waters in the Long Beach - Santa Ana area, California. U S Geol Surv Water-Supply Paper 1136, 320 pp, 1953
   Describes the character and extent of the several types of native ground water, delineates the depreciation and contamination that have occurred, and so far as possible explains that depreciation. Basic information included about 5000 comprehensive chemical analyses and 9000 incomplete analyses, by many agencies.

PIRSON, S. J.

1. Review of quantitative methods of electrical log interpretation. Oil Gas J, v 50, pp 102, 106, 108, 110, 1951

Discusses methods of interpreting the various types of electrical well logs and of the joint interpretation of several types of logs on the same hole.

PITTMAN, H. V. See Haas, R. H., 1

PLAIN, G. J.

1. (and MORRISON, H. L.) Critical Reynolds number and flow permeability. Amer J Phys, v 22, pp 143-146, 1954
   Tests on 14 media composed of nearly spherical glass beads show that Darcy's law applies only for Reynolds numbers under about 75.

PLANK, VERNON See Atlas, D., 3

PLUMMER, NORMAN See O'Connor, H. G., 1

PLUNKETT, R. T.

1. Evaluation of stream-flow records in Flathead River basin, Montana. U S Geol Surv Circ 182, 30 pp, 1952
   Appraises the factors, resulting from the utilization of water by man, that influence the quantity or regimen of the flow in the basin. These factors include diversions, bypass regulation, and other factors. Contains tabulations of municipal and industrial uses of water, data on capacity and operation of storage reservoirs, irrigated acreage, descriptions of gaging stations in the basin, and many other data.

POHLMANN, G. G. See Smith, R. M., 1

POLAND, J. F. See Troxell, H. C., 1

POLHEMUS, DALE N. See Wallin, J. R., 1

POLOS, ANTHONY J. See also Work, R. A., 8

1. The use of precipitation and snow-survey data in water-supply forecasting. Proc West Snow Conf, pp 30-35, Apr 1953
   Describes relations relating both seasonal precipitation and snow-survey data to runoff in the Clearwater River basin, Idaho. Discussion by C. PEDERSON.

POLOVKAS, V. G.

1. (and THOMPSON, R. A.) Storm protection laboratory. Univ Fla Eng Exp Sta Bul 56, 14 pp, Sep 1952
   Describes wind and rain simulator for testing structures and equipment under simulated hurricane condition.

POLUBARINOVA-KOCHINA, P. Y.

1. (and FALKOVICH, S. B.) Theory of filtration of liquids in porous media. Advances in App Mech, v 2, pp 153-225, Academic Press, N Y, 1951

POMERENING, JAMES A.

1. (and CLINE, MARLIN G.) The accuracy of soil maps prepared by various methods that use photograph interpretation. Photo Eng, v 19, pp 809-817, 1953
   Areas mapped by several techniques are compared to evaluate the accuracy of detail.

POMROY, J. H.

1. (and OTIS, C. K.) Liquid meter for slow and varying flow rates. Agr Eng, v 34, pp 385-386, 1953
   Describes a meter operating somewhat on the principle of a tipping-bucket gage but with three metering buckets. It is suggested as useful for discharge up to 250 gal/hr. Closed construction eliminates evaporation even though buckets fill very slowly.

POOLE, D. M.

1. (and BUTCHER, W. S.) Use and accuracy of the Emery settling tube for sand analysis. U S Beach Eros Bd Tech Mem 23, May 1951
   An examination of the accuracy of the Emery settling tube for the analysis of sand particles. This method of sand analysis is more rapid than dry sieving and gives equivalent, or settling, diameters rather than geometric diameters.

POOLE, O. J. See Robinson, T. W., 1

POPPENDIEK, HEINZ F.

1. (and TRIBUS, MYRON) A comparison of several heat and mass transfer networks of interest in water. Trans Amer Geophys Union, v 32, p 49, 1951
   Electrical networks descriptive of the heat and mass transfer processes occurring in systems such as lakes, open fields, snow banks, and evaporation pans are presented and discussed. Suggestions for research and correlation of measurements are given.

POSEY, CHESLEY, J. See also Owen, W. M., 2

1. Scour holes easily contoured for erosion experiment. Civ Eng, v 23, pp 60-61, 1953
   Scours are contoured in model experiments by drawing water surfaces down to desired contour intervals and applying chemicals to mark the shore white, after which the model is photographed.

POTTER, J. G. See Boughner, C. C., 1

POTTER, W. D.

1. Use of short-term runoff records in probability studies. Int Assn Sci Hydr, Trans Brussels Gen Assembly, pp 240-251, 1951
   Methods based on assumption that the rainfall for a period of runoff record is representative of that for a much longer period, then the runoff can be considered as representative of the longer period. If differences occur in long and short period, frequency curves are modified accordingly.
2. Rainfall and topographic factors that affect runoff. Trans Amer Geophys Union, v 34, pp 67-73, 1953
   Describes a procedure in which easily determined rainfall and topographic factors are used to compensate for the lack of long-term runoff records and to increase the reliability of estimates of peak rates from small watersheds in the Allegheny-Cumberland Plateau area. Discussion by R. W. POWELL, v 34, p 952, 1953.
3. Use of indices in estimating peak rates of runoff. Pub Roads, v 28, pp 1-8, 1954
   Presents results of a sample study for estimating peak rates of runoff in the Allegheny-Cumberland Plateau and the glaciated sandstone and shale areas of New York, Pennsylvania, and Ohio.

POWELL, RALPH W. See also Einstein, H. A., 2; Owen, W. M., 2; Potter, W. D., 2; Robinson, A. R., 1

1. 'Insurance' concept balances economic factors in culvert design. Civ Eng, v 23, p 64, 1953
   Author presents an analytical solution to the problem of adequacy in culvert design. His thesis is that annual cost of capital recovery plus cost of insurance against damage should be least for the correct design.

POWELL, W. J.

1. Ground water in the vicinity of Trinidad, Colorado. Colo Water Cons Bd Ground-Water ser Circ 3, 30 pp, Mar 1952 (multilith)

POWER, B. A. See Gold, L. W., 1

POWERS, WILLIAM E.

1. A key for the photo-identification of glacial land forms. Photo Eng, v 17, pp 776-779, 1951
   Presents an outline of the features which serve as a guide to the presence of the various glacial land forms on aerial photographs.

PRAMANIK, H. R. See McNown, J. S., 1

PREE, H. L., JR. See also Cushman, R. V., 1

1. (and WALKER, W. H.) Memorandum on the geology and ground-water resources of the Calver City-Gilbertsville area, Marshall County, Kentucky. Ky Agr Ind Dev Bd, 13 pp, Jan 1952 (multilith)
2. (and WALKER, W. H.) Public and industrial water supplies of the Jackson Purchase region, Kentucky. U S Geol Surv Circ 287, 56 pp, 1953
   Maps and tables show the location and source of the 32 water-supply systems studied, the pumpage, and the chemical quality of the water. The Mississippi, Ohio, and Tennessee Rivers and Kentucky Lake offer an almost unlimited amount of surface water for municipal and industrial use on the western, northern, and eastern boundaries of the region.

PRENTISS, LOUIS W. See Corey, W. C., 1

PRESCOTT, G. C.

1. Geology and ground-water resources of Lane County, Kansas. Kans Geol Surv Bul 93, 126 pp, 1951
   A description of the ground-water hydrology of a county in western Kansas. Includes data on water levels, water quality pumping tests, and well logs.
2. Geology and ground-water resources of Cheyenne County, Kansas. Kans Geol Surv Bul 100, 106 pp, 1953
   Describes a county in northwestern Kansas. Contains geologic maps and cross-sections, water-level data, water analyses, and well logs.
3. Geology and ground-water resources of Sherman County, Kansas. Kans Geol Surv Bul 105, 130 pp, 1953
   Describes a county in northwestern Kansas. Includes field data.
4. (and BRANCH, J. R., and WILSON, W. W.) Geology and ground-water resources of Wichita and Greely Counties, Kansas. Kans Geol Surv Bul 108, 134 pp, 1954
   A description of an area in western Kansas with field data.

PREUL, HERBERT C.

1. Permeability characteristics of a common sand. Univ Minn, MS thesis, Dec 1954

PRIEST, MELVILLE S.

1. (and BALIGH, ALY) Free-surface instability of liquids in steep channels. Trans Amer Geophys Union, v 35, pp 133-135, 1954

Reports observations from experiments concerned with the flow conditions under which the free surface of liquids in steep channels becomes unstable. Results are presented in a graphic form utilizing a Reynolds number, Froude number, and the slope of the channel.

2. A report on the movement of sand beds by water. Cornell Univ, School Civ Eng, EB-1, 2 pp, Nov 1954
   A report of experimental work dealing with the flow which is just capable of beginning transport of sand beds.

PRIOR, C. H.

1. (and SCHNEIDER, ROBERT, and DURUM, W. H.) Water resources of the Minneapolis-St. Paul area, Minnesota. U S Geol Surv Circ 274, 49 pp, 1953
   This report presents information on the quantity and quality of water in the Minneapolis - St. Paul area. The water-bearing properties of each important aquifer are described and changes in ground-water levels are discussed. The report contains a map showing the distribution of the alluvium and glacial deposits. The piezometric and structural contours and a geological cross section are given. Information on the temperature and chemical quality of water from wells is given including typical analyses of water. The flow characteristics of the Mississippi, Minnesota, Crow, St. Croix, and Vermilion Rivers are given graphically. Flood profiles are given for the Mississippi, Minnesota, and St. Croix Rivers.

PRONIN, D. T. See Wilde, S. A., 2

PRUITT, W. O. See Robins, J. S., 1

PURI, HARBANS S.

1. Contribution to the study of the Miocene of the Florida Panhandle. Fla Geol Surv Bul 36, 345 pp, 1953
   Comprehensive facies discussion of Miocene, the aquiclude of the Floridan aquifer, description of foraminifera and ostracodes of the section.

PUTNAM, J. A. See Laird, A. D. K., 1

PUTZ, R. R. See Mason, M. A., 1

QUATE, B. E. See Hales, J. V., 1

QUINN, A. W.

1. Geological survey program in Rhode Island. R I Dev Coun Water Res Memo 2, Sep 1952

QUINONES, MICHAEL A.

1. High-intensity rainfall and major floods in Puerto Rico. Proc Amer Soc Civ Eng sep 364, 35 pp, Dec 1953
   Presents tentative rainfall intensity-duration-frequency criteria for use in Puerto Rico. Discussion of record storms, floods, maximum 24-hr rainfall, normal rainfall, and some recent hurricane storms.

QUINTERO, ANDRES GARCIA

1. Hydrology of Mexico. Trans Amer Soc Civ Eng, v 116, pp 1197-1217, 1951
   A summary of the climatic characteristics of Mexico and of the characteristics of the principle Mexican streams. Discussion by A. WEISS, M. O. SCHMIDT, and G. H. MATTHES.

QURESHI, N. A. See Bolton, J. G., 1

RAHMATULLAH, M.

1. Synoptic aspects of the monsoon circulation and rainfall over Indo-Pakistan. J Met, v 9, pp 176-179, 1952
   The pattern of precipitation is related to the atmospheric flow patterns which exist.

RAI, K. D.

1. (and RANEY, W. A., and VANDERFORD, H. B.) Some physical factors that influence soil erosion and the influence of aggregate size and stability on growth of tomatoes. Proc Soil Sci Soc Amer, v 18, pp 486-489, 1954
   Laboratory tests to relate aggregate size and stability, rainfall rate, slope, and surface condition to erosion are reported.

RAINWATER, F. H. See Fishel, V. C., 2

RAMAGE, C. S.

1. Diurnal variation of summer rainfall over east China, Korea, and Japan. J Met, v 9, pp 83-86, 1952
   Diurnal variations in precipitation during the period May to August are analyzed and physical explanations of the observed characteristics are advanced.
2. Variation in rainfall over south China through the wet season. Bul Amer Met Soc, v 33, pp 308-311, 1952
   Running five-day means show persistent variations in the pattern of rainfall which are explained in terms of meteorological controls. It is suggested that little change in these patterns has occurred in a period of 2000 years.

RAMEY, HORACE P.
1. Great Lakes levels and their changes. Midwest Eng, v 4, pp 5-6, 24, Feb 1952, and pp 3-5, 23, Mar 1952
Reviews past water-level fluctuations and their causes (including wind, tides, seiches, ice) and the probable water yield of the lakes. Much information on artificial changes in the lakes.
RAND, W. See Robinson, A. R., 1
RANDALL, L. E. See Jesperson, A., 1; La Sala, A. M., 1; Wiesnet, D. R., 1
RANDALL, S. W. See Wilde, S. A., 1
RANEY, W. A. See Rai, K. D., 1
RAPP, J. R. See also Babcock, H. M., 3
1. (and WARNER, D. A., and MORGAN, A. M.) Geology and ground-water resources of the Egbert - Pine Bluffs - Carpenter area, Laramie County, Wyoming. U S Geol Surv Water-Supply Paper 1140, 67 pp, 1953
The areal distribution of outcrops is mapped for about 400 sq mi of the High Plains and the characteristics of the rocks are described. Presents tabular data on wells, water-level measurements, stream-flow measurements, quality of water, a generalized geologic section, and logs of test wells. Recharge and discharge of ground water and the water-table fluctuations are discussed.
2. (and BABCOCK, H. M., and DURUM, W. H.) Reconnaissance of the geology and ground-water resources of the Glendo - Wendover area, Platte County, Wyoming. U S Geol Surv Circ 163, 34 pp, 1953
Yields of 100 gpm (gallons per minute) or more could be obtained from the 'Converse sand' of the Hartville formation, and yields of 500 to 1000 gpm could be developed from the alluvium in the valley of the North Platte River and in the lower reaches of the valleys of Cottonwood, Bear, and Horseshoe Creeks. The ground water in the Glendo - Wendover area is generally moderately mineralized; most of the samples analyzed showed less than 400 ppm of dissolved solids.
3. (and DURUM, W. H.) Reconnaissance of the geology and ground-water resources of the La Prele area, Converse County, Wyoming. U S Geol Surv Circ 243, 33 pp, 1953
White River formation and the slope wash and alluvium supply water to most of the wells in the area. The addition of recharge from irrigation has caused a rise of water levels and the consequent water logging of low areas. The application of additional irrigation water within the area would result in the increase of the water-logged areas. The quality of ground water from different sources in the area ranges from 'excellent' to 'unsuitable' for irrigation.
RASMUSSEN, W. W.
1. (and LAURITZEN, C. W.) Measuring seepage from irrigation canals. Agr Eng, v 34, pp 326-329, 331, 1953
Results of ponding tests and seepage meter runs are compared in an attempt to calibrate the seepage meter. Results show little consistency between the two methods.
RASMUSSEN, WILLIAM C. See also Groot, J. J., 1
1. (and HAIGLER, LEON B.) Ground-water problems in highway construction and maintenance. Del Geol Surv Bul 1, 24 pp, 1953
Discusses subdrainage, quicksand, slope stabilization, effect of farm drainage, and electrosmosis for soil stabilization.
RAWN, A. M. See also Ketchum, B. H., 1; Stone, R., 2
1. (and BOWERMAN, F. R., and STONE, RALPH) Integrating reclamation and disposal of waste water. J Amer Water Works Assn, v 45, pp 483-490, 1953
Economic and quality problems, health, and public antipathy, irrigation and recharge, and a brief summary with references, are given in this article which deals with integrating to obtain minimum cost reclamation and disposal of waste water.
RAWSON, D. S.
1. Limnology in the North American arctic and sub-arctic. Arctic, v 6, pp 198-203, 1953
A general review of limnological possibilities and suggestions for possible lines of research.
RAY, LOUIS L.
1. Permafrost. Arctic, v 4, pp 196-203, 1951
A general survey of permafrost.
RECK, C. W.
1. (and SIMMONS, E. T.) Water resources of the Buffalo - Niagara Falls region. U S Geol Surv Circ 173, 26 pp, 1952
Gives minimum and average discharge of the streams and curves of maximum period of deficient flow. Contains maps showing the principal aquifers. Presents data on chemical quality of the waters, public water-supply systems of the area, and laws affecting use of or pollution of the waters of the region.

RECORD, FRANK A. See Cramer, H. E., 2
RECTOR, RALPH L.
1. Laboratory study of equilibrium profiles of beaches. U S Beach Eros Bd Tech Mem 41, Aug 1954
A laboratory study of the effect of wave and sand characteristics on the equilibrium profile of a sand beach under wave attack. Empirical relationships for the slope of the various portions of the beach are derived in terms of the wave steepness and the ratio of sand size to wave length.
REE, WILLIAM O.
1. Results of tests on a chute with a St. Anthony Falls stilling basin. U S Soil Cons Serv SCS-TP-107, Sep 1951
Field tests show the design to be quite satisfactory.
2. (and CROW, F. R.) Culverts as water-measuring devices. Agr Eng, v 35, pp 28-31, 1954
A report of model tests utilizing a Villemonte weir sill in culverts as device to improve flow measuring characteristics at low flows.
3. (and CROW, F. R.) Measuring runoff rates with rectangular highway culverts. Okla Agr Exp Sta Tech Bul T-51, 19 pp, Nov 1954
Describes a simple and relatively inexpensive gaging station for collecting data on runoff from small areas.
REE, WILLIAM R., JR.
1. Thermistors for depth thermometry. J Amer Water Works Assn, v 45, pp 259-263, 1953
Discusses and describes the construction, calibration, operation of a thermistor, as a temperature-sensing device. Illustrations and circuit diagram included.
REECE, G. M. See Hyland, W. L., 1, 2
REED, EDWIN W. See also Schoff, S. L., 1, 2
1. (and SCHOFF, STUART L.) Aquifers in Ottawa County, Oklahoma. Proc Okla Acad Sci, v 33, pp 194-199, 1952
A brief geologic description.
2. (and MOGG, JOE L., BARCLAY, J. E., and PEDEN, GEORGE H.) Ground-water resources of the Cimarron Terrace. Okla Plan Res Bd Bul 9, 101 pp, 1952
Reports a survey of 600 sq mi along the Cimarron River in north central Oklahoma to investigate dimensions of the terrace deposits and the rate of recharge of the ground-water basin.
REEVE, R. C.
1. (and KIRKHAM, DON) Soil anisotropy and some field methods for measuring permeability. Trans Amer Geophys Union, v 32, pp 582-590, 1951
Three field methods - piezometer, auger hole, and tube - and the conventional undisturbed core method for measuring soil permeability are compared theoretically and experimentally. It is shown that soil anisotropy may be determined by the methods. (Discussion by C. H. M. VAN BAVEL, v 33, pp 461-462, 1952)
2. Factors influencing drainage design in irrigated areas. Agr Eng, v 34, pp 88-90, 1953
A review of drainage problems discussing in general terms drainage requirements, water transmission by soils, and boundary conditions.
REGER, J. S.
1. The Coachella drainage investigations. Recl Era, v 38, pp 106-108, 134-136, 160-162, 1952
Describes drainage problems in Coachella Valley, California, and how they are detected and attacked.
REICHELDERFER, F. W.
1. Physical basis of water supply for the United States. Physical and Economic Foundation for Natural Resources, v 2, pp 11-24, U S House Rep, 1952
Discusses the meteorology of precipitation, presents maps of annual and monthly precipitation and of precipitation variability, discusses briefly the techniques used by the Weather Bureau for computing runoff and routing stream flow, and summarizes the status of artificial precipitation.
2. Weather Bureau aid to the engineer. Mil Eng, v 45, pp 367-369, 1953
A review of Weather Bureau activities including river forecasting, hydrometerological studies, and data collection.
REINHART, KENNETH G. See also Broadfoot, W. M., 1; Palpant, E. H., 1; Rush, E. S., 1
1. (and TAYLOR, R. E.) Infiltration and available water storage capacity in the soil. Trans Amer Geophys Union, v 35, pp 791-795, 1954
Studies at Vicksburg, Mississippi, demonstrates the importance of the available moisture-storage capacity on infiltration into fine-grained soils. Electrical soil-moisture measuring units proved useful in tracing the movement of infiltrated water.
REIS, D. J. See Mundorff, M. J., 1

REITZ, H. J. See Wander, I. W., 1

RENFREW, PAUL

1. Liquid displacement meters. Instrum, v 25, pp 1260-1261, 1299, 1952
   A review of meter design and a discussion of the characteristics of various types of displacement meters.

RENFRO, GRAHAM W. See Jones, V. H., 3; Ogle, J. A., 2, 3

REPENNING, C. W. See Harshbarger, J. W., 1, 2

RESNICK, SOL D.

1. Analysis of results of rain-making projects in the western states. Colo Agr Mech Coll, Dept Civ Eng, presented to Amer Geophys Union, 5 pp, May 1952
   A brief analysis of results reported from various rain-making projects in the western states in 1951.
2. Analysis of climatological data for the spring cloud-seeding period over north central Colorado. Colo Agr Mech Coll, Dept Civ Eng, prepared for Northern Colo Nat Res Assn, Fort Collins, Colo, 56 pp, June 1952
   Comprehensive analysis of climatological data in northern Colorado in an attempt to evaluate cloud-seeding operations during the period March 1 to June 1, 1951. The results indicate no apparent increase in precipitation resulting from cloud seeding during this period.

REYNOLDS, S. E. See also Braham, R. R., 1

1. (and HUME, W., II, VONNEGUT, BERNARD, and SCHAEFER, VINCENT J.) Effect of sunlight on the action of silver iodide particles as sublimation nuclei. Bul Amer Met Soc, v 32, p 47, 1951
   A brief summary of experiments showing that sunlight reduces the effectiveness of the silver iodide particles as nuclei of sublimation.
2. Ice-crystal growth. J Met, v 9, pp 36-40, 1952
   Laboratory measurements of rate of ice-crystal growth by sublimation are reported.
3. (and HUME, WILLIAM, II, and McWHIRTER, MAX) Effects of sunlight and ammonia on the action of silver-iodide particles as sublimation nuclei. Bul Amer Met Soc, v 33, pp 26-31, 1952
   Sunlight is found to reduce the activity of the nuclei but this can be recovered by addition of ammonia after the exposure to sunlight.
4. Thunderstorm-precipitation growth and electrical charge generation. Bul Amer Met Soc, v 34, pp 117-123, 1953
   A theoretical analysis of the causes of growth of cloud particles.

REZENDE, ANTONIO

1. Some relationships between permeability of St. Clair, Miami, Hillsdale, and Coloma soils and the water and soil losses under different cropping and tillage practices. Mich State Coll, MS thesis, 62 pp, 1951
   Investigation of runoff and erosion data from field plots and laboratory studies of core samples from four soil profiles. The relationship between permeability and water and soil losses from these soils under different cropping and tillage practices was studied.

RHODEHAMEL, E. C. See Stuart, W. T., 2

RHODES, AARON D.

1. Puddled-clay cutoff walls stop sea-water infiltration. Civ Eng, v 21, p 21, 1951
   A description of special equipment for use in construction of puddled-clay cutoff walls of 45 ft depth.

RHODES, D. G. See Brooks, F. A., 1

RICE, E. K. See Johnson, J. W., 2

RICE, EDWARD B.

1. Water-resources inventory and development. J Amer Water Works Assn, v 46, pp 249-250, 1954
   Brief review of data needs and analyses desirable for an adequate water-use plan.

RICH, L. R. See also Veihmeyer, F. J., 2

1. Forest and range vegetation. Trans Amer Soc Civ Eng, v 117, pp 974-990, 1952
   Discusses the factors influencing the consumptive use of water by forest and range vegetation, methods of measuring consumptive use, and some data on water use at Sierra Ancha, Arizona. Discussion by M. J. YOUHOTSKY.

RICH, LINVIL G.

1. (and PAYNE, MOND A.) Hydrology of Virginia, Part III, Annual rainfall - stream-flow relationships through 1950. Va Poly Inst Eng Exp Sta Bul 92, 30 pp, May 1954
   Linear equations relating rainfall to runoff for Virginia streams are presented together with 50 and 90 pct confidence limits.

RICHARD, FELIX See Miller, R. D., 2

RICHARDS, L. A.

1. Experimental demonstration of the hydraulic criterion for zero flow of water in unsaturated soil. Proc 4th Int Cong Soil Sci, v 1, pp 66-68, 1950
   Tension head, hydraulic head, and hydraulic gradient are defined, and instruments for measurement described. Tests on a vertical column showed equilibrium to be attained in 135 days at field capacity.
2. (and MOORE, D. C.) Influence of capillary conductivity and depth of wetting on moisture retention in soil. Trans Amer Geophys Union, v 33, pp 531-540, 1952
   The storage of moisture in soil in the field is discussed and explained in terms of the dynamic moisture-transmitting properties of the soil. Published data on capillary conductivity are summarized and new data for six soils are presented.
3. A multiple tensiometer for determining the vertical gradient component of the hydraulic gradient in soil. Proc Soil Sci Soc Amer, v 18, pp 7-10, 1954
   A device consisting of series of ceramic sections separated by plastic spacers is described which permits measurement of the vertical gradient of tension. Some tests are described.
4. The measurement of soil water in relation to plant requirements. Sci Mon, v 78, pp 307-313, 1954
   Reviews methods of measuring soil-moisture characteristics as tensiometers and pressure plates and discusses relation of plant growth to soil-moisture tension.

RICHARDS, S. J. See Pillsbury, A. F., 1

RICHARDSON, DONALD

1. Evaluation of stream-flow records in Rogue River basin, Oregon. U S Geol Surv Circ 187, 48 pp, 1952
   The purpose of this report is to appraise the various factors, resulting from man-made structures, that influence the flow of many streams in this basin. These factors include diversions, bypass channels, regulation by storage, and others. Data include tabulations of municipal uses of water, irrigated acreage, storage reservoirs, and many other data.

RICHARDSON, J. G.

1. (and KIRVER, J. K., HAFFORD, J. A., and OSOBA, J. S.) Laboratory determination of relative permeability. Trans Amer Inst Min Metal Eng, v 195, pp 187-196, 1952
   Reports tests of various methods of measuring permeability with special reference to rock samples.

RICHEY, EUGENE P.

1. The fundamental hydraulics of overland flow. Stanford Univ, PhD thesis, 65 pp, Oct 1954
   A general differential equation for overland flow is developed and solved and simplified expressions for the flow profile in both laminar and turbulent flow are derived.

RICHTER, RAYMOND C. See Banks, H. O., 2

RIECKEN, F. F. See Hunter, R., 1; Simonson, R. W., 1

RIEDEL, J. T. See Gilman, C. S., 1; Paulhus, J. L. H., 2

RIEHL, HERBERT See Jenista, C. O., Jr., 1

RIES, EDWARD R.

1. Geology and mineral resources of Okfuskee County, Oklahoma. Okla Geol Surv Bul 71, 119 pp, 1954
   Contains brief discussion of surface and ground-water resources.

RIESBOL, HERBERT S.

1. Snow hydrology for multiple-purpose reservoirs. Trans Amer Soc Civ Eng, v 119, pp 595-627, 1954
   Describes briefly the processes of snow melting and runoff, and presents criteria and examples of procedures used to determine reservoir space allocations and spillway capacities. Calls attention to the gap between the detailed physical knowledge of snow melt and evaporation and the application of this knowledge to practical design problems. Discussion by R. K. LINSLEY, R. W. GERDEL, H. D. HAFTERSON, and D. M. ROCKWOOD.

RIESS, STEPHEN See Burridge, G., 1

RIGBY, E. C.

1. (and MARSHALL, J. S., and HITSCHFELD, WALTER) The development of the size distribution of raindrops during their fall. J Met, v 11, pp 362-372, 1954
   Changes of drop size by collision, accretion, and evaporation are reviewed mathematically. It is concluded that these factors cannot produce observed distributions at the ground from vastly different distributions aloft.

RIGGS, H. C.

1. A method of forecasting low flow of streams. Trans Amer Geophys Union, v 34, pp 427-434, 1953

This paper presents a method of forecasting the discharge of streams during periods of low flow by use of the base-flow depletion curve and frequency curves of runoff from concurrent precipitation and snow melt. The method is illustrated by application to two streams in the Columbia River basin where conditions are favorable to its use.

RIGNEY, E. J. See Koch, E. J., 1

RIGSBY, GEORGE P. See also Meier, M. F., 2

1. Crystal fabric studies on Emmons Glacier, Mount Rainier, Washington. J Geol, v 59, pp 590-598, 1951
   Optical analysis of crystal structure is utilized to explain glacier movement.

RIM, M.

1. A rigorous, simple method of measuring and recording particle-size distribution in dispersed material. Trans Amer Geophys Union, v 33, pp 423-426, 1952
   An apparatus is described for particle-size distribution analysis in which a buoyancy principle is employed that permits simple measurements to be taken without disturbing the suspension of settling particles.

RIPLEY, P. O. See Cordukes, R. E., 1

RITER, J. R. See Clyde, G. D., 3

ROACH, LEE S.

1. Design of reservoirs for fish management. Ohio Univ Eng Exp Sta News, v 25, pp 7-11, Apr 1953
   A general summary of conditions favorable to fish in lakes.

ROBERTS, R. E. See Hudson, H. E., Jr., 4

ROBERTS, W. J.

1. Irrigation in Illinois. Ill Water Surv Div Rep Inv 11, 10 pp, 1951
   A summary of irrigation practice in the state.
2. Recording evaporation gage provides year-around record. Civ Eng, v 24, p 64, 1954
   Describes a simple gage consisting of a shallow pan mounted on a weighing rain-gage mechanism so as to provide a continuous record of evaporation, including loss from ice during the winter.

ROBERTSON, D. W.

1. Irrigated agriculture. Agron J, v 44, pp 597-602, 1952
   A brief survey of the problems of irrigation.

ROBERTSON, J. M.

1. More research on aerated flow needed. Civ Eng, v 24, p 55, 1954
   Outlines possible research projects in aerated flow in open channels.

ROBINS, J. S.

1. (and PRUITT, W. O., and GARDNER, W. H.) Unsaturated flow of water in field soils and its effect on soil-moisture investigations. Proc Soil Sci Soc Amer, v 18, pp 344-347, 1954
   Measurable drainage of water for eight days after irrigation is shown to cause errors in estimated consumptive use. Data on field plots at Pullman, Washington, are presented.

ROBINSON, R.

1. (and ALBERTSON, M. L.) Artificial roughness standard for open channels. Trans Amer Geophys Union, v 33, pp 881-888, 1952
   A study conducted in order to establish standards for open channels roughness analogeous to pipelines. Discussion by R. W. POWELL and W. RAND, v 35, pp 649-650, 1954.

ROBINSON, ELMER See Thuman, W. C., 1

ROBINSON, R. R.

1. (and ALDERFER, R. B.) Runoff from permanent pastures in Pennsylvania. Agron J, v 44, pp 459-462, 1952
   Report of infiltrometer tests at 32 sites representing five soil series. Includes data on seasonal variation of infiltration at one site.

ROBINSON, T. W. See also Eakin, T. W., 1

1. (and LOELTZ, O. J., and POOLE, O. J.) Ground water in the vicinity of Verdi, Washoe County, Nevada. Nev State Eng, 28 pp, May 1951 (processed)
2. Phreatophytes and their relation to water in the western United States. Trans Amer Geophys Union, v 33, pp 57-80, 1952
   Phreatophytes cover about 15 million acres in the 17 western states, and may waste as much as 25 million ac ft of water into the atmosphere annually. The water lost in this way probably represents the largest source of reclaimable water in the arid western United States. Methods of phreatophyte control and elimination are presented.
3. Big Smoky Valley, Nevada. Physical and Economic Basis of Natural Resources, v 4, pp 130-146, U S House Rep, 1953
   Selected as a type area, the valley is described and the elements of its water picture are evaluated. Possible steps to improve water supplies are discussed.

ROBINSON, W. H. See also Bodhaine, G. L., 1

1. (and IVEY, J. B., and BILLINGSLEY, G. A.) Water supply of the Birmingham area, Alabama. U S Geol Surv Circ 254, 53 pp, 1953
   Contains information on the quantity and quality of surface and ground water in the area. Public water supplies are described. Data on the principal aquifers are given. Flow-duration data for the Black Warrior and Cahaba Basins are included as are frequency data for the upper Black Warrior River.

ROBSON, A. D.

1. The effect of water temperature upon the calibration of a current meter. Trans Amer Geophys Union, v 35, pp 647-648, 1954
   Canadian experiments show no effect of water temperature within the ordinary accuracy of such meters.

ROCH, ANDRE

1. On the study of avalanches. Sierra Club Bul, v 36, pp 88-93, 1951
   A general discussion of the mechanics of sliding and rupture in avalanche formation illustrated by data from Swiss studies.

ROCKWOOD, D. M. See Riesbol, H. S., 1

RODEBUSH, W. H.

1. The composition of water substance. Ill Water Surv Bul 41, pp 163-173, 1952
   A detailed discussion of the molecular and ionic structure of water and ice, from the viewpoint of a physical chemist.

RODGERS, JOHN

1. Geologic map of east Tennessee with explanatory text. Tenn Dept Cons Bul 58, pt 2, 168 pp, 1953
   Presents 1:125,000 scale geologic maps with explanatory text and geologic cross sections.

ROE, HARRY B.

1. (and AYRES, CLAUDE Q.) Engineering for agricultural drainage. McGraw-Hill, 501 pp, 1954
   A general text on drainage. Includes material on soils and soil water.

ROGERS, N. See Steinbruegge, G. W., 1

ROGERS, ROSS E. See also Jones, V. H., 1, 2

1. (and OGLE, JAMES A.) Report on sedimentation in Terrell City Lake, Terrell, Kaufman County, Texas. U S Soil Cons Serv, Ft Worth, Tex, SED-4-1, 18 pp, Apr 1950
   The results of a sediment survey on a reservoir with a drainage area of nine square miles are reported. The watershed conditions are evaluated and the date at which new reservoir construction will be necessary is estimated.

ROHWER, CARL See Hansen, V. E., 2; Petersen, J. S., 1

ROLFE, B. N.

1. (and JEFFRIES, C. D.) A new criterion for weathering of soils. Sci, v 116, pp 599-600, Nov 28, 1952
   Criterion based on X-ray examination of clay and silt in soil is proposed.

ROLLINS, A. P.

1. Need for water resources conservation in Texas. J Amer Water Works Assn, v 46, pp 418-420, 1954
   A brief summary of Texas water resources and water problems.

ROLLINS, RALPH L.

1. (and SPANGLER, M. G., and KIRKHAM, DON) Movement of soil moisture under a thermal gradient. Proc Hwy Res Bd, v 33, pp 492-508, Jan 1954
   An analysis of the flow of soil moisture under a thermal gradient is made for a closed system. Indicates that moisture movement in the liquid state is not the predominant method of moisture migration for the soil used.

ROMBERG, FREDERICK E. See George, W. O., 1

RORABAUGH, M. I. See also Avery, S. B., 1

1. Stream-bed percolation in development of water supplies. Trans Int Assn Sci Hydr, Gen Assembly at Brussels, pp 165-174, 1951
   A discussion of the use of Ranney collectors for induced percolation of river water with special reference to the installations at Louisville, Kentucky.
2. Graphical and theoretical analysis of step-drawdown test of artesian well. Proc Amer Soc Civ Eng sep 362, 23 pp, Dec 1953
   The head loss in the aquifer near a well and in the well itself is analyzed and graphical methods of finding these losses are suggested. The variation of specific capacity with discharge and of efficiency with well diameter are discussed.

3. (and SCHRADER, F. F., and LAIRD, L. B.) Water resources of the Louisville area, Kentucky, and Indiana. U S Geol Surv Circ 276, 42 pp, 1953
This report presents information on the quantity and quality of water in the Louisville area. Contains a map showing where additional supplies of ground water can be developed and several cross sections of the Ohio River flood plain at Louisville. Water levels, temperature, and chemical quality of ground water are shown graphically. The principles of induced infiltration of river water and its effects on the temperature and chemical quality of the water are described. Curves show the duration of daily flow for several small streams as well as for the Ohio River and the frequencies of low flows on the Ohio River. Contains a water-surface profile of the 1937 flood on the Ohio River. Other graphs show the frequency of floods, areas flooded, and the location of flood walls and levees. Information on the chemical quality and temperature of surface water is also given.

ROSA, J. M.
1. (and TIGERMAN, M. H.) Some methods for relating sediment production to watershed conditions. U S For Serv, Intermountain For Range Exp Sta Res Paper 26, May 1951
Describes method of relating sediment observations to cover and soil conditions in the basins. Illustrated by application to areas in the Colorado and Columbia Basins and by supporting observations on small streams and plots in Utah.

ROSE, EDWIN See Lofquist, B., 1; Monfore, G. E., 1

ROSENBLATT, D. B.
1. (and LINDEMAN, H.) Radioactivity of the hot springs at Tiberias. Sci, v 116, pp 689-690, Dec 19, 1952
Presents brief summary of measurement of these springs in Israel.

ROSIER, A. J.
1. (and SNELL, L. J.) Ground-water resources of the Rapid Valley Unit, Cheyenne Division, South Dakota. U S Geol Surv Circ 201, 32 pp, 1953
The floodplain and terrace deposits of the Rapid Valley unit contain abundant supplies of ground water where recharge is affected by seepage from irrigation. In 1949 the surface of the ground water was less than five feet below the land surface in more than one-third of the irrigated area. In the parts of the area not now affected by irrigation, the surface of the ground water is only a few feet above the bedrock surface.

ROSS, P. EARL See Bloodworth, M. E., 2

ROSSI, RENATO See Garcia, L. de A., 1

ROST, C. O. See Manson, P. W., 1

ROSTENBACH, ROYAL E. See Foster, R. F., 1

ROTH, RICHARD J.
1. Hailstones and hailstorms. Weatherwise, v 5, pp 51-54, 1952
Describes briefly the mechanism of hail formation, cites some unusual examples of hail, presents map of days with hail, and discusses hail insurance.

ROURKE, JOHN D.
1. (and AUSTIN, MORRIS E.) The use of air photos for soil classification and mapping in the field. Photo Eng, v 17, pp 738-747, 1951
Discusses the principles of soil classification briefly and cites utility of aerial photographs as a base for surface mapping.

ROWE, P. B.
1. (and HENDRIX, T. M.) Interception of rain and snow by second-growth ponderosa pine. Trans Amer Geophys Union, v 32, pp 903-908, 1951
A study of pine near Bass Lake, California, to determine the percentage loss due to interception. Loss was computed as precipitation minus sum of stem flow and through-fall. Of the average annual precipitation of 47 inches, 84 pct reached the forest floor as through fall, and 4 pct as stem flow.
2. (and COLMAN, E. A.) Disposition of rainfall in two mountain areas of California. U S Dept Agr Tech Bul 1048, 84 pp, Dec 1951
A detailed study of the disposition of precipitation entering the soil of mountain watersheds at North Fork and San Dimas Forests, California. Interception, evapotranspiration, percolation, and soil storage are evaluated for various cover types during a period of four years.
3. (and COUNTRYMAN, C. M., and STOREY, H. C.) Hydrologic analysis used to determine effects of fire on peak discharge and erosion rates in Southern California watersheds. Calif For Range Exp Sta, 49 pp, Feb 1954 (processed)
Through statistical methods the runoff and erosion on burned watersheds are compared with that from unburned watersheds to evaluate the effect of fire.

ROWE, R. ROBINSON
1. Economics of bank-protection structures to prevent erosion. Better Roads, v 23, pp 23-24, 34, May 1953
A review of the bank erosion problem along California highways and of the methods used to control this erosion.

ROWLAND, ELMER F.
1. (and STOLZY, LEWIS H., and CRABB, GEORGE A., JR.) A preliminary report on frost determination by the use of the electrical resistance method. Hwy Res Abst, v 23, Dec 1953
This paper outlines a method of determining in situ, the beginning of freezing of the soil moisture by use of the electrical resistance method of measuring soil moisture.
2. (and FAGEN, T. D., and CRABB, GEORGE A., JR.) A slide rule for soil-moisture determination. Agr Eng, v 35, pp 163-164, 1954
Describes a slide rule for converting observed resistance of Bouyoucos-type soil-moisture block to percentage of available moisture.
3. (and FAGEN, T. D., and CRABB, G. A., JR.) Slide rule for correcting electrical resistance of soil-moisture blocks. Agron J, v 46, p 335, 1954
A brief description of rule.

ROWSE, F. G. See Mackaness, F. G., 1

RUBEY, HARRY
1. Supplemental irrigation for Missouri and regions of similar rainfall. Mo Univ Eng Exp Sta Bul 33, 2 ed, 1951
Points out need for supplemental irrigation and methods of using ponds, natural stream-flow, and ground water.

RUCHHOFT, C. C. See Middleton, F. M., 1

RUDOLPH, VICTOR J. See Shipman, R. D., 1

RUNKLES, J. See Shaw, R. H., 1

RUNNELS, RUSSELL T. See Carlson, W. A., 1

RUSH, E. S.
1. (and REINHART, K. G.) Field tests of nuclear instruments for the measurement of soil moisture and density. U S Waterways Exp Sta Misc Paper 3-117, 26 pp, Mar 1955
The principle of nuclear instruments for moisture and density determinations is outlined and field tests of an instrument on several sites are reported and evaluated.

RUSH, J. H.
1. Tree rings and sunspots. Sci Amer, v 186, pp 54-58, 1952
A review of the work of A. E. Douglas in dendrochronology.

RUSSELL, M. B.
1. (and KLUTE, A.) Movement of water in soils. Agr Eng, v 55, pp 808-810, 1954
A general survey of the status of knowledge on flow in saturated and unsaturated conditions.

RUSSELL, R. C. H.
1. (and MacMILLAN, D. H.) Waves and tides. Philosophical Library, New York, 348 pp, 1952
A discussion of ocean waves and tidal phenomena for the mariner and the layman.

RUTTER, EDWARD J.
1. Flood-control operation of Tennessee Valley Authority reservoirs. Trans Amer Soc Civ Eng, v 116, pp 671-707, 1951
Describes flood conditions during 1946, 1947, and 1948 and the actual and hypothetical-alternative flood control operations. Actual crest reductions are compared with those possible from the hypothetical operations. Discussion by R. K. LINSLEY.

RYDELL, L. E. See Whipple, W., Jr., 1

SACHS, MILTON A. See Koelzer, V. A., 1; Krick, I. P., 5

SADAR, DONALD J.
1. Preliminary study of sediment sampling efficiency. Colo Agr Mech Coll, Dept Civ Eng, MS thesis, 79 pp, Nov 1954
The sampler commonly used for measurement of sediment distribution is of such shape that it does not permit sampling the entire depth of flow and hence does not measure total sediment discharge. The sampling efficiency of such a device was studied in a recirculating, sloping flume and the effect of slope, bed roughness, and Reynolds number appeared to be of secondary importance. For smooth beds and relatively steep slopes the sampling efficiency increased rapidly with Reynolds number and for a smooth bed a small increase in slope produces a large decrease in the sampling efficiency.

SAGER, R. C.
1. Areal analysis of permanently frozen ground. Photo Eng, v 17, pp 551-571, 1951
The surface features characterizing permafrost on aerial photographs are described and illustrated.

SALISBURY, E. F. See Odom, L. M., 1
SALTER, ROBERT M.
1. The engineer's job in developing America's capacity to produce. Agr Eng, v 34, pp 83-87, 1953
A survey of the agricultural needs of the United States and of some of the problems which are faced in reaching this goal. Includes discussion of soil and water conservation and drainage problems.
SALZMAN, M. G.
1. (and ELLIOTT, LOUIS) Type of water supply influences location and layout of Texas steam-electric plants. Civ Eng, v 21, pp 30-33, 1951
Condensation of a paper on the difficulty of locating steam-electric plants. Mentions flow fluctuation, water quality, etc. Describes common methods of combating these difficulties.
SANDERS, M. D. See Lauterback, W. J., 1
SANDERSON, EARL E. See also Gottschalk, L. C., 2; Norris, S. E., 1
1. (and JOHNSTONE, DON O.) Accuracy of determination of annual precipitation over a given area. Trans Amer Geophys Union, v 34, pp 49-57, 1953
Analyzes the effect of gage spacing on the accuracy of determination of the amount of annual precipitation for areas of different sizes.
SANDERSON, ROBERT W.
1. Notes on the climate of Indo-China. Weatherwise, v 7, pp 56-59, 69, 1954
A general discussion of climate with emphasis on the monsoon. Includes normal winter and summer precipitation maps.
SARTOR, DOYNE
1. A laboratory investigation of collision efficiencies, coalesence, and electrical charging of simulated cloud droplets. J Met, v 11, pp 91-103, 1954
Liquid drops formed in a viscous medium at a Reynolds number equivalent to the atmospheric case are studied.
SARTZ, RICHARD S.
1. The October floods of southwestern Oregon - Some observations and speculations. J Forestry, v 49, pp 189-191, 1951
Observations on a number of watersheds indicate that the effectiveness of forests in controlling floods may be limited by the moisture storage capacity of the soil. Describes the factors contributing to the floods.
2. An objective look at the vegetation - stream-flow relationship. J Forestry, v 49, pp 871-875, 1951
The quantitative effects of vegetation on stream flow vary widely depending upon how many of the factors are acting. Under some conditions, adjustments of cover have little effect on flow while under other conditions large changes result.
3. Soil erosion on a fire-denuded forest area in the Douglas fir region. J Soil Water Cons, v 8, pp 279-281, 1953
Survey of erosion on a burn near Portland, Oregon.
SAUER, E. L. See Larson, B. O., 1, 2; Stall, J. B., 1, 2, 3, 5, 6
SAVILLE, THORNDIKE
1. National water policy. Proc Amer Soc Civ Eng sep 442, 13 pp, May 1954
A general review of problems of data collection, planning, economics, and law with a summary of a possible policy to be followed.
SAVILLE, THORNDIKE, JR.
1. Wind set-up and waves in shallow water. U S Beach Eros Bd Tech Mem 27, 36 pp, 1952
An analysis to relate observed waves and set-up in Lake Okeechobee during two hurricanes to wind velocity, fetch, water depth, and shape of the lake surface.
2. (and CALDWELL, J. M.) Accuracy of hydrologic surveying in and near the surf zone. U S Beach Eros Bd Tech Mem 32, Mar 1953
A statistical analysis of profile data from successive surveys of Mission Beach, California, is used to evaluate the expected accuracy of hydrographic surveys. The results are of value where comparability of successive surveys is a prime consideration, as for the determination of littoral movement.
SAWYER, C. L. See Barber, E. S., 1
SAYRE, A. N.
1. (and TAYLOR, G. C., JR.) Ground-water resources of the Republic of El Salvador, Central America. U S Geol Surv Water-Supply Paper 1079-D, pp 155-225, 1951
SCALAPINO, R. A. See also Hood, J. W., 1
1. Development of ground water for irrigation in the Dell City area, Hudspeth County, Texas. Tex Bd Water Eng Bul 5004, 38 pp, Sep 1950

SCEVA, J. E.

1. Preliminary report on the ground-water resources of southwestern Skagit County, Washington. Wash Div Water Res Ground-Water Rep 1, 40 pp, Jan 1951
   Describes the geology and ground-water resources of southwestern Skagit County, Washington, and evaluates the possibilities of induced river infiltration near Mount Vernon, Washington.

SCHACHERL, ROBERT D.

1. Simplified method for preliminary hydrographic surveys of calm waters. Civ Eng, v 23, pp 50-51, 1953
   Description of a method employing the use of a transit at a single station to develop the outlines of a calm lake of considerable size.

SCHAEFER, VINCENT J. See also Reynolds, S. E., 1; U. S. Dept Int, 2

1. Localized effects induced by seeding supercooled clouds with dry ice and silver iodide. Proc West Snow Conf, pp 1-11, Apr 1951
   A brief report on some phases of Project Cirrus with special emphasis on work done in New Mexico.
2. The measurement of high concentrations of ice nuclei in a small parcel of air. Bul Amer Met Soc, v 35, pp 230-233, 1954
   A discussion of laboratory methods associated with evaluating the efficiency of nucleating agents.
3. The concentration of ice nuclei in air passing the summit of Mt. Washington. Bul Amer Met Soc, v 35, pp 310-311, 1954
   Describes a device for counting ice-crystal nuclei in the atmosphere and summarizes results of six years of observations regarding number and variation of nuclei at Mt. Washington.
4. Silver and lead iodides as ice-crystal nuclei. J Met, v 11, pp 417-419, 1954
   Laboratory experiments are described in which the two substances are compared for effectiveness as nuclei. Some conclusions as the physics of nucleation are obtained.

SCHEELE, LEONARD A.

1. Domestic and industrial uses of water. Physical and Economical Foundation of Natural Resources, v 2, pp 42-56, U S House Rep, 1952
   Discusses the expanding utilization of water in the U. S., water pollution problems, water-treatment methods, and cost of water. Includes table summarizing the water-control agencies of each state and the principle interstate compacts concerning water.

SCHEGA, REYNALDO

1. Rectification of the Papaloapan River in Mexico. Trans Amer Soc Civ Eng, v 117, pp 507-527, 1952
   Describes a program to straighten the Papaloapan River by means of cutoffs in order to lower flood heights along the river. Some indication of the success is given. Discussion by L. M. ODOM and S. SHULITS.

SCHIFF, LEONARD

1. Hydrology of surface supplies to runoff. U S Soil Cons Serv SCS-TP-90, 25 pp, Feb 1951
   Uses data from Coshocton, Ohio, to illustrate method for deriving infiltration curves for a specific soil, cover, and soil-moisture content as basis for estimating the runoff from rainfall.
2. Surface detention, rate of runoff, land use, and erosion relationships on small watersheds. Trans Amer Geophys Union, v 32, p 57, 1951
   Infiltration curves were derived for small watersheds in various land uses without using relationships between detention and runoff. Relationships between detention and runoff were then determined.
3. Hydrology of rates and amounts of surface runoff from single- and mixed-cover watersheds. U S Soil Cons Serv SCS-TP-104, Mar 1951
   Presents a method for computing the volume and hydrograph of surface runoff on basis of precipitation, infiltration, and detention storage. Illustrative computations including some on the effect of land use are shown.
4. The effect of surface head on infiltration rates based on performance of ring infiltrometers and ponds. Trans Amer Geophys Union, v 34, pp 257-266, 1953
   Studies with infiltrometers and small ponds indicate that the normal relatively low infiltration rates of certain soil may be increased by providing sufficient depth of water or surface head on the soil surface.
5. Water spreading for storage underground. Agr Eng, v 55, pp 794-800, 1954
   Reports results of experiments at Bakersfield, California, to evaluate methods for improving soil permeability and to determine effective size of spreading areas.

SCHMIDT, JAMES J. See also Smith, R. C., 1; Walker, A. C., 1

1. Water resources of Ross County, Ohio. Ohio Div Water Circ 4, 25 pp, 1954
   A summary of surface- and ground-water conditions in the county. Includes a ground-water resources map.

SCHMIDT, MILTON O. See also Quintero, A. G., 1

1. Urban runoff data studied in Urbana by University of Illinois. Eng News-Rec, v 147, pp 43-44, 1951
   Short article on the study of city runoff.

SCHNEIDER, GEORGE R.

1. History and future of flood control. Trans Amer Soc Civ Eng, v CT, pp 1042-1099, 1953
   A history of flood control in the U. S. and a discussion of further plans for development of flood-control projects.

SCHNEIDER, ROBERT See also Prior, C. H., 1

1. (and BLANKENSHIP, R. R.) Subsurface geologic cross sections from Claybrook, Madison County, to Memphis, Shelby County, Tennessee. Tenn Dept Cons, Prelim Chart 1, 1 p, 1950
   Includes graphic record of deep wells, water levels, and chemical quality data.

SCHOEWE, WALTER H.

1. The geography of Kansas, Part 3, Hydrogeography. Trans Kans Acad Sci, v 54, pp 263-329, 1951
   Discusses briefly precipitation, principle basins, and streams. The names of streams, uses, etc. are outlined. Extensive bibliography and gazeteer of streams of counties.
2. The geography of Kansas, Part 3, Hydrogeography. Trans Kans Acad Sci, v 56, pp 131-190, 1953
   A detailed review of the springs of Kansas with considerable data on the larger ones. Brief discussion of marshes and detailed discussion of lakes, natural and artificial. Ground water is reviewed briefly. History of irrigation in some detail. Connate and juvenile water discussed briefly. Illustrated. Extensive bibliography.

SCHOFF, STUART L. See also Reed, E. W., 1; Walling, I. W., 1

1. (and REED, EDWIN W.) Ground water in alluvial deposits in Oklahoma. Econ Geol, v 46, pp 76-83, 1951
   Alluvium along main streams in Oklahoma has long been recognized as a generally dependable aquifer. Pumping tests made in recent years indicate coefficients of transmissibility of the order of 70,000 gpd on the Arkansas River near Fort Gibson, and 60,000 gpd on the North Canadian River near Oklahoma City.
2. (and REED, EDWIN W.) Ground-water resources of the Arkansas River flood plain near Fort Gibson, Muskogee County, Oklahoma. Okla Geol Surv Circ 28, 55 pp, 1951
   A study of a small area to determine potential for well irrigation.

SCHOFIELD, R. K.

1. Soil moisture and evaporation. Proc 4th Int Cong Soil Sci, v 2, pp 20-28, 1950
   The transpiration of water from vegetation can be computed quite accurately. There is little relation between water transpired and dry matter produced. There are strong indications that the main control is weather with only a little influence by the type of plant.

SCHOLTES, WAYNE H.

1. The concentration of forest tree roots in the surface zone of some Piedmont soils. Proc Iowa Acad Sci, v 60, pp 243-259, 1953
   Weight of roots in soil samples under pine forest is determined and related to age of stand, soil texture, etc.

SCHRADER, F. F. See Rorabaugh, M. I., 3

SCHREURS, R. L.

1. Configuration of the water table in Nebraska. U S Geol Surv Atlas HA 4, 1 p, 1954
   Map shows the contours of the water table in Nebraska.

SCHRIEVER, W. R. See Peckover, F. L., 1

SCHROEDER, M. C.

1. (and KLEIN, HOWARD) Geology of the western Everglades area, southern Florida. U S Geol Surv Circ 314, 26 pp, 1954
   The lithology and paleontology are logged for cores from a series of 43 tests holes 30 ft deep. Four cross sections show the geologic interpretation of the data discussed in the report. The holes are on a line on the western edge of the Everglades from the Tamiami Canal northward to the Caloosahatchee River. The holes were drilled and the cores collected in connection with ground-water investigations.
2. (and MILLIKEN, D. L., and LOVE, S. K.) Water resources of Palm Beach County, Florida. Fla Geol Surv Rep Inv 13, 63 pp, 1954
   Comprehensive discussion of geology and hydrology of the county.

SCHROEDER, MERLE E. See Cross, W. P., 1; Lamar, W. L., 1
SCHRUNK, JOHN F. See Hamilton, F. B., 1
SCHULMAN, EDMUND

1. Definitive dendrochronologies: A progress report. Tree-ring Bul, v 18, pp 10-18, Oct 1951
   A discussion of recent developments in the quantitive interpretation of tree rings in relation to climate and runoff.
2. Tree-ring indices of rainfall, temperature, and river flow. Amer Met Soc, Compendium of Met, pp 1024-1029, 1951
   A broad review of the methods and principles of dendrochronology with examples of specific interpretations of weather and climate from tree-ring data.
3. Extension of the San Juan chronology to B C times. Tree-ring Bul, v 18, pp 30-35, Apr 1952
   Some chronologies in the San Juan River basin are extended to about 50 BC.
4. Rio Grande chronologies. Tree-ring Bul, v 19, pp 20-33, Jan-Apr 1953
   Presents chronologies from 17 trees scattered from headwaters to near the mouth of the Pecos. Discusses interpretation in terms of runoff and climate.
5. Tree-ring evidence for climatic change. Chap 17, pp 209-219, Climatic Change, ed H. Shapley, Harvard Univ Press, Cambridge, Dec 1953
   A survey of dendrochronological evidence, largely from the southwest U. S., as an indicator of climatic change. The limitations of the technique are discussed and the significance of the major chronologies presented in qualitative form.
6. Dendroclimatic changes in semi-arid regions. Tree-ring Bul, v 20, pp 26-30, Jan-Apr 1954
   A survey of the success of tree-ring dating in the southwestern U. S. Includes chart of master growth indices for five key chronologies in the southwest to 1300 AD.

SCHULTZ, EDWARD A.

1. Sediment sampling in tidal waterways. Proc Amer Soc Civ Eng, sep 427, 1954
   Reports results of sampling operations in Charleston Harbor to determine the hydraulic, saline, and sedimentation characteristics of the harbor and to explain shoaling processes.

SCHULZ, E. F.

1. (and WILDE, R. H., and ALBERTSON, M. L.) Influence of shape on the fall velocity of sedimentary particles. U S Corps Eng Missouri River Div, Sediment ser 5, 161 pp, July 1954
   Literature on the effect of particle shape on fall velocity is critically reviewed. A large number of additional experiments were conducted by the authors and a shape parameter proposed. The variation of drag coefficient as a function of Reynolds number for various shapes was presented.

SCHUSTER, ROBERT L. See Heusser, C. J., 1
SCHWAB, GLENN O. See also Kirkham, D., 2

1. Subsurface drainage with small perforated flexible tubes in mole drains. Iowa State Coll, PhD thesis, 184 pp, 1951
   The effect of perforations on flow into drains determined theoretically and verified with electrical analogue results. The effect of deviations from true grade on the flow through small drains was studied in the laboratory. Field studies were conducted to determine the feasibility of thin-walled polyethylene tubes for subsurface drains.
2. (and KIRKHAM, DON) The effect of circular perforations on flow into subsurface drain tubes, Part 2, Experiments and results. Agr Eng, v 32, pp 270-274, 1951
   Results of electrical analog tests are reported and influence of number and size of perforations, gravel back fill, and pipe size on water removal are evaluated in charts.

SCHWANTES, A. J.

1. (and MANSON, P. W., and COLBY, B. C.) Comparison of soil and water majors in civil and agricultural engineering curriculums. Agr Eng, v 35, p 665, 1954
   A comparison of curriculum content at 15 land grant colleges.

SCHWARTZ, GEORGE M.

1. (and THIEL, GEORGE A.) Minnesota's rocks and waters. Minn Geol Surv Bul 37, 365 pp, 1954
   A general discussion for lay use. No basic data.

SCHWARTZMANN, FREDERICK See Stern, S. C., 1
SCHWARZ, HARRY E. See Taylor, A. B., 1
SCHWEYER, HERBERT E.

1. Sedimentation procedures for determining particle size distribution. Fla Eng Ind Exp Sta Bul 54, 18 pp, June 1952
   The pipette, hydrometer, and turbidimeter methods of particle-size analysis are compared and evaluated. Details of techniques are presented.

SCHWOB, H. H.

1. Iowa floods - Magnitude and frequency. Iowa Hwy Res Bd Bul 1, 171 pp, Apr 1953
   Summarizes flood-flow characteristics of streams above 200 sq mi in Iowa.

SCHYTT, WALTER
1. Glaciology in Queen Maud Land. Geog Rev, v 44, pp 70-87, 1954
A description of the Norwegian-British-Swedish Antarctic Expedition of 1949-52 and a summary of results.

SCOTT, THEODORE See also Trask, P. D., 2
1. Sand movement by waves. U S Beach Eros Bd Tech Mem 48, Aug 1954
Laboratory studies of material movement onshore as reflected by wave action of short- and long-period waves. The mechanics of ripple formations and the relation of ripples to material movement are discussed.

SCOTT, V. H. See Burgy, R. H., 1; Luthin, J. N., 2

SCRUTON, P. C.
1. (and MOORE, O. G.) Distribution of surface turbidity off Mississippi Delta. Amer Assn Pet Geol Bul, v 37, pp 1067-1074, 1953
A report of aerial and surface observations of suspended sediment transport from the Mississippi River into the Gulf.

SEARCY, JAMES K. See also Fishel, V. C., 2
1. Hydrology of small drainage areas. Mo School Mines, MS thesis, 50 pp, 1952
A study of some small areas to test some of the hydrologic tools useful in the study of larger basins to determine their applicability on small basins. The relationship between the runoff of large and small drainage basins is studied to learn how the data collected on the larger drainage basins may be used in the study of small areas.
2. (and BAKER, R. C., and DURUM, W. H.) Water resources of the St. Louis area, Missouri and Illinois. U S Geol Surv Circ 216, 55 pp, 1952
The report contains information on the quantity and quality of water in the St. Louis area. Flood profiles and flood-stage frequency curves are given for the Mississippi, Missouri, and Meramec Rivers. Flow-duration curves for the Meramec River and streams in the Cohokia Creek Basin and a curve showing discharge available without storage for the Meramec River are included. A map shows the areas inundated during the flood of July, 1951. Ground-water levels and elevation of bedrock in the American Bottoms are shown by contours. Areas where large quantities of ground water may be developed are indicated. Logs of four wells in the alluvium are given. The principles of induced infiltration are discussed and the possibilities of greater applications are evaluated. The public water supplies are described. Tables and graphs showing the chemical quality and temperature of water from ground and surface sources and from the public supplies are presented.

SELBY, WALTER E.
1. Reclamation of flooded lands in Kansas. Agr Eng, v 34, pp 624, 626, 1953
A general description of work done by SCS after 1951 flood.

SERR, EUGENE, SR. See Kehrlein, O., 1

SERR, EUGENE F., III
1. Measurement of bed-load sediment. Trans Amer Geophys Union, v 32, p 123, 1951
The article gives the two common methods of measuring sediment in a stream and then discusses a third method which appears promising. It consists of a combination of suspended-load measurements and particle-size analysis.

SETTER, L. R. See Goldin, A. S., 1

SHAFER, PAUL V.
1. Stream improvement on the Little Miami River. Ohio Univ Eng Exp Sta News, v 25, pp 12-16, 1953
Describes collection of hydrologic data for wildlife studies.

SHAFER, ROSS A.
1. Ground water and used water in basin recharge area. Ind Eng Chem, v 45, pp 2666-2668, 1953
Discusses change in water quality as result of recharge with sewage and return irrigation water with special reference to Southern California.

SHAMBERGER, HUGH A.
1. Nevada ground-water law together with interpretation of certain aspects of the ground-water law and rules and regulations for drilling wells and other related material. Nev State Eng, 30 pp, 1953

SHANKS, G. L.
1. (and PATERSON, J. J.) The Riley sprayograph. Agr Eng, v 33, p 428, 1952
Describes a simple device for recording the spray characteristics of nozzles.

SHANNON, WILLIAM D.
1. (and SHANNON, WILLIAM L.) Connel Dam provides water supply for Alaska's first pulp mill. Civ Eng, v 24, pp 37-41, 1954
Includes some data on the hydrology of the site which is on Revillagigedo Island.

SHANNON, WILLIAM L. See Shannon, W. D., 1

SHAPIRO, RALPH

1. A planetary atmospheric response to solar activity. J Met, v 10, pp 350-355, 1953
   The brightness of the planet Jupiter is found to be related to mean annual and monthly relative sunspot numbers. The evidence is examined for possible meteorological implications.

SHAPLEY, HARLOW

1. Climatic change. Harvard Press, 1954
   A collection of 21 papers by various writers as presented in May, 1952. Deal with the current observations, geological and biological evidence of past changes, and possible explanations.

SHARP, ROBERT P. See also Meier, M. F., 2

1. Glacial history of Wolf Creek, St. Elias Range, Canada. J Geol, v 59, pp 97-117, 1951
   A comprehensive historical summary from the earliest definable Wisconsin evidence to present date. Extensive bibliography.
2. Features of the firn on upper Seward Glacier, St. Elias Mountains, Canada. J Geol, v 59, pp 599-621, 1951
   Changes in density with depth and associated ice layers and lenses are studied.
3. (and NOBLES, LAURENCE H.) Mudflow of 1941 at Wrightwood, Southern California. Geol Soc Amer Bul, v 64, pp 547-560, 1953
   A detailed study of the movement, character, source, and cause of a significant mudflow.
4. Glacial features of Cook County, Minnesota. Amer J Sci, v 251, pp 855-883, 1953
   A discussion of observed glacial features and their causes.
5. Glacier flow: A review. Bul Geol Soc Amer, v 65, pp 821-838, 1954
   A rather detailed review and correlation of recent work on glacier movement.

SHAW, R. H.

1. (and RUNKLES, J., and BARGER, G. L.) A survey of precipitation and soil moisture in Iowa. Iowa State Coll Agr Exp Sta Agron 301, Mar 1954 (processed)
   A summary of rainfall in late 1953 and early 1954 and of soil moisture in February, 1954, for about 20 stations in Iowa.

SHEARIN, ARTHUR E.

1. Some characteristics of the soils of the Dismal Swamp section of Pasquotank County, North Carolina. Proc Soil Sci Soc Amer, v 15, pp 343-347, 1950
   A report of a soil survey.

SHEDD, CLAUDE K.

1. A micromanometer. Agr Eng, v 34, p 178, 1953
   Describes a manometer which can be read to 0.001 inch.

SHEPARD, FRANCIS P.

1. (and INMAN, D. L.) Sand movement on the shallow inter-canyon shelf at La Jolla, California. U S Beach Eros Bd Tech Mem 26, Nov 1951
   The analysis of data from 13 months repetitive observations on a triangular shelf situated between the two main branches of the La Jolla Submarine Canyon, indicating the nature of the changes occurring, their probable cause, and relation to wave and sand characteristics.
2. Sedimentation rates in Texas estuaries and lagoons. Amer Assn Pet Geol Bul, v 37, pp 1919-1934, 1953
   Recent hydrographic surveys are compared with early surveys to evaluate sediment accumulation.

SHERMAN, G. DONALD See Gill, W. R., 1

SHERMAN, IRVING

1. A rapid substitute for textural analysis. J Sed Pet, v 21, pp 173-177, 1951
   Equilibrium moisture content is related to texture and may be used as an approximate measure.
2. Flocculent structure of sediment suspended in Lake Mead. Trans Amer Geophys Union, v 34, pp 394-406, 1953
   More than half the weight and volume of sediment deposits in Lake Mead are fine textured. This paper interprets the low specific weight of deposited sediments in terms of behavior and structure in suspension prior to deposition.

SHERWAND, ABDUL JABBAR

1. Steady unconfined flow of ground water with uniform accretion analyzed by hodographic method. Utah Univ, PhD thesis, May 1951
   A study of steady unconfined flow with uniform accretion in an infinite strip bounded laterally by parallel streams with vertical banks that cut entirely through the aquifer. The configuration of the water table and the distribution of head and velocity throughout the flow are determined analytically.

SHINGLER, DON G.
1. High water on the Kansas River. Mil Eng, v 43, pp 322-326, 1951
A description of the floods of May-June, 1951, including hydrology, effects, flood fighting, rehabilitation, and lessons learned.

SHIPMAN, ROBERT D.
1. (and RUDOLPH, VICTOR J.) Factors influencing height growth of planted yellow-poplar in southwestern Michigan. Mich State Coll Agr Exp Sta Tech Bul 242, 44 pp, June 1954
The growth of two planted acres of yellow poplar is related to such factors as soil characteristics, root penetration, water-table depth, precipitation, and temperature. The microclimate of each area was investigated to find its relationship to growth of the trees.

SHRADER, WILLIAM D.
1. Differences in clay contents of surface soils developed under prairie as compared to forest vegetation in the central United States. Proc Soil Sci Soc Amer, v 15, pp 333-337, 1950

SHUKRY, AHMED See Hansen, V. E., 2; Nalder, W. H., 1

SHULITS, SAMUEL See Bradley, J. N., 1; Schega, R., 1

SHUNSUKE, TAGAKI See Gardner, Willard Hale, 1

SHUTTS, E. E.
1. Rice irrigation in Louisiana. Trans Amer Soc Civ Eng, v 118, pp 871-887, 1953
Discusses common practices for rice irrigation in southern Louisiana with sections on quantities of water required, use of ground water for irrigation, and water-quality requirements. Discussion by L. E. MYERS, JR.

SIBUL, O. See Einstein, H. A., 8

SILLCOX, L. K.
1. The problem of water resources. J Amer Water Works Assn, v 46, pp 593-599, 1947
A general survey of the water-resource problem of the United States.

SILLIMAN, FREDERICK B.
1. The development of a large well supply. J NE Water Works Assn, v 68, pp 158-163, 1954
A brief description of a field of three wells which produce 6 mgd for Bridgeport, Connecticut.

SILVER, CASWELL See Kelley, V. C., 1

SILVERMAN, MAXWELL
1. (and WHALEY, RICHARD C.) Adaptation of the piston coring device to shallow water sampling. J Sed Pet, v 22, pp 11-16, 1952
Describes device for obtaining bottom samples.

SILVEY, J. K. G.
1. Relation of irrigation runoff to tastes and odors. J Amer Water Works Assn, v 45, p 1179, 1953
Describes the effects of runoff water quality on the taste and odor producing organisms commonly found in the waters.

SIMMONS, E. T. See Reck, C. W., 1

SIMMONS, H. B. See Turnbull, W. J., 1

SIMONS, D. B. See Hickok, R. B., 1

SIMONS, W. D.
1. (and others) Spokane - Coeur d'Alene River basin, Washington - Idaho, Physical and Economic Basis of Natural Resources, v 4, pp 164-185, U S House Rep, 1953
The geology, geography, and topography of the area are described by maps, sections, and photographs. Data on precipitation, runoff, water losses, floods, and other aspects of the water cycle are presented to illustrate the features of the area.
2. Irrigation and stream-flow depletion in Columbia River basin above The Dalles, Oregon. U S Geol Surv Water-Supply Paper 1220, 126 pp, 1953
Presents data on the irrigated areas and the probable consumptive use of water in the U. S. portion of the Columbia basin. From these data the estimated depletion of stream flow for irrigation is computed by subbasins.
3. Concept and characteristics of base flow in the Columbia River basin. Proc West Snow Conf, pp 57-61, Apr 1953
A general discussion of base flow-depletion curves in the Columbia River basin.

SIMONSON, ROY W.
1. (and RIECKEN, F. F., and SMITH, GUY D.) Understanding Iowa soils: An introduction to the formation, distribution, and classification of Iowa soils. Wm C. Brown Co, Dubuque, Iowa, 142 pp, 1952
A general discussion of soils and a detailed description of Iowa soils.

SIMPSON, E. S.
1. The ground-water resources of Schenectady County, New York. N Y Dept Cons Rep GW-30, 110 pp, 1952

SIMPSON, T. RUSSEL
1. Utilization of ground water in California. Trans Amer Soc Civ Eng, v 117, pp 923-934, 1952
Describes the present and possible future development of ground water in the major hydrographic areas of the state. Discussion by D. C. MUCKEL.

SINCLAIR, J. D.
1. Erosion in the San Gabriel Mountains of California. Trans Amer Geophys Union, v 35, pp 264-268, 1954
A general description of the area, nature of, and damage by erosion, and the current research in the field.

SKIBITZKE, HERBERT E. See Jones, P. H., 3; Turner, S. F., 1

SKIDMORE, H. J.
1. Mississippi Basin model. Mil Eng, v 43, pp 347-350, 1951
Describes construction, instrumentation, and testing of the model located near Jackson, Mississippi.

SLATER, C. S.
1. (and HOPP, HENRY) Winter decline of soil structure in clean-tilled soils. Agron J, v 43, pp 1-4, 1951
Field tests at College Park, Maryland, show that unprotected soil suffers decline in infiltration, pore sizes, and water stability as compared with protected soil.
2. Soil conditioners in soil conservation. Agr Eng, v 34, pp 98-100, 102, 1953
Discusses in general terms the nature of chemical soil conditioners, their possible uses, and their limitations. Includes discussion of other types of conditioners including surface stabilization with asphalts.

SLATER, W. R.
1. (and CURTISS, HOWARD, and OLIVER, PAUL A.) Flood control in California. Eng J, v 34, pp 13-17, 1951
Includes description of determination of design flows using synthetic unit graphs.

SLAUGHTER, JEAN L.
1. (and CAMPBELL, J. M.) "You never miss the water . . ." - a few pointers on ground-water supplies. Mich Geol Surv, 1952
This booklet, written in popular style and illustrated by cartoons, is designed for teachers, classroom use, and for lay people.

SLOBOD, R. L. See Dotson, B. J., 1

SLOSS, L. L. See Krumbein, W. C., 1

SMALLSHAW, JAMES
1. Some precipitation-altitude studies of the Tennessee Valley Authority. Trans Amer Geophys Union, v 34, pp 583-588, 1953
Observations of a line of stations across the Great Smoky Mountains show a typical increase of rainfall with altitude. An investigation across sharp-crested Snake Mountain shows precipitation at the top of the ridge to be 70 pct of that a short distance below the crest.

SMALLWOOD, CHARLES, JR.
1. (and WYNDHAM, HERBERT B., and COTE, DANIEL N.) Calculation of impounded storage requirements. J Amer Water Works Assn, v 46, pp 251-256, 1954
A survey of methods of estimating the required reservoir capacity to supply a specified demand.

SMITH, CHARLES PENNYPACKER See also Van Ornum, D. G., 1
1. Weather is our business. Elec West, v 112, pp 63-65, 1954
A review of the role of the meteorologist and hydrologist in public utility operation.

SMITH, DAVID B.
1. Expectancy and intensity of excessive rainfalls at Jacksonville, Florida, 1910-1948. Fla Eng Ind Exp Sta Tech Paper 57, Feb 1951
2. Frequency of excessive rainfalls in Florida. Trans Amer Soc Civ Eng, v 119, pp 927-934, 1954
Analysis of records at five Weather Bureau stations in Florida indicates no significant change from the relations found by Yarnell in 1935. Empirical rainfall-intensity-duration-frequency equations are developed for each station.

SMITH, DWIGHT D.
1. Subsoil conditioning on clay pans for water conservation. Agr Eng, v 32, pp 427-429, 1951
Describes methods of breaking up claypan to increase infiltration.
2. A 20-year appraisal of engineering practices in soil and water conservation. Agr Eng, v 33, pp 553-556, 1952
Discusses results of experience with stabilized waterways, drop structures, and other devices involved in farm water-disposal systems.

SMITH, GUY D. See Simonson, R. W., 1
SMITH, H. F. See Bruin, J., 1
SMITH, H. M. See Larson, B. O., 2; Stall, J. B., 4
SMITH, JAMES LEROY See also Crabb, G. A., Jr., 3
1. (and CRABB, GEORGE A., JR.) Progress report on the wooded watershed of the Michigan Hydrologic Research Station. Mich State Coll Agr Exp Stat Q Bul, v 34, 12 pp, May 1952
A general discussion of the three watersheds used by the Michigan Hydrologic Research Station with a comparison of the hydrographs from one storm for each of the three stations. Also included are the cumulative curves for precipitation, surface runoff, and soil loss for each of the watersheds.
2. (and CRABB, GEORGE, JR.) Comparative analysis of hydrographs from similar storms on a watershed under timbered and clear-cut conditions. Mich State Coll Agr Exp Sta Q Bul, v 35, pp 489-502, May 1953
A comparison is made of the runoff from two storms in 1952, on a watershed from which the timber had been removed, to the runoff from two similar storms before the timber was removed.
3. Some effects of vegetal cover upon the hydrology of watersheds at East Lansing, Michigan. Mich State Coll, PhD thesis, 137 pp, 1954
Two watersheds, one wooded and one cultivated, near East Lansing, Michigan, are compared on the basis of 11 years records. The watersheds are compared as to their differences in soil moisture, soil losses, physical soil differences, and surface runoff. An additional comparison is made on the wooded watershed the first year after a commercial clear cut.
SMITH, L. G.
1. New method to measure raindrop size. Ill Water Surv Bul 41, p 299, 1952
Brief note describing use of change in capacity of parallel plate condenser as a drop passes between the plates to determine drop size.
SMITH, LEON A.
1. Rock wells. Water works Eng, v 104, pp 576-601, 670, 694, 1951
A general discussion of rock wells centered about experience at Madison, Wisconsin. Discusses logging and development.
2. Rock wells. Water Works Eng, v 107, pp 1007, 1028, 1096-1108, 1954
An elementary question and answer approach to some problems of water works including well location, testing, and construction.
SMITH, PETER C. See Heath, R. C., 3
SMITH, R. K. See Moore, R. C., 1
SMITH, R. M. See also Fuhriman, D. K., 1, 2
1. (and POHLMANN, G. G.) Comparison of subsoils and surface soils in the greenhouse as an aid in understanding and reclaiming eroded soils. Agron J, v 43, pp 259-264, 1951
Five West Virginia soils are tested for response to various treatments.
2. (and HENDERSON, R. C., and TIPPIT, O. J.) Summary of soil and water conservation research from the Blackland Experiment Station, Temple, Texas, 1942-53. Tex Agr Exp Sta Bul 781, 56 pp, June 1954
SMITH, R. V. See Joers, J. C., 1
SMITH, ROBERT C.
1. (and SCHMIDT, JAMES J.) The water resources of Pike County, Ohio. Ohio Div Water Inf Circ 1, 23 pp, 1953
A summary of surface and ground-water conditions in the county. Includes a ground-water resources map.
2. (and WHITE, GEORGE W.) The ground-water resources of Summit County, Ohio. Ohio Div Water Bul 27, 130 pp, Nov 1953
A summary of the geography and geology of the Akron area, and a description of the occurrence of ground water, its recharge, discharge, recovery, and utilization. Includes over 2000 well records and a map showing in detail the ground-water conditions.
SMITH, ROBERT L., JR. See Bloodgood, D. W., 3
SMITH, T. B. See Krick, I. P., 3
SMITH, W. O.
1. (and NICHOLS, H. B.) Mapping water saturated sediments by sonic methods. Sci Mon, v 77, pp 36-41, 1953
Discusses the use of sonar for sounding in Lake Mead, the Bay of Fundy, and elsewhere.
SMITH, WALTER J.
1. (and HOEFLICH, NANCY J.) The carbon film electric hygrometer element. Bul Amer Met Soc, v 35, pp 60-62, 1954
The element and its characteristics are described. Claimed to be highly sensitive, have rapid response, and a calibration independent of temperature between 0 and 40° C.

SNELL, L. J. See Rosier, A. J., 1
SNIEGOCKI, R. T. See Steinbruegge, G. W., 1
SNYDER, FRANKLIN F. See Mather, J. R., 3
SOIL CONSERVATION SOCIETY OF AMERICA
1. Soil and water conservation glossary. J Soil Water Cons, v 7, pp 41-52, 1952
The first part of four covering terms from A to F.
SOMERS, W. P.
1. Statistical analysis of stream-flow relationships. Proc West Snow Conf, pp 26-32, Apr 1954
Describes a statistical method for correlating concurrent flows on two streams as a basis for estimating missing record, etc. Effect of distance between basins on the accuracy of the correlation is illustrated. Data are in northeastern Utah. Discussion by R. D. GOODRICH.
SORENSON, KENNETH E.
1. Graphical solution of hydraulic problems. Trans Amer Soc Civ Eng, v 118, pp 61-77, 1953
A method of graphical solution for first order differential equations is presented and illustrated by application to reservoir flood routing, water-power studies, and tracing of water-surface curves in non-uniform open channel flow. The method of extending the solution to second order equations is explained.
SOWERS, GEORGE B.
1. (and SOWERS, GEORGE F.) Introductory soil mechanics and foundations. Macmillan, 284 pp, 1952
A general text on engineering soil mechanics including discussions of frost action, drainage, seepage, and the formation of soils.
SOWERS, GEORGE F. See also Sowers, G. B., 1
1. Miniature current meter fits inside of diamond drill hole to measure flow in limestone cavities. Civ Eng, v 23, p 176, 1953
Describes current meter designed to fit in three-inch drill hole.
SPAFFORD, H. A. See Guyton, W. F., 1
SPANGLER, M. G. See also Rollins, R. L., 1
1. Soil engineering. Int Textbook Co, Scranton, Pa, 458 pp, 1951
A textbook of engineering soil mechanics but includes discussion of soil moisture, soil structure, movement of moisture in soils, and frost action.
SPICER, H. C.
1. Electrical resistivity studies of subsurface conditions near Antigo, Wisconsin. U S Geol Surv Circ 181, 19 pp, 1952
Describes an electrical resistivity study made in the glaciated area near Antigo, to locate sand and gravel deposits in the glacial drift that might be aquifers. The results are presented both as cross sections and as contour maps. The apparent resistivity curves, their interpretation in terms of the thickness and character of the geological materials, and well logs of the area are given.
SPILHAUS, ATHELSTAN F. See Middleton, W. E. K., 1
SPINKS, J. W. T. See Lane, D. A., 1
SPRATT, R. E. See Jesperson, A., 1
SPREEN, WILLIAM C.
1. (and MANOS, NICHOLAS E.) Probabilities from limited weather data. Trans Amer Geophys Union, v 33, pp 21-26, 1952
The probability accompanying a risk when weather elements are the critical factors, can often be estimated from climatological data. If the available data are limited, problem is complicated. Several such problems and a solution to each are presented as illustrations of this phase of applied climatology and of the use of statistical analysis in meteorological problems.
SPURLOCK, JAMES W. See Dotson, B. J., 1
STACKHOUSE, JOHN M.
1. Evaluation of the accuracy of fiberglas-gypsum blocks for measuring soil-moisture changes. Agron J, v 46, pp 405-407, 1954
Moisture measurements from blocks are compared with those from weighing lysimeters at Coshocton, Ohio.
STAFFORD, HARLOWE M.
1. (and TROXELL, H. C.) Coastal basins near Los Angeles. Physical and Economic Basis of Natural Resources, v 4, pp 21-50, 1953
Presents a general picture of the geography and topography of the area and reviews the basic elements of the water cycle as they occur in the area. Includes maps of precipitation and runoff, data on long-term variations in precipitation, and discussion of ground water in the area. Ground-water overdrafts and sea-water intrusion are discussed. Possible measures for improving the water situation are outlined.

STALEY, RAYMOND C.

1. Performance characteristics of Sanborn rod thermistors. Bul Amer Met Soc, v 33, pp 67-72, 1952
   A thermistor is studied for accuracy, lag, and shielding from direct solar and long-wave radiation.

STALL, J. B. See also Hudson, H. E., Jr., 2

1. (and GOTTSCHALK, L. C., KLINGEBIEL, A. A., SAUER, E. L., and MELSTED, S. W.) The silting of Ridge Lake. Ill Water Surv Div Rep Inv 7, 35 pp, 1951
   A detailed report on the rate, causes, and possible remedies for sedimentation in a small recreational reservoir in east central Illinois. Drainage area 1.5 sq mi.
2. (and KLINGEBIEL, A. A., MELSTED, S. W., and SAUER, E. L.) The silting of West Frankfort Reservoir. Ill Water Surv Rep Inv 12, 29 pp, 1951
   The amount, character, source, and possible controls for sediment accumulated in a small water supply reservoir in southern Illinois are presented. Relatively detailed data are presented on the 4 sq mi watershed.
3. (and KLINGEBIEL, A. A., MELSTED, S. W., and SAUER, E. L.) The silting of Lake Calhoun. Ill Water Surv Rep Inv 15, 26 pp, 1952
   A small recreational lake (drainage area 13 sq mi) in northern Illinois is studied. Amount and disposition of sediment, chemical and physical characteristics of the sediment, and the probable sources are investigated. Possible remedial measures are outlined.
4. (and GOTTSCHALK, L. C., and SMITH, H. M.) The silting of Lake Springfield. Ill Water Surv Rep Inv 16, 22 pp, 1952
   Reports results of sediment surveys in a reservoir of the city of Springfield, Illinois (drainage area 265 sq mi). The survey methods are described, the amount, location, and nature of the sediment, and the possible remedial measures to reduce sedimentation at its source are discussed.
5. (and HALL, G. R., MELSTED, S. W., and SAUER, E. L.) The silting of Lake Carthage. Ill Water Surv Rep Inv 18, 21 pp, 1953
   Lake Carthage is a water supply reservoir (drainage area 3 sq mi) for the city of Carthage in west central Illinois. The results of a sediment survey and of a watershed survey to determine rates and sources of sediment are reported. Remedial measures to alleviate sedimentation and improve agricultural yields are suggested.
6. (and FEHRENBACHER, J. B., BARTELLI, L. J., WALKER, G. O., SAUER, E. L., and MELSTED, S. W.) Water and land resources of the Crab Orchard Lake basin. Ill Water Surv Div Bul 42, 53 pp, 1954
   Reports a sediment survey of several small reservoirs in southern Illinois. Watershed surveys were made to determine the source of the sediment and possible steps to reduce the erosion are outlined. Report also contains data on stream flow and water quality.

STALLINGS, J. H.

1. Keeping crop residues on surface of ground stops erosion and runoff. Better Farms, v 10, pp 6, 15, 1951
   A summary of the effect of vegetal residues on runoff and erosion.
2. Soil-fertility losses by erosion. Better Crops with Plant Food, v 35, pp 21-26, 45-47, 1951
   A survey of the importance of fertility erosion.
3. Mechanics of wind erosion. U S Soil Cons Serv SCS-TP-108, Nov 1951
   A survey of literature on wind erosion.
4. Soil aggregate formation. U S Soil Cons Serv SCS-TP-110, Apr 1952
   A review and analysis of most important recent literature on soil aggregate formation.
5. Abstracts of recently published material on soil and water conservation. U S Soil Cons Serv PA-213, Oct 1952
   A bibliography with annotations covering a period of about one year.
6. Continuous plant cover--the key to soil and water conservation. J Soil Water Cons, v 8, pp 27-43, 63-68, 1953
   Explains the role of plants for protecting soil against raindrop impact and for supplying organic material to increase infiltration capacity of the soil.
7. Raindrops puddle surface soil. J Soil Water Cons, v 7, pp 70-74, 88, 1952
   The beating action of raindrops forms a surface layer of impermeable mud, puddle erosion, which is the basic cause of excessive runoff and initiates gully erosion. Vegetal cover is essential to prevent this.

STALLMAN, R. W. See Schiff, L., 4

STANLEY, J. W.

1. Retrogression of the lower Colorado River after 1935. Trans Amer Soc Civ Eng, v 116, pp 943-957, 1951
   A report of the changes in bed elevation and the amounts of bed material transported in the lower Colorado River since the closure of Hoover Dam. Discussion by T. BLENCH and E. W. LANE.

STAPLE, W. J. See also Lehane, J. J., 1
1. (and LEHANE, J. J.) The conservation of soil moisture in southern Saskatchewan. Sci Agr, v 32, pp 36-47, 1952
Seven years of measurement of water conservation is reported.
2. (and LEHANE, J. J.) Movement of moisture in unsaturated soils. Can J Sci Agr, v 34, pp 329-342, 1954
Based on laboratory tests values of capillary conductivity and coefficients of liquid and vapor movement as a function of moisture content are derived. A numerical computation method is illustrated.

STATEN, GLEN See Hubbell, D. S., 2
STAUFFER, R. S. See Van Doren, C. A., 1
STEEL, ERNEST W.
1. Water supply and sewerage. McGraw-Hill, 3 ed, 582 pp, 1953
Includes sections on surface and ground-water hydrology as related to water-supply and storm-drain design.
2. (and EWING, BEN B.) Controlling water milfoil in a Texas reservoir. Pub Works, v 85, pp 89-90, 1954
Results of tests of chemical weed killers at Lake Austin, Texas.
3. (and BERG, E. J. M.) Effect of sewage irrigation upon soils. Sewage Ind Wastes, v 26, pp 1325-1339, 1954
The chemical and physical effects of sewage on selected Texas soils are determined in laboratory tests.

STEELE, FORREST See Devereaux, R. E., 1; Edminster, T. W., 1
STEINBERG, I. H. See Ezra, A. A., 1
STEINBRENNER, E. C. See also Wilde, S. A., 2
1. An improved method for determining the water permeability of forest soils. Proc Soil Sci Soc Amer, v 15, pp 379-381, 1950
Describes a method aimed at minimizing the soil distrubance during sampling.

STEINBRUEGGE, G. W.
1. (and HEIPLE, L. R., ROGERS, N., and SNIEGOCKI, R. T.) Ground-water recharge by means of wells. Ark Agr Exp Sta, 119 pp, Sep 1954
Summarizes selected abstracts of literature and reviews some field investigations in Texas and California.

STELZRIEDE, M. E. See Johnson, J. W., 4
STEPHAN, SAMUEL C., JR. See Daily, J. W., 1
STERN, SIDNEY C.
1. (and SCHWARTZMANN, FREDERICK) An infrared detector for measurement of the back radiation from the sky. J Met, v 11, pp 121-129, 1954
Describes the radiometer and its calibration and presents some data gathered with it.

STEVENS, G. C.
1. (and HARDISON, C. H.) Monthly and annual discharge of Missouri River between Fort Benton, Montana, and Hermann, Missouri, and principal tributaries. U S Geol Surv Circ 108, 37 pp, Mar 1951
The flow of the Missouri River for the 53-year period ending with 1949 is tabulated for Fort Benton, Montana; Williston, North Dakota; Sioux City, Iowa; Kansas City, Missouri; and Hermann, Missouri. The flow near the mouth of the Yellowstone River for the same period is also given. The report contains a compilation of all discharge records published by the Geological Survey for stations on the Missouri River between Fort Benton, Montana, and Hermann, Missouri, and for the station farthest downstream on 18 principal tributaries.

STEVENS, J. C. See also Jansen, R. B., 1
1. The Columbia River basin. West Const, v 28, pp 60-63, May 1953
A general review of the hydrology and geography of the basin and its potential for power, irrigation, navigation, and flood control.

STEWART, J. E. See Eisenlohr, W. S., 1
STEWART, M. N. See Geiger, R., 1
STIDD, E. K.
1. (and LEOPOLD, LUNA B.) The geographic distribution of average monthly rainfall, Hawaii. Met Mono, v 1, pp 24-33, June 1951
Presents maps of mean January and July rainfall and relates the monthly values to the annual rainfall, elevation, and other factors. The variations in the pattern of monthly precipitation are discussed and relations explaining these variations suggested.
2. Cube-root-normal precipitation distributions. Trans Amer Geophys Union, v 34, pp 31-35, 1953

The cube roots of precipitation amounts are distributed normally. This characteristic is applicable from arctic to tropic regions, from dry to wet regions, and for different precipitation periods. Discusses the ways of using this characteristic and its limitations.

3. Objective estimates of Hawaiian rainfall. Pac Sci, v 8, pp 264-275, 1954
Explores the relation between mean pressure patterns and distribution of monthly rainfall in Hawaii.

STIFF, HENRY A., JR.

1. The interpretation of chemical water analysis by means of patterns. J Pet Tech, sec 1, pp 15-17, Oct 1951
A graphical plotting technique is proposed that permits a water analysis to be plotted in such a way as to create a distinctive pattern.
2. (and DAVIS, LAURENCE E.) A method for predicting the tendency of oil-field water to deposit calcium sulfate. Trans Amer Inst Min Metal Eng, v 195, pp 25-28, 1952
Discusses causes of precipitation of calcium sulfate and presents graphic method of estimating probable precipitation in wells.

STIPP, JOHN R.

1. Backwater profiles solved by Escoffier-Raythine-Chatelain method. Civ Eng, v 23, pp 551-552, 1953
Gives mathematical means of computing water-surface profiles where discharge and starting elevation are indeterminate.

STOCKTON, JOHN R.

1. Evaluating water-supply requirements for a region. J Amer Water Works Assn, v 45, pp 459-464, 1953
Description of methods used.

STOCKWELL, HOMER J. See also Houston, C. E., 2, 3; Koelzer, V. A., 2

1. One year's experience with electrical soil-moisture units. U S Soil Cons Serv, Ft. Collins, Colo, 16 pp, Jan 1954
Results of soil-moisture measurements of snow cover are discussed. This parameter is important in predicting runoff from snow. Techniques for converting it into an index which may be used in a runoff equation are discussed.
2. (and HOUSTON, CLYDE E.) Runoff forecasts, 1954, water supply in the West. West Const, 4 pp, May 1954
A summary by states, of prospective stream flow for the 1954 season in the West.

STOEZ, A. D.

1. Water conservation and grassland. Sci Mon, v 73, pp 347-349, 1951
A brief review of influence of grasses on water conservation and erosion.

STOLZY, LEWIS H. See Rowland, E. F., 1

STOMMEL, H.

1. Computation of pollution in a vertically mixed estuary. Sewage Ind Waste, v 25, pp 1065-1071, 1953
Discussion and presentation of formulas for the computation of pollution in a vertically mixed estuary. Numerical example of pollution computation.

STONE, RALPH See also Rawn, A. M., 1

1. Infiltration galleries. Proc Amer Soc Civ Eng sep 472, 12 pp, 1954
Discusses the factors involved in the construction and operation of infiltration galleries and describes 32 existing systems, nine of which are outside North America.

STONE, RALPH

1. (and TEEPLE, PERRY M.) Semi-automatic water, sewage, and industrial-waste sampler. Sewage Ind Waste, v 23, pp 796-800, 1951
Describes a sampler designed to give uniform samples of the chemicals and bacteria in water, with the addition of various features designed to provide samples from any depth.
2. (and GARBER, WILLIAM F.) Sewage reclamation by spreading basin infiltration. Trans Amer Soc Civ Eng, v 117, pp 1189-1217, 1952
Results of field experiments to evaluate the effect of climate, soil, spread fluid and other items on the rates of infiltration, and the quality of the percolated product. Discussion by R. B. KRONE, J. F. THOMAS, H. F. LUDWIG, A. M. RAWN, and F. R. BOWERMAN.

STONE, RALPH W.

1. Caves of Pennsylvania. Amer Caver, Nat Spec Soc Bul 15, Dec 1953
Contains an extensive index to caves in Pennsylvania.

STONE, RAYMOND V.

1. (and GOTAAS, HAROLD B., and BACON, VINTON W.) Economic and technical status of water reclamation from sewage and industrial wastes. J Amer Water Works Assn, v 44, pp 503-517, 1952
A discussion, with tables, graphs, and charts.

STONER, DAVID S. See Boke, R. L., 1
STOREY, H. C. See Rowe, P. B., 3
STORIE, R. EARL See also Wieslander, A. E., 1
1. (and WIESLANDER, A. E.) Dominant soils of the redwood - Douglas fir region of California. Proc Soil Sci Soc Amer, v 16, pp 163-177, 1952
The soils and their significant physical properties are described.

STOUT, GLENN E. See also Buswell, A. M., 2; Hudson, H. E., Jr., 5, 7; Huff, F. A., 1, 2
1. (and NEILL, J. C.) The utility of radar in measuring areal rainfall. Bul Amer Met Soc, v 34, pp 21-27, 1953
Isohyetal maps for a 50 sq mi area drawn on the basis of a network of 33 precipitation gages and on radar observations are compared.
2. (and NEILL, J. C., and FARNSWORTH, G. W.) Rainfall-radar studies of 1951. Ill Water Surv Div Rep Inv 19, 410 pp, 1953
Techniques of measuring rainfall with radar are discussed and observed data compared with raingage observations.

STOUT, IVAN M.
1. The analysis of hydrologic data by the electronic punch-card system. Paper presented Hydraulics Div meeting, Amer Soc Civ Eng, Austin, Tex, 5 pp, Sep 1954 (processed)
Describes method used by Texas Board of Water Engineers for analyzing stream-flow data.

STRAHLER, ARTHUR N.
1. Hypsometric (area-altitude) analysis of erosional topography. Bul Geol Soc Amer, v 63, pp 1117-1142, 1952
Area-elevation curves of a number of basins are studied and classified as to type and expressed mathematically. Slope, channel gradient, drainage density, and other parameters are related to the hypsometric curve.
2. Statistical analysis in geomorphic research. J Geol, v 62, pp 1-25, 1954
A discussion of statistical methods. Examples consider land slope and stream length.

STRAMEL, G. J. See also Ferris, J. G., 1; Wisler, C. O., 1
1. (and WISLER, C. O., and LAIRD, L. B.) Water resources of the Grand Rapids area, Michigan. U S Geol Surv Circ 323, 40 pp, 1954
The report contains information on the quantity and quality of water in 12 townships of Kent County, Michigan. The water-bearing properties of the important geologic formations are described. Maps show the topography of the bedrock surface. The principle of induced infiltration is discussed. The fluctuations in ground-water levels are described and illustrated by a graph of water levels in a typical well. Flow-duration curves are given for the Grand and Thornapple Rivers and a graph shows the storage required to maintain various flows of the Grand River. Tables and graphs show the chemical quality and temperature of water from ground and surface sources including Lake Michigan.

STRAND, J. R. See Mundorff, M. J., 1
STRAUB, C. P. See Thomas, H. A., Jr., 2
STRAUB, LORENZ G.
1. (and LAMB, OWEN P.) Experimental studies of air entrainment in open-channel flow. Minn Univ Tech Paper 4-A, 13 pp, 1953 (also Proc Minn Int Hyd Conf, pp 425-437)
Describes results of observation of self-aerated flow in smooth channels with slopes up to 45 pct. Observed velocities are greater than can be computed by available methods.
2. (and ANDERSON, ALVIN G., and BOWERS, CHARLES E.) Importance of inlet design on culvert capacity. Minn Univ Tech Paper 13-B, rev ed, 27 pp, 1953
Reports results of tests on a model culvert on steep slope with square edged and rounded inlets. Analysis is extended to long culverts on mild slope and short culverts.
3. Dredge fill closure of Missouri River at Fort Randall, Minn Univ Tech Paper 3-A, 15 pp, 1953 (also Proc Minn Int Hyd Conf, pp 61-75)
Describes a unique application of the hydraulic-fill method based on bed sediment transportation principles. A concept of 'friction control' of flow is introduced.
4. Portable demonstration channel used for hydraulics motion pictures. Civ Eng, v 23, pp 466-467, 1953
Describes portable demonstration channel for photographing hydraulic jumps, orifices, dams, culverts, etc.
5. Terminal report on transportation characteristics, Missouri River sediment. U S Corps Eng Mo R Div Sed ser 4, Apr 1954
The relation between rate of transportation and tractive force and effect of temperature on suspended load are explored in the laboratory.
6. (and KILLEN, JOHN M., and LAMB, OWEN P.) Velocity measurement of air-water mixtures. Trans Amer Soc Civ Eng, v 119, pp 207-220, 1954 (also Minn Univ Tech Paper 10-B, 1952)

Describes a metering device which is in effect a self-contained salt-velocity unit in which the travel of a small salt cloudlet over a very short distance is measured electronically. This makes possible velocity traverses in highly aerated flow.

STRAUB, MICHAEL W.

1. The saga of Central Valley. Recl Era, v 37, pp 167-174, 1951
   General summary on reclamation in the Central Valley.
2. Use of water for irrigation. Physical and Economic Basis of Natural Resources, v 2, pp 61-66, U S House Rep, 1952
   A description of the importance of irrigation, the present extent of irrigation development, and the potential development as projected by the U. S. Bureau of Reclamation.
3. Surface reservoirs. Physical and Economic Basis of Natural Resources, v 2, pp 75-82, U S House Rep, 1952
   Outlines the purpose of storage reservoirs, presents data on available storage in the 17 western states, discusses cost of reservoir storage, transmission of water in canals, and reservoir-sedimentation problems.

STRAUSS, FRED A. See also Dean, W. W., 1; Work, R. A., 8

1. Forecasting water supply through snow surveys. J Amer Water Works Assn, v 46, pp 853-863, 1954
   Describes history of water-supply forecasting in California and some of the various methods utilized.

STRICKLER, ROBERT F. See Elliot, R. D., 2

STRINGFIELD, V. T.

1. (and COOPER, H. H., JR.) Economic aspects of ground water in Florida. Min Eng, v 3, pp 525-533, 1951
   A description of the occurrence and quality of ground water including salt-water enroachment. Extensive bibliography.
2. Geologic and hydrologic factors affecting perennial yield of aquifers. J Amer Water Works Assn, v 43, pp 803-816, 1951
3. (and COOPER, H. H., JR.) Geologic and hydrologic features of an artesian submarine spring east of Florida. Fla Geol Surv Rep Inv 7, pt 2, 11 pp, 1951
   Relatively fresh-water submarine springs off the coast of Florida are fairly common.

STUART, W. T. See also Brown, E. A., 1

1. Progress report on ground-water conditions at the Cayia mine near Crystal Falls, Michigan. Mich Geol Surv, 27 pp, July 1953
   The proposed opening of the Cayia mine offered an excellent opportunity for the application of quantitative ground-water methods to observe rates of drainage and flow of water from mine workings.
2. (and BROWN, E. A., and RHODEHAMEL, E. C.) Ground-water investigations of the Marquette iron-mining district. Mich Geol Surv Tech Rep 3, 92 pp, 1954
   A discussion of the source, occurrence, and distribution of ground water in the Marquette iron-bearing region. Special emphasis is placed on the movement of surface and ground waters toward mined areas to develop economical methods of water control.

STUBBS, GEOFFREY C.

1. (and LANGLOIS, ARTHUR C.) Water supply of Nassau, Bahamas. J Amer Water Works Assn, v 46, pp 220-230, 1954
   Describes the geology and ground-water supply of the area and the methods of utilization.

STUBBS, MORRIS F.

1. (and WEBER, ROBERT H.) New Mexico. Ind Eng Chem, v 45, pp 2443-2449, 1953
   A summary of chemical raw materials with brief summary of water resources.

SUBITZKY, SEYMOUR See Cederstrom, D. J., 2

SUMMERSETT, JOHN See also Krick, I. P., 3

1. Reproduction of snow-melt floods in the Boise River. Proc West Snow Conf, pp 36-43, Apr 1953
   Presents methods used on the Boise River for estimating the hydrograph of snow-melt floods. Per cent of area covered by snow and a heat-supply variable are the principle factors.

SUNDSTROM, R. W.

1. (and HOOD, J. W.) Results of artificial recharge of the ground-water reservoir at El Paso, Texas. Tex Bd Water Eng Bul 206, 19 pp, July 1952

SUOMI, V. E. See also Verber, J. L., 2, 3

1. (and FRANSSILA, MATTI, and ISLITZER, NORMAN F.) An improved net-radiation instrument. J Met, v 11, pp 276-282, 1954
   A flat-plate radiometer with improved ventilating device is described, test results are presented, and the accuracy of the device is analyzed.

SUTER, MAX See Baumann, P., 1

SUTTON, JOHN G.

1. The W-ditch. Soil Cons, v 17, pp 6-7, 1951
   The advantages of the ditch are given. The ditch is used for drainage and in cross section resembles the letter W, with a ditch in each vee. The spoil is thrown to the center, leaving the entrance of surface water unrestricted from each side.
2. Managing drainage systems. U S Dept Agr Farmer's Bul 2047, Oct 1952
   Describes methods of maintaining drains in proper condition.

SUTTON, O. G.

1. Micrometeorology. McGraw-Hill, 333 pp, 1953
   A detailed text on the micro-variations of the atmosphere near the ground. Chapter headings include: The atmosphere at rest; Laminar flow; Turbulent flow; Heat transfer and diffusion; Radiation; The temperature field; Wind structure near the surface; Diffusion and evaporation. In general a highly mathematical treatment.

SWAIN, FRANCIS E.

1. Determination of flows of interconnected estuarine channels, produced by the combined effects of tidal fluctuations and gravity flows. U S Bur Recl Tech Mem 640, 41 pp, 1951
   Discusses the analysis of flows in the Sacramento - San Joaquin River delta, California.
2. Determination of flows in interconnected estuarine channels. Trans Amer Geophys Union, v 32, p 653, 1951
   A method of determining flows due to tidal fluctuations and gravity. Gives as an example, the results of a study of the San Joaquin - Sacramento River delta.

SWANSON, A. F.

1. The relationship of rainfall and other climatic factors to crop production in the central Great Plains. Agron J, v 43, pp 397-400, 1951
   Weather at Hays, Kansas, is expressed in terms of five-day normals and these are interpreted in relation to agriculture.

SWANSON, C. L. W.

1. Soil management, soil sense, and soil conservation. J Soil Water Cons, v 6, pp 183-184, 1951
   A rebuttal of some of the 'scare' propaganda on soil erosion.
2. Some physical facts about Connecticut soils. Conn Agr Exp Sta Spec Bul Soils 10, Feb 1952
   A description of the physical properties of Connecticut soils.

SWARNER, L. R. See March, A. W., 1

SWARTZENDRUBER, DALE

1. A comparison of methods for evaluating soil structure. Iowa State Coll, MS thesis, 1952
   Measurements of capillary absorption, saturated-water conductivity, water-stable aggregation, air conductivity of dry soil and air conductivity of moist soil were performed on soils in different structural states. Each of the five measurements was characterized in a single structure parameter. Mathematical expressions were derived for horizontal and vertical capillary movement of water.
2. Capillary fringe and water flow in soil. Iowa State Coll, PhD thesis, 1954
   For a horizontal falling water table, the capillary fringe was analyzed theoretically on the basis of a falling meniscus in a capillary tube. The fringe was further investigated with laboratory flow model. A mathematical solution was derived for istropic flow.
3. (and DE BOODT, M. F., and KIRKHAM, DON) Capillary intake rate of water and soil structure. Soil Sci Soc Amer Proc, v 18, pp 1-7, 1954
   Rate of capillary absorption of water in soils was measured and compared with some other physical measurements as a possible index of structure. An idealized capillary tube model of the soil is presented as an aid in interpreting results.

SWEETON, ARTHUR W., III

1. Weir plates helpful in sewer gaging. Civ Eng, v 23, p 64, 1953
   A description of a simple procedure for leakage measurement in sewer lines. A modified Sutro weir was used to measure very low leakage rates.

SWENSEN, HAROLD A.

1. Forestry and applied ecology. Sci Mon, v 73, pp 345-347, 1951
   A brief review of the relation between forests and water yield and erosion.

SWENSON, F. A. See also Lorenz, H. W., 1; Torrey, A. E., 1

1. (and BACH, W. K., and SWENSON, H. A.) Ground-water resources of the Paintrock irrigation project, Wyoming. U S Geol Surv Circ 96, 45 pp, May 1951

SWENSON, HERBERT A. See also Lohr, E. W., 2, 3; Lorenz, H. W., 1; Swenson, F. A., 1; Torrey, A. E., 1

1. Geochemical relationships of water in the Powder River basin, Wyoming and Montana. Trans Amer Geophys Union, v 34, pp 443-448, 1953

An investigation of fluvial sediments and chemical quality of the water in the basin. Geologic factors largely determine the composition and the amounts of dissolved solids that are transported by the Powder River and its tributaries. This paper presents data showing certain relationships between the chemical character of the water and the geology of the region.

SWE-TZE, PENG See Lambe, T. W., 1

SWINBANK, W. C.

1. The measurement of vertical transfer of heat and water vapor by eddies in the lower atmosphere. J Met, v 8, pp 135-145, 1951
   Describes an apparatus which produces a continuous record over a five-minute period of temperature, vapor pressure, wind speed, and vertical component of air movement at a point. The method of analysis to compute the vertical flux is described.

SWINGLE, DONALD M.

1. The effect of attenuation on the range performance of radar set AN/CPS-9. Ill Water Surv Bul 41, pp 277-282, 1952
   A discussion of the factors dictating the choice of frequency for radar-rainfall sets and of the probability of attenuation by heavy rainfall resulting in marked decrease of range.

SYMONS, GEORGE E.

1. History of water supply. Water Works Sewerage, v 100, pp 95-97, 191-194, 1953
   A brief chronological outline of water supply from biblical times to 1950.
2. The hydrologic cycle. Water Works Sewerage, v 100, pp 260-262, 1953
   A brief description.
3. Source of supply. Water Works Sewerage, v 100, pp 357-360, 437-439, 1953
   A general discussion of occurrence of surface and ground water.
4. Source of supply: location and construction of wells. Water Works Sewerage, v 101, pp 23-27, 1954
   A brief outline of methods of ground-water prospecting and well construction.
5. Source of supply: pt 5, well capacity and development. Water Works Sewerage, v 101, pp 69-71, 1954
   A general, elementary review of the principles of well hydraulics and well development.

TABER, STEPHEN

1. Freezing and thawing of soils. Mil Eng, v 45, p 198, 1953
   A brief discussion of mechanics of soil freezing.

TAIT, D. B.

1. (and BAKER, R. C., and BILLINGSLEY, G. A.) The ground-water resources of Columbia County, Arkansas, a reconnaissance. U S Geol Surv Circ 241, 25 pp, 1953
   Presents information about the occurrence, quantity, and quality of ground water and the record of water wells in Columbia County. The decline in water level suggests that the optimum rate of pumping in the vicinity of Magnolia is about 3 mgd. Sediments of Quaternary age in the western part of the county might be developed as a source of fairly hard, moderately mineralized water. The Sparta sand yields soft sodium bicarbonate water.

TANNER, C. B. See also Hanks, R. J., 1, 2

1. (and HANKS, R. J.) Moisture hysteresis in gypsum moisture blocks. Proc Soil Sci Soc Amer, v 16, pp 48-51, 1952
   Pressure-membrane apparatus was modified to measure the moisture content of gypsum blocks during both wetting and drying phases. Substantial differences in resistance were found to occur for a given tension in different phases.

TARBLE, RICHARD D. See Kehrlein, O., 1; Wilson, W. T., 2

TASKIN, GEORGE A.

1. The falling level of the Caspian Sea in relation to Soviet economy. Geog Rev, v 44, pp 508-527, 1954
   Describes the physical changes in the Caspian from delta growth and falling levels. Discusses possible causes for the changes and economic effects.

TATOR, BENJAMIN A.

1. Piedmont interstream surfaces of the Colorado Springs region, Colorado. Geol Soc Amer Bul, v 63, pp 255-274, 1952
   A discussion of the mechanics of the valley widening processes occurring in the area. Discussion by J. H. MACKIN, v 64, pp 705-710, 1953.
2. Drainage anomalies in coastal plain regions. Photo Eng, v 20, pp 412-417, 1954
   Discussion of relation between drainage pattern and geology illustrated by examples from the eastern portion of the Gulf of Mexico coastal plain.

TAYLOR, ARNOLD B.
1. (and SCHWARZ, HARRY E.) Unit-hydrograph lag and peak flow related to basin characteristics. Trans Amer Geophys Union, v 33, pp 235-246, 1952
Unit-hydrograph lag and peak flow related empirically to basin characteristics, and to the duration of rainfall excess. The study indicates that the most significant basin characteristics were drainage area, length of the longest water course, length to the center of the area, and the equivalent main-stream slope.

TAYLOR, G. C., JR. See Sayre, A. N., 1

TAYLOR, R. E. See Reinhart, K., 1

TAYLOR, STERLING A. See also Ashcroft, G., 1
1. Plant growth related to forces that hold water in the soil. Utah Agr Exp Sta Farm and Home Sci, v 12, pp 10-11, 17, Mar 1951
Describes tests on moisture holding and moisture transmission capacity of soils.
2. Estimating the irrigated soil-moisture tension in the root zone of growing crops. Soil Sci, v 73, pp 331-339, 1952
Presents a theory for integrating the soil-moisture tension in the root zone.
3. (and CAVAZZA, LUIGI) The movement of soil moisture in response to temperature gradients. Proc Soil Sci Soc Amer, v 18, pp 351-358, 1954
A report of laboratory tests on soil columns with air gaps to prevent fluid flow are reported.

TEEPLE, PERRY M. See Stone, R., 1

TELKES, MARIA
1. Fresh water from sea water by solar distillation. Ind Eng Chem, v 45, pp 1108-1114, 1953
A historical review of the topic and a summary of more promising recent developments.

TEMPLE, KENNETH L.
1. A modified design of the Lees soil percolation apparatus. Soil Sci, v 71, pp 209-210, 1951
Describes the modified apparatus.

TEMPLE, L. G.
1. Map changes caused by glaciers. Can Geog J, v 46, pp 111-113, 1953
Describes some recent changes such as lake drainage from glacier recession on the Pacific Coast of Canada.

TEMPLETON, CHARLES C.
1. A study of displacements in microscopic capillaries. J Pet Tech, v 6, pp 37-43, 1954
A laboratory evaluation of Poisseule's law in capillaries as small as four microns.

TEMPLETON, G. W. See Clyde, G. D., 3

TERBUSH, L. S.
1. The small-dam program in flood control. Agr Eng, v 33, p 716, 1952
A brief summary of the status of U. S. Department of Agriculture flood-control planning for the Washita River watershed (Oklahoma and Texas) including estimated economic evaluation.

TERRY, C. W.
1. (and WILSON, H. M.) The Cornell soil penetrometer. Agr Eng, v 33, p 425, 1952
Describes a cone penetrometer which gives a chart record of depth versus force to penetrate.

TERWILLIGER, F. WELLS
1. The glacial geology and ground-water resources of Van Buren County, Michigan. Occasional papers on the geology of Michigan for 1954: Mich Geol Surv Pub 48, pt 1, pp 1-96, 1954
A thorough discussion of the glacial geology of the county and of the ground-water resources and problems in what may be classed as a rural area.

THAIN, R. S. See Langille, R. C., 1

THAMES, JOHN L. See Palpant, E. H., 1

THICKSTUN, WILLIAM R. See Foskett, L. W., 1

THIEL, ERIC
1. The power industry in the Soviet Union. Econ Geog, v 27, pp 107-122, 1951
The article relates the rapid strides in hydro-electric and electric developments of Soviet Russia.

THIEL, GEORGE A. See Schwartz, G. M., 1

THOM, E. M.
1. (and HOOKER, MARJORIE, and DUNAVEN, R. R.) Bibliography of North American geology, 1949. U S Geol Surv Bul 977, 273 pp, 1951
A bibliography of papers and books on geology of North America, adjacent islands, Panama, Hawaiian Islands, and Guam.

THOM, H. C. S.
1. Seasonal degree-day statistics for the United States. Mon Wea Rev, v 80, pp 143-147, 1952
Charts of mean and standard deviation of degree-days below 65° F are presented with discussion.

THOMAN, JOHN R.
1. Statistical summary of water supply and treatment practices in the United States. U S Publ Health Serv Pub 301, 1953
A summary, based on a 1948 survey, of sources of supply, types of treatment, and size of plant for about 17,000 public water supplies.

THOMAS, A. R. See Lindner, C. P., 1

THOMAS, CHARLES F.
1. Flushing removes heavy mineral salts. West Const, v 26, pp 76-77, 1951
Describes removal of accumulated salt deposits from old lake bed by water flushing.

THOMAS, G. W.
1. (and YOUNG, VERNON A.) Relation of soils, rainfall, and grazing management to vegetation--western Edwards Plateau of Texas. Tex Agr Exp Sta Bul 786, 24 pp, Nov 1954

THOMAS, HAROLD A., JR.
1. (and KLEINSCHMIDT, R. STEVENS, and PARKER, FRANK L.) An integrating water sampler. Sewage Ind Waste, v 23, pp 1439-1441, 1951
A reliable, rugged, and inexpensive device for collecting integrated water or sewage samples.
2. (and ARCHIBALD, RALPH S.) Longitudinal mixing measured by radio-active tracers. Trans Amer Soc Civ Eng, v 117, pp 839-856, 1952
Describes the use of radio iodine to determine the time of flow through tanks such as are used for sewage or water treatment. Results are compared with tracers such as salt or dye. Discussion by C. P. STRAUB, D. A. PECSOK, and A. C. INGERSOLL.

THOMAS. HAROLD E. See also Nelson, W. B., 1
1. (and NELSON, W. B., LOFGREN, B. E., and BUTLER, R. G.) Status of development of selected ground-water basins in Utah. Utah State Eng Tech Pub 7, 96 pp, 1952
2. Ground-water regions in the United States - their storage facilities. The Physical and Economic Foundation of Natural Resources, v 3, 78 pp, U S House Rep, 1952
3. Reconnaissance studies of the Green River. Sci Mon, v 77, pp 95-102, 1953
A review of some of the reconnaissance surveys and boat trips and of the information obtained.
4. The first fourteen years of Lake Mead. U S Geol Surv Circ 346, 27 pp, 1954
This report summarizes the principal findings of the investigations made in 1948-49 that included the geologic setting of the lake, geodetic, and hydrographic surveys, computations of reservoir capacity, limnology, and sedimentology, and a study of the future life of the reservoir.

THOMAS, J. F. J.
1. Water - an industrial raw material. Can Min Metal Bul, v 55, pp 272-279, 1952
A discussion of water use and quality in Canada. Describes punched-card system used by Canadian Bureau of Mines for recording water analyses.

THOMAS, JEROME F. See Greenberg, A. E., 1; Krone, R. B., 1; Stone, R., 2

THOMAS, M. K.
1. Climatological atlas of Canada. Can Nat Res Coun, 1953
Charts show mean monthly temperature versus precipitation and prevailing wind for available stations.

THOMAS, R. K. See Doddiah, D., 1

THOMASSON, H. G., JR. See Upson, J. E., 1, 2

THOMPSON, R. A. See Poloukas, V. G., 1

THOMPSON, STANLEY F.
1. Construction in permafrost. West Const, v 28, pp 63-65, Oct 1953
Describes permafrost conditions encountered in Alaska and some construction problems and their solutions.

THOMSON, L. B.
1. Soil and water conservation in western Canada. J Soil Water Cons, v 9, pp 15-19, 1954
A review of Canadian activities.

THOMSON, M. T.
1. Water problems of the Southeast. Ga Geol Surv Bul 60, pp 141-149, 1953
A general discussion of floods and droughts in Georgia.
2. Historical comments on floods and droughts in the southeastern United States. Ga Geol Surv Bul 60, pp 167-172, 1953
Presents historical evidence to suggest little change in hydrologic regime since settlement.

THORNTHWAITE, C. W.
1. The water balance in tropical climates. Bul Amer Met Soc, v 32, pp 166-173, 1951
Earlier research on water balance is reviewed and the computed evapotranspiration is compared with precipitation for several tropical stations. Maps of water balance are presented for the Belgian Congo and Puerto Rico.

2. Evapotranspiration in the hydrologic cycle. Physical and Economic Foundation for Natural Resources, v 2, pp 25-35, U S House Rep, 1952
Discusses evapotranspiration and its relation to precipitation and drought. Presents annual evapotranspiration map of the U. S. and a climatic classification map for the U. S.

THORP, ELDON M.
1. (and BROWN, CARL B.) Sedimentation in San Carlos Reservoir, Gila River, Arizona. U S Soil Cons Serv SCS-TP-91, 26 pp, Feb 1951
Reports results of sediment surveys in San Carlos Reservoir (Coolidge Dam) and estimates probable future life of the reservoir.

THRASHER, L. W. See Huffman, G. G., 1

THRELKELD, J. L. See Jordan, R. C., 1

THUMAN, WILLIAM C.
1. (and ROBINSON, ELMER) A technique for the determination of water in air at temperatures below freezing. J Met, v 11, pp 214-219, 1954
A method of measuring humidity at temperatures as low as -55° C is described. Air is drawn through a container of absolute methanol which is then titrated with Karl Fischer reagent to determine the water content.

TIGERMAN, M. H. See Rosa, J. M., 1

TILESTON, F. M. See March, A. W., 1

TIPPIT, O. J. See Smith, R. M., 2

TOBISKA, J. W. See Code, W., 1

TOCKI, A. See Lane, E. W., 5; Laursen, E. M., 2, 4

TODD, DAVID K. See also Baumann, P., 1; Hansen, V. E., 2
1. Summertime rainfall at New York, New York. Trans Amer Geophys Union, v 32, p 701, 1951
Points out the similarity of the monthly diurnal frequency curves which would indicate similar conditions from month to month.
2. An abstract of literature pertaining to sea-water intrusion and its control. San Eng Res 1203, Tech Bul 10, Univ Calif, 72 pp, 1952
References are grouped into five sections: Reduction of aquifer permeability, Sea-water intrusion, Injection and recharge of aquifers, Laboratory and model studies, and Ground-water flow.
3. Investigation of unsteady flow in porous media by means of a Hele-Shaw viscous fluid model. Calif Univ, PhD thesis, 85 pp, 1953
Various unsteady flows in porous media were studied by analogy using an oil flowing in a narrow glass channel. Good agreement was obtained with independent studies. Applications to ground-water flow adjacent to a stream are described.
4. Sea-water intrusion in coastal aquifers. Trans Amer Geophys Union, v 34, pp 749-754, 1953
This paper describes the sea-water intrusion problem in California and certain fundamentals of its control.
5. Stream-flow frequency distributions in California. Trans Amer Geophys Union, v 34, pp 869-905, 1953
Review of the relative merits of the flow-duration curve and of the frequency curve for expressing stream-flow distribution. Study was based on ten selected California streams.
6. Unsteady flow in porous media by means of a Hele-Shaw viscous fluid model. Trans Amer Geophys Union, v 35, pp 905-916, 1954
A model consisting of two closely spaced glass plates with a viscous oil between is used to study the unsteady flow of water in porous media. Specific investigations of the variation in ground water adjacent to a stream during changing river stages are included. The experimental results confirm theoretical computations.

TOMLINSON, BRYON R.
1. Estimate of water requirements of crops. Wyo Agr Exp Sta Bul 303, Feb 1951
A summary of estimated crop water requirements in Wyoming.
2. Comparison of two methods of estimating consumptive use of water. Agr Eng, v 34, pp 459-460, 464, 1953
The Lowry-Johnson and Blaney-Criddle methods are compared for one year at Pinedale, Wyoming, and the latter is found to be superior.

TOOGOOD, J. A.
1. (and PETERS, T. W.) Comparison of methods of mechanical analysis of soils. Can J Agr Sci, v 33, pp 159-171, 1953
The Bouyoucos, Casagrande, and pipette methods of analysis are compared on different soils. Effect of percentage of clay and organic matter on the results are determined. Pre-treatment with hydrogen peroxide was tested. A modified procedure for analysis is suggested as result of the tests.

TOPIL, A. G. See Cook, A. W., 1

TORCHINSKY, B. B. See Lane, D. A., 1
TORREY, A. E. See also Moulder, E. A., 1
1. (and SWENSON, F. A., and SWENSON, H. A.) Ground-water resources of the lower Yellowstone River valley between Miles City and Glendive, Montana. U S Geol Surv Circ 93, 72 pp, June 1951
In favorable locations wells ranging in depth from 200 ft to 600 ft obtain flowing water from sandstone beds in the bedrock formations. In general, ground water near the land surface is relatively high in calcium and magnesium, but with increasing depth these are exchanged for sodium, the result being a natural softening. Most of the ground water is satisfactory for drinking but is unsuitable for irrigation because of a high per cent sodium or high mineral content.
TOULMIN, L. D.
1. (and LA MOREAUX, D. E., and LANPHERE, C. R.) Geology and ground-water resources of Choctaw County, Alabama. Ala Geol Surv Spec Rep 21, 197 pp, 1951
TOULOUKLAN, Y. S. See Kashef, A. I., 1
TOWNE, W. W.
1. Water-quality criteria and municipal supplies. J Amer Water Works Assn, v 46, pp 112-116, 1954
A general review of criteria.
TOWNSEND, R. C.
1. (and LA ROQUE, G. A., JR.) Crosby quadrangle, North Dakota. U S Geol Surv Geologic Map GQ 46, 1954
Usable quantities of water may be developed from lignite and sandstone beds and from glacial sand and gravel deposits. The geology and physical properties of the map units are summarized in tabular form.
2. (and LA ROQUE, G. A., JR.) Portal Quadrangle, North Dakota. U S Geol Surv Geologic Map GQ 47, 1954
Usable quantities of water may be developed from lignite and sandstones, from sand and gravel lenses, from kames and eskers, and from glacial channel deposits of sand and gravel. The geology and physical properties of the map units are summarized in tabular form.
TRACY, H. J. See also Kindsvater, C. E., 1; Oltman, R. E., 1
1. (and CARTER, R. W.) Backwater effects of open-channel constrictions. Proc Amer Soc Civ Eng sep 413, 18 pp, Feb 1954
Experimental and theoretical analysis of the effect of a channel constriction.
TRAINER, F. W.
1. Preliminary report on the geology and ground-water resources of the Matanuska Valley agricultural area, Alaska. U S Geol Surv Circ 268, 43 pp, 1953
Describes the geology and ground-water resources of a glaciated valley in south-central Alaska. The surficial geology is shown by a geologic map. Gravel is the most important water-bearing material; the till is relatively impermeable, and where it overlies gravel and sand, artesian conditions may prevail. Tabulated records describe 333 wells. Most of these wells provide individual domestic or farm supplies.
TRANSTROM, H. L.
1. A large increment borer. Tree-ringBul, pp 2-4, July 1952
Describes instrument used to extract cores for tree-ring dating.
TRASK, PARKER D.
1. Source of beach sand at Santa Barbara, California, as indicated by mineral grain studies. U S Beach Eros Bd Tech Mem 28, Oct 1952
The results of a mineral grain analysis of beach samples taken in Santa Barbara Harbor, and west and north of the harbor for a distance of some 250 mi. The change in mineral content (especially augite) with distance is interpreted as indicating the source of beach sands in this area, and the transport mechanics; among other things, the report indicates material passes certain headlands long considered as complete littoral barriers.
2. (and SCOTT, T.) Bore-hole studies of the naturally impounded fill at Santa Barbara, California. U S Beach Eros Bd Tech Mem 49, Aug 1954
A series of core samples taken from the accretion area of the Santa Barbara breakwater are collated and analyzed. The report contains tables and diagrams of the analysis of the samples, showing bore hole depth and the mechanical properties of sediment for a particular stream.
TRIBBLE, ROY T.
1. Method for measuring flow in open irrigation channels. Agr Eng, v 32, pp 31-32, 1951
Describes use of Allen salt-velocity method in open channels.
TRIBUS, MYRON See Poppendiek, H. F., 1

TRIMBLE, G. R., JR. See also Weitzman, S., 1

1. (and WEITZMAN, SIDNEY) Effect of a hardwood forest canopy on rainfall intensities. Trans Amer Geophys Union, v 35, pp 226-234, 1954
   Rainfall intensity and throughfall are investigated under a hardwood forest canopy in West Virginia. Separate relations are developed for winter and summer conditions.

TROGDON, WILLIAM O.

1. Quality of water in the Wichita River system of Texas. Tex J Sci, v 5, pp 416-423, 1953
   Presents data on chemical quality of the water and discusses sources of pollutants - natural, oil field, domestic, etc.

TROWER, W. P.

1. Great Lakes levels. Mil Eng, v 44, pp 421-425, 1952
   Describes unusually high lake levels in 1951-52 and concludes that they resulted from heavy precipitation. Presents graphs of levels in four major lakes from 1900 to 1952.

TROXELL, H. C. See also Stafford, H. M., 1

1. (and POLAND, J. F., and others) Some aspects of the water supply in the south Coastal Basin, California. U S Geol Surv Circ 105, 10 pp, Apr 1951
   Water supply and use in the coastal area of Southern California are considered on the basis of precipitation, runoff, waste to ocean, ground-water storage, and ground-water recharge. Estimates are made of the total recoverable water supply (including that used by vegetation) and of the annual water supply available from wells and streams.
2. The influence of ground-water storage on the runoff in San Bernardino and eastern San Gabriel Mountains of Southern California. Trans Amer Geophys Union, v 34, pp 552-562, 1953
   A large portion of the runoff in the basin is seepage from ground-water storage. This paper discusses in a general manner a few of the less understood influences such as the geology, physiography, and soil cover affecting the runoff in the area.
3. The influence of ground-water storage on the runoff in Southern California. Proc West Snow Conf, pp 33-40, Apr 1954
   An analysis of the flow of several creeks in the Los Angeles area show substantial portions of the annual runoff to be derived from ground-water storage. The effect of basin geology on the ground-water contribution is evident.
4. (and others) Hydrology of the San Bernardino and eastern San Gabriel Mountains, California. U S Geol Surv Atlas HA 1, 13 pp, 1954
   This atlas, the first of its kind, shows by graphic methods some of the important relationships among hydrologic factors and the effect of these factors upon the water resources of the San Bernardino and eastern San Gabriel Mountains in Southern California. The atlas analyzes, mostly by illustrations, the complicated pattern of the circulation of water in the area that is responsible for much of the moisture that reaches crops of the agriculturally rich upper Santa Ana Valley. Climatic, physiographic, and geologic features and their effects on precipitation and runoff are shown. Maps showing the topography, river systems, absorptive quality of mantle rock, areal distribution of precipitation, and areal distribution of water surplus or deficiency are included. Relationships between precipitation, stream flow, potential natural water loss, recoverable water, and recharge to ground water are illustrated by graphs.

TRUESDELL, P. E.

1. (and VARNES, D. J.) Chart correlating various grain-size definitions of sedimentary materials. U S Geol Surv, 1 sheet, 1951
   This chart consists of parallel columns showing the standard-size definitions of particles, in sedimentary materials such as gravel, sand, silt, and clay, that have been used by Federal agencies most concerned with soils and by numerous societies, institutions, and individual scientists in this country and abroad. The columns, arranged side by side, are divided according to a vertical logarithmic scale to permit easy correlation with each other and with size openings of the Tyler and U. S. Standard sieve series.

TSCHEBOTARIOFF, GREGORY P.

1. Soil mechanics, foundations, and earth structures. McGraw-Hill, 655 pp, 1951
   A general textbook on engineering soil mechanics but with material on soil classification, soil structure, soil moisture, and frost action.

TURCAN, A. N., JR. See also Jones, P. H., 3

1. Industrial use of ground water in Louisiana. Proc 1st Ann Symp on Water Res in La, La Univ Eng Exp Sta Bul 31, pp 1-16, 1952
   Discusses in general terms the availability of ground water in Louisiana and presents data on the quality of the ground water.

TURK, L. M. See Millar, C. E., 1

TURNBULL, W. J.

1. (and LIPSCOMB, E. B., SIMMONS, H. B., and KOLB, C. R.) The distribution of the sediment carried by a waterway which branches, either naturally or artificially. Proc 18th Int Nav Cong, sec 1, pp 57-85, 1953
   The results of laboratory and field investigations are reviewed.
2. (and MANSUR, C. I.) Relief well systems for dams and levees. Trans Amer Soc Civ Eng, v 119, pp 842-878, 1954
   Presents results of tests on sand models to determine something of the phenomenon of underseepage, feasibility of control by relief wells, the quantities of flow involved, and the substratum pressures with and without wells for various physical situations. Discussion by P. T. BENNETT, J. A. FOCHT, JR., and W. H. JERVIS.

TURNER, GEORGE T.

1. (and DORTIGNAC, EDWARD J.) Infiltration, erosion, and herbage production of some mountain grasslands in western Colorado. J Forestry, v 52, pp 858-860, 1954
   Summary of plot tests on six types of grassland vegetation.

TURNER, R. C. See Cordukes, R. E., 1

TURNER, S. F.

1. (and SKIBITZKE, H. E.) Use of water by phreatophytes in 2000-ft channel between Granite Reef and Gillespie Dams, Maricopa County, Arizona. Trans Amer Geophys Union, v 33, pp 66-72, 1952
   A section of proposed flood-control channel is mapped from the air and the estimated consumptive use by native vegetation is computed and possible savings by channel clearing are estimated.

TURNER, WALTER L., JR. See Devereaux, R. E., 1; Edminster, T. W., 1

TWICHELL, TRIGG

1. Surface water resources of the Trinity River tributary area in Oklahoma and Texas. Tex Univ Bur Econ Geol Pub 4824, pp 200-226, Dec 15, 1948
2. Surface water resources of Texas. Handbooks of Texas, v 2, pp 688-690, 1952
   Reviews sources and availability of surface water in texas.
3. Water ! Tex Soc Prof Eng, pp 1-67, Dec 1954
   A statement of some of the problems involved in developing the water resources of Texas with recommendations for their solution.

TWOMEY, S.

1. On the measurement of precipitation intensity by radar. J Met, v 10, pp 66-67, 1953
   An equation relating the drop-size distribution with rainfall rate is presented and compared with similar equations by other authors.

TYSON, JAMES

1. (and CRABB, GEORGE A., JR.) Comparative tillage tests at East Lansing, Michigan - A progress report. Mich State Coll Agr Exp Sta Bul, v 34, 13 pp, 1952
   Results of different tillage methods are reported for corn, oats, wheat, and hay. Among other factors considered are the effects upon infiltration and erosion of the different tillage methods.

UHL, W. F.

1. One hundred years of water power. Civ Eng, v 22, pp 147-151, 1952
   A historical account of the development in water power beginning about 1850 with a comparison of water power to thermal power.
2. Water power over a century. Trans Amer Soc Civ Eng, v CT, pp 451-460, 1953
   A history of water-power development in the United States.

UHLAND, R. E.

1. Rapid method for determining soil moisture. Proc Soil Sci Soc Amer, v 15, pp 391-393, 1950
   Assuming little change in the volume weight of the soil, moisture content in per cent is computed from the difference in weight of the wet sample and the oven-dried samples and the known volume of the cylinder. Formulas for computing moisture content of the soil in place are given.
2. (and O'NEAL, ALFRED M.) Soil permeability determinations for use in soil and water conservation. U S Soil Cons Serv SCS-TP-101, 36 pp, Jan 1951
   Describes the equipment and procedure for taking core samples and tells how to analyze the samples for permeability.

UNDERHILL, H. W.

1. Development of water resources in Algeria, with particular reference to Chiott Chergui Project. Econ Geol, v 47, pp 84-100, 1952
   An interesting article on the general development of water resources in a semi-arid region.

UNDERWOOD, N. See Van Bavel, C. H. M., 6

UNHANAND, KOMAIN

1. Analysis of unsteady flow in open channels. Colo Agr Mech Coll, Dept Civ Eng, MS thesis, 99 pp, June 1954
   A new method of numerical analysis of unsteady flow in open channel is presented. This method is applied to the flow in Panama Canal as a result of the tidal difference and results are compared with those obtained from other methods. The new method has the advantage that much of the trial and error process is eliminated.

UNITED STATES ARMY

1. Evaluation of climatic extremes. Rep 175, Environmental Protection Sec, Off Quartermaster General, 29 pp, Mar 1951
   Illustrates the use of the theory of extreme values in the analysis of frequency of temperature extremes. Sample calculations are included. Discusses determination of the confidence band.

UNITED STATES BUREAU OF RECLAMATION

1. Sedimentation survey of Sheridan County State Lake, Kansas. U S Bur Recl, Indianola, Neb, Jan 1950
   Presents the findings of a sedimentation survey made of Sheridan County State Lake Reservoir on the Saline River near Quirter, Kansas. Reservoir storage capacity was reduced 44 pct by sedimentation. Actual sediment yield is 0.0852 acre feet per square mile of drainage area. Summarizes results of the study.
2. Hydraulic model studies of Superior-Courtland Diversion Dam, headworks and serviceway structures. U S Bur Recl, Hydr Lab Rep 275, Mar 22, 1950
   Describes conditions and results of model experiments to determine the headworks design that should pass the highest percentage of the bed load of the stream through the sluiceway. Recommends the most favorable design arrangement of the divide wall and excavation embankment for the Courtland Diversion Dam.
3. Sedimentation survey of Belle Fourche Reservoir - Belle Fourche Project, South Dakota. U S Bur Recl, Mar 1950
   Presents the results of an investigation of reservoir sedimentation in the Belle Fourche Reservoir on Owl Creek near Belle Fourche, South Dakota. This reservoir stores water from Owl Creek and a large portion of the flow from the Belle Fourche River (off channel storage). Shows an eight per cent depletion of capacity in 42 years. Estimates annual sediment yield of 1.12 acre feet per square mile of Owl Creek drainage area. Includes a summary of the result of the study.
4. Curved wall at dam keeps sand out of irrigation canal. Eng News-Rec, v 147, pp 32-33, Apr 21, 1951
   Design of wall to divert sediment flow currents from passing into a canal. Description of the test models built to design this curved wall.
5. Hydraulic model studies of Fort Laramie Canal Desilting Basin - North Platte Project, Wyoming-Nebraska. U S Bur Recl Hydr Lab Rep 313, May 4, 1951
   Describes the 1:120 scale model studies of Fort Laramie Canal desilting basin, Nebraska. The study recommends addition of a guide wall to improve efficiency of the sluicing operation.
6. Report no. 2 - The 1949 snowmelt season - Progress in snowmelt investigations at the Fraser Experimental Forest, Colorado. Joint Rep, U S Bur Recl and Rocky Mt For Range Exp Sta, Fort Collins, Colo, June 1951
   This report discusses performance of shielded storage gages, interpretation of daily maximum and minimum temperatures in terms of degree days, analysis of rates of snowmelt, a theoretical calculation of evaporation from snow, and synthesis of runoff hydrographs from melting snow. A detailed discussion is given of the instrumentation used in this investigation.
7. Stable channel profiles. U S Bur Recl, Sep 27, 1951
   Presents a method for determining a stable channel shape by mathematical analyses of the drag forces. Graphically illustrates the results of the computation by the drag relation and modified Chezy relation for varying stable channel shapes.
8. Permeability tests using drill holes and wells. U S Bur Recl Geol Rep G-97, 1951
   Describes six types of field permeability tests in detail with examples of all calculations. Both pumping-in and pumping-out tests are described for saturated and unsaturated materials.
9. Sedimentation studies in open channels boundary shear and velocity distribution by the membrane analogy, analytic, and finite-difference methods. U S Bur Recl, Structural Lab Rep Sp-34, Aug 5, 1952

Presents the investigations made of the velocity and shear distributions in a channel as expressed mathematically in the form of a partial differential equation. Contains the results of shear and velocity distributions for various channel shapes by the analytic, membrane analogy, and finite-difference methods.

10. Sedimentation survey of Harry Strunk Lake (Medicine Creek Reservoir), Nebraska. U S Bur Recl, Indianola, Neb, Sep 1952
Presents the results of an investigation of reservoir sedimentation in Harry Strunk Lake near Cambridge, Nebraska. Shows two per cent depletion of storage and a sediment yield of 0.97 acre foot per square mile of drainage area. Presents a statistical summary of the results.
11. Report no. 3 - The 1950 snowmelt season - Progress in snowmelt investigations at the Fraser Experimental Forest, Colorado. Joint Report, U S Bur Recl, and Rocky Mt For Range Exp Sta, Fort Collins, Colo, Sep 1952
This is an extension of Reports 1 and 2, and includes a section on the 1950 snow disappearance study in the Fraser Experimental Forest, Colorado.
12. Total suspended-sediment load from vertical transport distribution. U S Bur Recl, Nov 1952
Derives a method for computing the total sediment load from point sampling data for several verticals representative of the centroids of equal discharge of the channel cross section. Develops the method from a mathematical analysis of the suspended load theory using measurable field data.
13. Determination of the unit weight of sediment for use in sediment volume computations. U S Bur Recl, Feb 17, 1953
Outlines a procedure for determining the unit weight of sediments for any number of years of compaction.
14. Critical tractive forces on channel side slopes. U S Bur Recl Hydr Lab Rep 366, Feb 18, 1953
Determines the theoretical magnitude of the tractive forces exerted by flowing water which will cause impending motion of the material comprising the sloping side of a channel. Treats only the simplest case of coarse, noncohesive material acted on by clear water.
15. Hydraulic laboratory practice. U S Bur Recl Eng Mono 18, 109 pp, Mar 1953
Describes the laboratory of the Bureau at Denver and some of the special instruments designed for use there or in the field. The principles of similitude are summarized and specific techniques for testing a wide variety of models are discussed.
16. A plan of channel erosion control - Fivemile Creek, Riverton Project, Wyoming. U S Bur Recl, Apr 1953
Presents the hydrology, hydraulics, sediment characteristics and geology of Fivemile Creek near Riverton, Wyoming. Contains recommendations for erosion-control works that are compatible with the channel characteristics, hydrology, geology, and sedimentation.
17. Sedimentation surveys of Pathfinder and Seminoe Reservoirs - North Platte River, Wyoming. U S Bur Recl, May 1953
Reports on the results of an investigation of sedimentation in the Pathfinder and Seminoe Reservoirs on the North Platte River in Wyoming near Casper and Rawlins, respectively. Notes the probable distribution of sediment within each reservoir and includes data on the mechanical analysis of the sediments. Summarizes the results of the study by a statistical tabulation and discussion.
18. Multiple correlation in forecasting seasonal runoff. U S Bur Recl Eng Mono 2, June 1953
Presents analysis of multiple relationships between runoff and related factors. Using records of Colorado River at Cameo, Colorado, and South Fork, Boise River above Anderson Ranch Dam, Idaho, equations are developed for forecasting flood season runoff. Relationships are discussed which are encountered in and are peculiar to such hydrologic analysis, and consideration is given to features contributing to stability and reliability of results of the analysis.
19. Results of soil and hydraulic tests on proposed canal-lining material from Borrow Area 13 for Madera Irrigation District, Madera Distribution Systems, Madera Construction Division, Central Valley Project. U S Bur Recl Gen Rep 16, Nov 23, 1953
Presents the results of model tests made on soil samples representative of Borrow Area 13 which was proposed for use as canal lining material for laterals and sublaterals. Correlates measured with theoretical vertical velocity distributions.
20. Hydraulic model studies of Republic Diversion Dam, headworks and sluiceway structures - Progress report no. 2 on general studies of headworks and sluiceway structures. U S Bur Recl Hydr Lab Rep 316, Jan 29, 1954
Describes the model studies of the proposed Republic Diversion Dam including the Republic Canal and Hardy Canal headworks and sluiceway structures. Gives results of model tests for controlling sediment by using curved guide walls and vortex tube with and without actuating vane.

21. Hydraulic model studies of Bartley Diversion Dam - Progress report no. 3 on general studies of headworks and sluiceways structures - Missouri River basin project, Nebraska. U S Bur Recl Hydr Lab Rep 384, Feb 23, 1954
Reports the hydraulic model studies made for Bartley Diversion Dam, Nebraska, to develop a sediment control arrangement for reducing the amount of coarse sediment entering Bartley Canal. Curved guide walls were recommended.
22. Milburn Diversion Dam model study, Missouri River basin project, Nebraska - Progress report no. 4, general studies of headworks and sluiceways structures. U S Bur Recl Hydr Lab Rep 385, Apr 15, 1954
Presents the results of a special study of check the final arrangements of the sluiceway and headworks in regard to sediment control. Shows the studies conducted with guide walls, a tunnel, and a combination of guide walls with the tunnel.
23. Hydraulic model studies to determine the required cover blanket to prevent fine base material from leaching due to wave action - Kennewick Main Canal, Yakima Project. U S Bur Recl Hydr Lab Rep 381, June 4, 1954
Describes the model tests in which two cover materials and a fine base material from the Kennewick Main Canal site were tested in a flume in which waves of various heights and frequency were created by a wave machine. The test indicated the method of placing coarse cover material which gives the best protection to prevent erosion and leaching of the fine base material.
24. A study of channel erosion and control - Muddy Creek, Riverton Project, Wyoming. U S Bur Recl, June 1954
Reports on recommendations for essential erosion-control works for the stabilization of Muddy Creek after analyzing the hydrology, hydraulic, and sediment characteristics of the creek.
25. Interim report - Distribution of sediment in reservoirs. U S Bur Recl, June 1954
Contains a compilation and discussion of the various methods developed by the Bureau of Reclamation for predicting the sediment distribution in reservoirs, namely: Trigonometric, Volume-reduction, Trial and error, Manual design curve, Van't Hul and modified Van't Hul, and Area increment.
26. Hydraulic and bituminous studies of Ainsworth Canal dune sand - Missouri River basin project, Nebraska. U S Bur Recl Gen Rep 18, Nov 15, 1954
Reports the hydraulic model studies made to determine the allowable tractive forces that the sand of the canal would withstand. Describes tests in which the sand and fine gravel were stabilized with asphalt emulsion.

UNITED STATES CORPS OF ENGINEERS

1. Estimating insolation from atmospheric conditions. U S Corps Eng Coop Snow Inv Res Note, Mar 30, 1951
The atmospheric depletion method is used to estimate hourly insolation figures which are compared with actual observations.
2. Time lag and soil permeability in ground-water observations. U S Waterways Experiment Sta Bul 36, 50 pp, Apr 1951
Reviews sources of error in ground-water observations, particularly lag in flow to well points and other intakes. Discusses determination of vertical and horizontal permeability.
3. Tabulation of pertinent data: Flood control and multiple purpose reservoirs. U S Corps Eng, Off Chf Eng, 8 pp, May 1951
Summarizes pertinent data on all projects of the Corps which have been constructed or are in the definite project stage. Data include location, drainage area, and maximum flood, storage allocations, dimensions of dam, spillway features, outlet works, and data on power plants.
4. Influence of terrain characteristics on snowpack water equivalent. U S Corps Eng Coop Snow Inv Res Note, Feb 9, 1951 (supplement, June 5, 1953)
A report of the evaluation of the effects of topographic parameters such as slope, aspect, elevation, curvature, exposure, and vegetative cover on the water equivalent of the snow.
5. Terrain characteristics, Central Sierra Snow Laboratory. U S Corps Eng, South Pac Div Coop Snow Inv Tech Rep 42, 42 pp, June 1951
Detailed maps, photographs, and other data present a thorough picture of the laboratory basin near Donner Summit, California.
6. Influence of terrain characteristics on snowpack water equivalent. U S Corps Eng, South Pac Div, 9 pp, 1951
7. Lysimeter studies of rain-on-snow phenomena. U S Corps Eng, South Pac Div, 11 pp, 1951
A report of artificial rain experiments on a large lysimeter in the Sierra Nevada. The time lag between the occurrence of rainfall and its arrival at the ground surface after movement through the snowpack is analyzed.

8. Report of sedimentation survey, Fort Supply Reservoir, Wolf Creek, Oklahoma, Arkansas River Basin. U S Corps Eng Tulsa Dist, 16 pp, 1951 (processed)
Reports results of studies of source, distribution and rate of sedimentation, and effect of reservoir on channel downstream from 1943-1949.
9. The Willamette Basin Snow Laboratory, Hydrometeorological Log, 1947-1948, 1948-1949, 108 pp, U S Corps Eng, South Pac Div, Aug 1951
10. The Willamette Basin Snow Laboratory, Hydrometeorological Log, 1949-1950, 1950-1951, 313 pp, U S Corps Eng, South Pac Div, Nov 1952
The Willamette Laboratory is situated in the headwaters of the Willamette River in southern Oregon. The logs present maps of the area, descriptions of instrumentation, summaries of basic data, and graphic summaries of key data.
11. Central Sierra Snow Laboratory, Hydrometeorological Log, 1946-1947, 248 pp, U S Corps Eng, South Pac Div, May 1952
12. Central Sierra Snow Laboratory, Hydrometeorological Log, 1947-1948, 220 pp, U S Corps Eng, South Pac Div, Feb 1952
13. Central Sierra Snow Laboratory, Hydrometeorological Log, 1948-1949, 268 pp, U S Corps Eng, South Pac Div, Nov 1951
14. Central Sierra Snow Laboratory, Hydrometeorological Log, 1949-1950, 206 pp, U S Corps Eng, South Pac Div, Apr 1952
15. Central Sierra Snow Laboratory, Hydrometeorological Log, 1950-1951, 211 pp, U S Corps Eng, South Pac Div, Aug 1952
16. Central Sierra Snow Laboratory, Hydrometeorological Log, 1951-1952, 214 pp, U S Corps Eng, South Pac Div, 1953
The Central Sierra Snow Laboratory is situated near Donner Summit, California. It included a well instrumented basin and an experimental setup at a headquarters station. The various logs present station maps, basin maps, tabulations of basic data, and graphic summaries of key data elements for the year.
17. Upper Columbia Snow Laboratory, Hydrometeorological Log, 1946-1947, 242 pp, U S Corps Eng, South Pac Div, May 1952
18. Upper Columbia Snow Laboratory, Hydrometeorological Log, 1947-1949, 372 pp, U S Corps Eng, South Pac Div, Jan 1952
19. Upper Columbia Snow Laboratory, Hydrometeorological Log, 1949-1950, 255 pp, U S Corps Eng, South Pac Div, Mar 1952
20. Upper Columbia Snow Laboratory, Hydrometeorological Log, 1950-1951, 118 pp, U S Corps Eng, South Pac Div, June 1952
The Upper Columbia Laboratory was located near Summit, Montana. The several logs present maps, station descriptions, tabulated basic data, and graphical summaries of key data.
21. Trial estimates of net longwave radiation from snowpacks. U S Corps Eng Coop Snow Inv Res Note, 17 pp, Feb 28, 1952
Using observations of net longwave radiation from snow, an attempt is made to reproduce the observed data by the Brunt and Elsasser methods with a view to establishing a method useful in the absence of actual data.
22. Study of variability of sand deposits. U S Waterways Exp Sta Misc Paper 3-12, 5 pp, Aug 1952
The lateral variability of sands encountered in the lower Mississippi Valley is investigated by borings and penetrometer tests.
23. An empirical method of forecasting critical snowmelt inflows to Pine Flat Reservoir. U S Corps Eng, South Pac Div, Snow Inv Res Note 24, Dec 1952
Statistical analysis of historical data is used to derive equations for estimating probable future peak inflows to Pine Flat Reservoir.
24. Heat exchange and melt of late-season snow patches in heavy forest. U S Corps Eng, South Pac Div, Snow Inv Res Note, May 15, 1953
The thermal budget of a small snow patch is examined in detail for a five-day period in July.
25. Preliminary unit-graph studies, Mann Creek, Willamette Basin Snow Laboratory. U S Corps Eng, South Pac Div, Snow Inv Res Note, June 15, 1953
Unit hydrographs for surface and subsurface flow are developed and tested by reproduction of three rain-flood hydrographs.
26. Thermal balances and snowmelt runoff associated with upper-air flow over the western United States in May, 1949, and May, 1950. U S Corps Eng, North Pac Div, Snow Inv Res Note 15, Sep 15, 1953
The relation between the upper air-flow pattern and the rates of snowmelt is investigated in qualitative terms.

27. Snow cover depletion and runoff. U S Corps Eng, North Pac Div, Snow Inv Res Note 16, Sep 30, 1953
The relation between depletion (decrease in horizontal extent) and ablation (decrease in water equivalent) is generalized and considered with respect to other areas. The utility of relations between snow cover and runoff are explored.
28. Lysimeter studies of clear weather snowmelt at an unforested site. U S Corps Eng, North Pac Div, Snow Inv Res Note 17, 24 pp, 1953
The thermal-budget method and several temperature index methods of computing snowmelt are compared and evaluated on the basis of lysimeter data.
29. Waves and wind tides in inland waters, Lake Okeechobee, Florida. U S Corps Eng, Jacksonville Dist Inf Bul, 14 pp, 1953
Describes the effects of wind and waves on the levees, the instrumentation installed for obtaining data on wind tides and waves, and technical objectives.
30. Report of sedimentation survey, Great Salt Plains Reservoir, Salt Fork of Arkansas River, Oklahoma, Arkansas River Basin. U S Corps Eng, Tulsa Dist, 16 pp, 1953 (processed)
Presents data on the sedimentation of the reservoir over an eight-year period and of changes in the river channel as a result of degradation.
31. Report of sedimentation survey, Mahoning River basin, Ohio, Berlin Reservoir. U S Corps Eng, Pittsburgh Dist, 11 pp, 1953
Reports results of survey made in 1951 after eight years of operation. Survey methods are described in detail and results of analysis of sediment samples are included.
32. Bibliography on tidal hydraulics. Rep 2, Comm on Tidal Hydraulics, U S Corps Eng, Waterways Exp Sta, 208 pp, 1954
An annotated summary of 836 English language references on the subject of tides.
33. Clear weather snowmelt runoff in a densely forested area, Willamette Basin Snow Laboratory. U S Corps Eng, North Pac Div, Snow Inv Res Note 19, May 15, 1954
Temperature and vapor pressure data are correlated with daily snowmelt on a basin of five square mile area.
34. Analysis of January, 1953, rain on snow observations at Central Sierra Snow Laboratory, Soda Springs, California. U S Corps Eng, North Pac Div, Snow Inv Res Note 18, May 15, 1954
An equation for hourly snowmelt in terms of rainfall, temperature, and wind speed is presented. A satisfactory reproduction of the observed hydrograph from a large lysimeter is obtained by routing the rainfall and snowmelt through storage.
35. Ground-water studies, Fairbanks Research Area. U S Corps Eng, Div Arctic Const and Frost Effects Lab, May 1954
The fluctuations in ground-water level during the freezing of the active zone above permafrost are investigated and utilized to explain the phenomena of ice segregation and frost heave.
36. Determination of annual precipitation, Central Sierra Snow Laboratory. U S Corps Eng, North Pac Div, Snow Inv Res Note 21, Sep 22, 1954
The areal distribution of precipitation over a four-square mile basin in the Sierra is investigated. Relation between precipitation gage catch and wind speed is explored.
37. Precipitation, evapotranspiration, and runoff, Willamette Basin Snow Laboratory. U S Corps Eng, North Pac Div, Snow Inv Res Note 20, July 30, 1954
Mean annual precipitation is estimated from runoff plus evapotranspiration. Thornthwaite's method is applied to basin in the Cascade Range of Oregon.
38. A coastal winter-flow index method of forecasting seasonal runoff for Columbia River near The Dalles, Oregon. U S Corps Eng, North Pac Div, Snow Inv Res Note 23, Sep 30, 1954
Snowmelt runoff of the Columbia River is correlated with the winter runoff of low elevation coastal basins with winter temperature and spring precipitation as parameters. The relation is said to be as accurate as any of the more conventional methods.
39. Forecasting seasonal runoff by the water-balance method. U S Corps Eng, North Pac Div, Snow Inv Res Note 22, Sep 30, 1954
Seasonal forecasts are feasible if sufficient data are available to evaluate rainfall, snowfall, losses, and snow water equivalent. Method is illustrated by application to North Santiam River, Oregon.
40. Civil works investigations; project CW-151; flood volume studies--West Coast. U S Corps Eng, Sacramento Dist Tech Bul 1, 1954
A study of the methods of estimating flood frequency by seasons.
41. Standard list of snow-hydrology symbols. U S Corps Eng, North Pac Div, 4 pp, 1954
A summary of standard symbols.
42. List of publications. U S Corps Eng, Waterways Exp Sta, 95 pp, Jan 1955
A summary of all reports and publications released by the station and of reports by other Corps of Engineers Laboratories and studies sponsored by other Corps of Engineers offices.

UNITED STATES DEPARTMENT OF THE INTERIOR

1. The drought in southwestern United States as of October, 1951. U S Dept Int, 65 pp, Dec 1951
   Discusses drought in general, the general problems caused by droughts, and basin by basin the specific effects of the drought of 1951.
2. Report on Bonneville Power Administration cloud-seeding operations. Bonneville Power Adm, 95 pp, July 1952
   A brief could-seeding experiment is evaluated in a number of ways including precipitation correlations with a control area and relation of runoff in target and control areas. Includes discussion by V. J. SCHAEFER of the methods of cloud seeding with silver iodide from ground generators.

UNITED STATES FEDERAL INTERAGENCY RIVER BASIN COMMITTEE

1. Inventory of published and unpublished chemical analyses of surface waters in eastern United States. Subcommittee on Hydrol, Notes Hydrol Activities 6, 97 pp, 1954

UNITED STATES GEOLOGICAL SURVEY

1. Index of surface-water records, pt 2, South Atlantic and eastern Gulf of Mexico basins, to September 30, 1950. U S Geol Surv Circ 122, 20 pp, May 1951
   An index of the stations and their periods of record.
2. Index of surface-water records, pt 4, St. Lawrence River basin, to September 30, 1950. U S Geol Surv Circ 123, 14 pp, May 1951
   An index of the published records giving period of record and drainage area.
3. Index of surface-water records, pt 5, Hudson Bay and Upper Mississippi River basins, to September 30, 1950. U S Geol Surv Circ 113, 22 pp, May 1951
   An index of the published record giving period of record and drainage area for each station.
4. Index of surface-water records, pt 8, Western Gulf of Mexico basins, to September 30, 1950. U S Geol Surv Circ 112, 21 pp, May 1951
   An index of the published record giving drainage area and period of record.
5. Index of surface-water records, pt 12, Pacific Slope basins in Washington and Upper Columbia Basin, to September 30, 1950. U S Geol Surv Circ 102, 19 pp, Feb 1951
   An index of all stations published in water-supply papers giving drainage area and period of available record.
6. Index of surface-water records, pt 13, Snake River basin, to September 30, 1950. U S Geol Surv Circ 121, 17 pp, May 1951
   An index of the published record given drainage area and record period for each station.
7. Index of surface-water records, pt 14, Pacific Slope basins in Oregon and lower Columbia River basin, to September 30, 1950. U S Geol Surv Circ 130, 21 pp, May 1951
   An index of all stations which have been operated in the area with data on the period of record.
8. Index of water-resources records in the Delaware River basin, to September 30, 1951. U S Geol Surv Circ 190, 19 pp, 1952
9. Floods in Youghiogheny and Kiskiminetas River basins, Pennsylvania and Maryland, frequency and magnitude. U S Geol Surv Circ 204, 22 pp, 1952
   Presents a method for obtaining the magnitude and frequency of floods at any place in the Youghiogheny and Kiskiminetas River basins. The results are applicable also to the upper Youghiogheny River in Maryland. Records from eight gaging stations in the Kiskiminetas River basin and seven in the Youghiogheny River basin were analyzed. Contains descriptions of the gaging stations and tabulations of the annual floods at each station. A map shows a delineation of the two drainage areas, and the location of the gaging stations.
10. Kansas-Missouri floods of July, 1951. U S Geol Surv Water-Supply Paper 1139, 230 pp, 1952
    The largest flood since the historic flood of 1844 occurred in eastern Kansas in July, 1951. The storm of July 9-12 occurred when conditions were favorable for maximum runoff. The report contains: a description of the flood, with maps delineating the extent of flooding in communities where flooding was most severe; discharge records for about 160 gaging stations; a tabulation of flood-crest stages; special hydrologic and hydraulic studies; records of previous floods; fluctuation of ground-water levels; and other data.
11. Floods of 1950 in the Red River of the North and Winnipeg River basins. U S Geol Surv Water-Supply Paper 1137-B, pp 115-325, 1952
    Describes the floods of April-July, 1950, in the Red River of the North and Winnipeg River basins, where the largest floods in several decades occurred. A feature of the floods was the dual peaks of nearly the same size - one in April and the other in May. The report contains records of stage and discharge at the gaging stations in that area, records of storage or elevation of reservoirs or lakes, a detailed description of the flood during the extended flood period, and a discussion of damages. The report contains a section on meteorology prepared by the Weather Bureau, a section on flood-crest stages furnished by the Corps of Engineers, ground-water levels, and other data related to the flood.

12. New Year flood of 1949 in New York and New England. U S Geol Surv Circ 155, 109 pp, 1952
Floods occurred in the Hudson River and Connecticut River basins and in the intervening area on December 31, 1948, and January 1, 1949. On the upper Hudson and upper Housatonic Rivers the flood exceeded all previous floods of record. This report presents records of stage and discharge at 85 gaging stations for the flood period, a summary of peak discharges at 125 measurement points, a brief discussion of the general features of the flood and the associated storm, hydrographs for the principal gaging stations, and a map showing isohyetal lines and location of flood-flow determinations.
13. Floods of May-July, 1950, in southeastern Nebraska. U S Geol Surv Water-Supply Paper 1137-D, pp 351-411, 1953
Four notable floods occurred in southeast Nebraska during the period May-July, 1950, as a result of intense rains which at times reached intensities seldom recorded in the Missouri Basin. The report contains records of stage and discharge stations in southeast Nebraska; a summary of peak discharges, with comparative data for previously known floods, at 45 points; a discussion of weather associated with floods; and other pertinent data.
14. Floods of 1950 in southwestern Oregon and northwestern California. U S Geol Surv Water-Supply Paper 1137-E, pp 413-503, 1953
Floods in southwestern Oregon and northwestern California were caused by heavy rains October 27-30, 1950. Secondary peaks followed additional rains in mid-November. These floods rank with the great floods of 1890 and 1927 throughout most of the area affected, but rank below those of 1861-62. The report contains records of stage and discharge at 46 gaging stations in the flood area, a summary of peak discharges and comparative data for past and present maxima, a section on meteorology, a general description of the floods, and other pertinent data.
15. Floods of November-December, 1950, in the Central Valley basin, California. U S Geol Surv Water-Supply Paper 1137-F, pp 505-789, 1953
The flood of November-December, 1950, in the Central Valley basin was the greatest in most parts of the basin since the turn of the century and probably was exceeded in the lower San Joaquin River basin only by the flood of 1862. Outstanding features of the flood were its unprecedented occurrence so early in the winter flood season, its magnitude in peak and volume in most major tributaries, and a succession of near peak flows within a period of three weeks. This report presents a general description of the flood, details and estimates of damage incurred, records of stage and discharge at 171 stations, records of storage in 14 reservoirs, tables showing crest stages along the main stem and major tributary channels of the Sacramento and San Joaquin Rivers, and many other data related to the flood.
16. Floods of 1950 in the upper Mississippi River and Lake Superior basins in Minnesota. U S Geol Surv Water-Supply Paper 1137-G, pp 791-895, 1953
Floods of great magnitude occurred in Minnesota in the Mississippi River and Lake Superior basins from April to June, 1950. The area of most spectacular flooding was in the vicinity of Aitkin, Minnesota, on the Mississippi River where the stage in 1950 was 2.46 ft higher than the previous maximum stage in 1888. An outstanding feature of the floods in the upper part of the Mississippi River basin was the prolonged period that the streams remained above flood stage. The report contains records of stage and discharge at 46 stations; a summary of peak discharges and comparative data for previously known floods at 72 points; a discussion of weather associated with the floods; and other pertinent data.
17. Floods of March-April, 1951, in Alabama and adjacent states. U S Geol Surv Water-Supply Paper 1227-A, pp 1-134, 1953
Floods in Alabama and adjacent states were caused by the general storm of March 27-30, 1951. High flood crest occurred on most streams in Mobile River basin and in adjacent basins. The report contains records of stage and discharge at 96 stations in a summary of peak discharges and comparative data for past and present maxima, a section on the general features of the storms and flood, and other related data.
18. Water-loss investigations: Lake Hefner studies, technical report. U S Geol Surv Prof Paper 269, 158 pp, 1954 (also U S Geol Surv Circ 229, 153 pp, 1952)
This is a reprint, with minor corrections, of the report originally published as Circular 229. It describes a study of the problems of water loss by evaporation from free water surfaces. The study included old and relatively new methods (water budget, evaporation pan, energy budget, mass transfer) of determining evaporation. It required collaboration of scientists and engineers from the fields of hydrology, meteorology, oceanography, geology, and physics and from the Bureau of Reclamation, Geological Survey, Bureau of Ships, Navy Electronics Laboratory, and the Weather Bureau. The report contains a complete description of the project area, the methods used, and the conclusions reached.

19. Water-loss investigations: Lake Hefner studies, base data report. U S Geol Surv Prof Paper 270, 300 pp, 1954
A summary of the basic data collected during the Lake Hefner evaporation experiment. Includes explanation of methods of collecting and processing the data. See item 18 above.
20. Floods of November-December, 1950, in western Nevada. U S Geol Surv Water-Supply Paper 1137-H, pp 897-956, 1954
A report of floods in the Walker, Carson, and Truckee Rivers. Presents data on flows, stages; a section on meteorology of the storms; and other data on these floods which were the greatest in 50 years.
21. Floods of May, 1951, in western Oklahoma and northwestern Texas. U S Geol Surv Water-Supply Paper 1227-B, pp 137-199. 1954
Floods of unusual magnitude resulted from heavy rains during May 13-19, 1951. The report contains records of stage and discharge for 43 stations in the Arkansas and Red River basins, records of contents in seven reservoirs, an isohyetal map showing total rainfall during the storm period, and other related data.
22. The industrial utility of public water supplies in the United States, 1952, pt 1, States east of the Mississippi River. U S Geol Surv Water-Supply Paper 1299, 639 pp, 1954
This paper contains descriptions and analyses of the public water supplies for 819 of the larger cities in the states east of the Mississippi River. Data are given for all cities of 15,000 or more population and for many smaller cities. For most cities the information given includes population; population supplied; ownershipe, source, and treatment of the water; storage facilities for both raw and finished water; and chemical analyses of the supplies.
23. Industrial utility of public water supplies in the United States, 1952, pt 2, States west of the Mississippi River. U S Geol Surv Water-Supply Paper 1300, 462 pp, 1954
This paper is companion to Water-Supply Paper 1299. It contains data similar to those in Water-Supply Paper 1299 for 496 of the larger cities in the states west of the Mississippi River. See item 22 above.
24. Compilation of records of surface waters of the United States through September, 1950, pt 1-A, North Atlantic Slope basins, Maine to Connecticut. U S Geol Surv Water-Supply Paper 1301, 380 pp, 1954
25. Interpreting geologic maps for engineering purposes. U S Geol Surv, 6 pp, 1954
This set of maps is designed primarily to teach the practical applications of geology. The set comprises two 'basic data' sheets - a standard topographic map and a general-purpose geologic map of the Hollidaysburg quadrangle, Pennsylvania - and three 'interpretive' maps of the same quadrangle. These three maps show, by colors and explanatory text, that interpretations regarding foundation and excavation conditions, contruction materials, and water supply can be made by a study of the basic data sheets. A sixth sheet shows three hypothetical problems in the preliminary planning of engineering structures, with the kind of geologic facts needed by engineers that can be deduced from the general-purpose geologic map. A brief text explains the purpose and limitations of the set.

UNITED STATES HOUSING AND HOME FINANCE AGENCY

1. Snow load studies. Housing Res Paper 19, 19 pp, May 1952
Factors contributing to the accumulation of a snowpack are discussed in general terms and then specific relations between snow depth, seasonal snowfall, and maximum water equivalent are developed. Maps of maximum snow accumulation and of water equivalent of a maximum probable snow storm are presented and interpreted in terms of design loads for roofs.

UNITED STATES MISSOURI BASIN INTERAGENCY COMMITTEE

1. Report on adequacy of flows in the Missouri River. U S Mo Basin Interagency Comm, 82 pp, Apr 1951
A study of the estimated depletions and the available flows in the Missouri River to determine whether flows can be expected to be adequate for projects needs. Essentially a consolidation of estimates by individual agencies. Includes tables of monthly streamflow, history depletion, frequency of annual precipitation, etc.

UNITED STATES NATIONAL BUREAU OF STANDARDS

1. Electronic flowmeter, a new method for measuring fluid flow. Nat Bur Stand Tech News Bul, v 37, pp 30-31, 1953
A new type meter uses change in velocity of sound waves as a measure of fluid flow. Has fast response and does not obstruct flow. Measurement of very small velocities is possible.

UNITED STATES SALINITY LABORATORY

1. Diagnosis and improvement of saline and alkaline soils. U S Dept Agr Handbook 60, 160 pp, Feb 1954
Summarizes information useful to professional agricultural workers for the diagnosis of and improvement in saline and alkaline soils.

UNITED STATES SOIL CONSERVATION SERVICE

1. The Jones Creek watershed, Monona and Harrison Counties, Iowa. U S Soil Cons Serv, Milwaukee, Wisc, 13 pp, July 1950
   A review of the effectiveness of watershed treatment programs on a basin of two square miles over a ten-year period.
2. Selected list of publications on hydrology and hydraulics. U S Soil Cons Serv, July 1951
   A list of publications by SCS personnel.
3. Summary of reservoir sedimentation surveys for the United States through 1950. U S Soil Cons Serv Sed Bul 5, 31 pp, Aug 1953
   Lists names of reservoirs on which surveys have been made with information on location, drainage area, and rate of sediment accumulation.
4. Morena Reservoir Watershed, San Diego County, California. U S Soil Cons Serv, 32 pp, Nov 1953
   Summarizes data on sedimentation of Morena reservoir and reviews possible practices to control erosion on the watershed. Detailed estimates of costs and benefits of watershed protection practices.

UNITED STATES TENNESSEE VALLEY AUTHORITY

1. Industrial water supplies of the Tennessee Valley region. U S Tenn Valley Auth, June 1948
   Presents information on the quantity and quality of water supplies suitable for industrial use in the Tennessee Valley region.
2. Flood of February, 1948, in Tennessee River basin. U S Tenn Valley Auth Rep 0-243-171-A, June 1949
   A detailed description of the February, 1948, flood on streams in the Tennessee Valley including meteorology, rainfall, runoff, flood-control operations, flood story, and damages.
3. The Kentucky Project. U S Tenn Valley Auth Tech Rep 13, 877 pp, 1950
   A detailed report on the design and construction of the project with sections on the hydrologic design and plans for operation.
4. Evaporation in Tennessee River basin. U S Tenn Valley Auth Rep 0-5164, Jan 1951
   A summary of data for the seven land-pan evaporation stations showing the monthly and annual evaporation for each year of record together with the mean values of evaporation and the factors affecting it as well as graphical presentation of mean monthly values.
5. Effect of 15 years of forest cover improvement upon hydrologic characteristics of White Hollow Watershed. U S Tenn Valley Auth Rep 0-5163, June 1951
   A comprehensive report evaluating in terms of hydrologic relationships a type of watershed management designed to achieve development of good forest cover in a typical Appalachian Valley watershed during a 15-year period.
6. Flood of January, 1954, in Tennessee River basin. U S Tenn Valley Auth Rep 0-5411, July 1954
   A detailed report on the January, 1954, floods on streams in the Tennessee Valley including meteorology, rainfall, runoff, flood-control operations, flood story, and damages.
7. Roughness coefficient determination on White Creek near Glen Alice, Tennessee, and Richland Creek near Dayton, Tennessee. U S Tenn Valley Auth Rep 0-5533, Dec 1954
   The results of a study to determine Manning's formula roughness coefficients for reaches of two streams located in east-central Tennessee within the Tennessee Valley.

UNITED STATES WEATHER BUREAU

1. Analysis of winds over Lake Okeechobee during tropical storm of August 26-27, 1949. U S Wea Bur Hydromet Rep 26, 80 pp, 1951
   An empirical analysis of the winds and pressures in this hurricane which passed directly over the lake (based on observations from six shore and three barge stations). Sixty-eight figures show the pressure patterns at half-hour intervals and ten-minute average wind speed and direction. Mean wind deflections angle and speed of the wind in terms of distance from the center.
2. Estimate of maximum possible precipitation, Rio Grande basin, Fort Quitman to Zapata. U S Wea Bur Hydromet Rep 27, 45 pp, 31 fig, 1951
   Maximum possible depth-duration-area curves are derived for the three basins.
3. Tables of precipitable water and other factors for a saturated pseudo-adiabatic atmosphere. U S Wea Bur Tech Paper 14, 27 pp, 1951
   The tables give the precipitable water in inches, for layers in steps of 100 ft and steps of 10 mb for 1000 mb temperatures from 20 to 80°. Also, temperatures at given heights and at given pressures; pressures at given heights; heights, and specific humidities at given pressures for a pseudo-adiabatic atmosphere.
4. Manual of surface weather observations. U S Wea Bur Circ N, 6 ed rev, 165 pp, 1951
   Standard procedures for airway meteorological observations.

5. Maximum 24-hour precipitation in the United States. U S Wea Bur Tech Paper 16, 284 pp, 1952
   Tables list 7355 stations, each with at least ten years of record, giving maximum observed 24-hour amounts of precipitation by month with day and year of occurrence.
6. Kansas-Missouri floods of June-July, 1951. U S Wea Bur Tech Paper 17, 105 pp, July 1952
   Summarizes rainfall causing the floods, describes the flood and presents flood-damage data, and presents a meteorological analysis of the flood and comparison with floods of 1844 and 1903.
7. Measurements of diffuse solar radiation at Blue Hill Observatory. U S Wea Bur Tech Paper 18, 19 pp, 1952
   Results are presented of the first four years of record of diffuse radiation measured by pyhrheliometer equipped with an occulting ring.
8. Mean number of thunderstorm days in the United States. U S Wea Bur Tech Paper 19, 22 pp, 1952
   Tables and charts show mean monthly and annual number of thunderstorm days.
9. Tornado occurrences in the United States. U S Wea Bur Tech Paper 20, 43 pp, 1952
   Brings up to date the available records of tornadoes in the United States: Table of outstanding tornadoes (1875-1950), with date, place, time of occurrence, personal and property damage; for 1916-1950 by years, the number, days, deaths, and damage for each month. For states, the number beginning during specified hours.
10. Normal weather charts for the Northern Hemisphere. U S Wea Bur Tech Paper 21, 74 pp, 1952
    Normal sea-level pressure; 700 mb height and temperature; thickness (700-1000 mb); and 500 mb height charts are presented.
11. Wind patterns over Lake Meade. U S Wea Bur Tech Paper 22, 40 pp, 1952
    The prime objective of this publication is the presentation of 15 months of wind observations at ten stations, in a form suitable for microclimatological research.
12. The application of the hydraulic analogy to certain atmospheric-flow patterns. U S Wea Bur Res Paper 35, 50 pp, 1952
    A discussion of the theory of a special kind of atmospheric gravitational wave traveling along an inversion surface, and of the possible relation of this wave to weather phenomena.
13. Cloud-seeding operations in the Bishop Creek, California, watershed. U S Wea Bur Res Paper 36, 29 pp, 1953
    A comparison of annual runoff from seeded and adjacent watersheds for three years; 1948, 1949, and 1950. Significant departures were found for the 1948-1949 season and for the average of the three years.
14. Generalized estimate of maximum possible precipitation over New England and New York. U S Wea Bur Hydromet Rep 28, 12 pp, 2 fig, 1952
    Charts are presented for durations of six to 72 hours and areas of ten to 5000 sq mi similar to those presented in Hydromet Rep 23. A map shows a generalized estimate of maximum possible precipitation over the area for 24 hours.
15. Instructions for climatological observers. U S Wea Bur Circ B, 10th ed, 60 pp, Nov 1952
    A major revision of the circular incorporating instructions for operation of recording rain gages, evaporation stations, and dial-type thermometers in addition to the standard cooperative station equipment.
16. Critical meteorological conditions for design floods in the Snake River basin. U S Wea Bur Coop Studies Rep 11, 218 pp, 1953
    A derivation of maximum possible storm precipitation, maximum water equivalent of snowpack, and melting-season temperature excess for the Snake River basin above Hells Canyon Dam site and for four sub-basins. Sixteen tables and 146 figures give degree days above 40° F and individual storm isohyets; depth-duration-area data for specific storms and incidental relationships.
17. Weather is the Nation's business. Rep Dept Commerce Advisory Comm on Weather Services, 59 pp, Washington, D. C., Dec 1, 1953
    A report of a committee organized to study the operations of the U. S. Weather Bureau with a view to recommending necessary changes in methods and policy. Abstracted in Bul Amer Met Soc, v 35, pp 1-13, 1954.
18. Rainfall intensities for local drainage design in the United States, pt 1, West of 115th meridian. U S Wea Bur Tech Paper 24, 1953
    Presents maps showing probable two-year, one-hour rainfalls for the area with relations for extrapolating to other return periods and durations.
19. Probable maximum precipitation on Sierra slopes of the Central Valley of California. U S Wea Bur Coop Studies Rep 12, 26 pp, 1954

An empirical relationship, based on data from 32 major storms, portrays the probable maximum precipitation for durations of one to 192 hours and areas of ten to 1000 sq mi as a function of location and of normal annual precipitation. Also given are seasonal variation and permissible sequences of the probable maximum precipitation, and sequences of maximum wind, dewpoint, and freezing height.

20. Rainfall intensities for local drainage design in the United States. For durations of five to 240 minutes and 2-, 5-, and 10-year return periods. U S Wea Bur Tech Paper 24, pt 1, west of 115th meridian, 19 pp, 1953; pt 2, between 105° W and 115° W, 9 pp, 1954
Presents maps showing probable 2-year frequency, one-hour duration rainfall for the area with relations for extrapolating to other frequencies and durations. Two-year clock-hour rainfall amounts were determined for hundreds of stations for which data were readily available. Empirical relationships were used to convert to maximum hourly values and to five- and ten-year amounts. Intensity-duration curves from five to 240 minutes were based on 27 long-record stations for which annual maximum rainfall amounts for durations of five minutes to 24 hours were available.
21. Analysis and synthesis of hurricane wind patterns over Lake Okeechobee, Florida. U S Wea Bur Hydromet Rep 31, 49 pp, 1954
The techniques of Hydromet Rep 26 are extended. A basis is developed for synthesizing a severe hurricane for levee design purposes, from a study of a tropical storm. Twenty figures include the synthesized hurricane winds for each hour from minus six to plus two hours.
22. Characteristics of United States hurricanes pertinent to levee design for Lake Okeechobee, Florida. U S Wea Bur Hydromet Rep 32, 106 pp, 1954
Expands the climatological basis for synthesizing the design hurricane by examining all hurricanes that reached any part of the United States during a fifty-year period. The relation of actual to theoretical winds is investigated. Tracks, pressures, and wind fields are reconstructed on a systematic basis from sparse data. Central pressures of the hurricane are estimated. Frequency of occurrence of hurricane winds at the coast and the filling characteristics of hurricanes moving inland, and wind gust factors are given. An inverse relationship between hurricane intensity and lateral extent is confirmed.
23. Floods of 1952, Upper Mississippi, Missouri, Red River of the North. U S Wea Bur Tech Paper 23, 93 pp, 1954
A compilation of basic hydrometeorological data for the great Upper Mississippi-Missouri-Red River of the North floods of April, 1952.
24. Pressure-jump lines in midwestern United States (January-August, 1951). U S Wea Bur Res Paper 37, 70 pp, 1954
A description is given of the observation net of 134 stations and the 247 pressure-jump lines observed during the season are analyzed in their relation to severe local storms. A map shows tornadoes reported for 1951. Three case studies of pressure jumps are included. Frequency distribution of jump line speeds and widths are shown.
25. Maximum station precipitation for 1, 2, 3, 6, 12, and 24 hours. U S Wea Bur Tech Paper 15.
    Part I: Utah. 44 pp, 1951
    Part II: Idaho. 44 pp, 1951
    Part III: Florida. 92 pp, 1952
    Part IV: Maryland, Delaware, and District of Columbia. 1954
    Part V: New Jersey. 1953
    Part VI: New England. 123 pp, 1953
    Part VII: South Carolina. 42 pp, 1953
    Part VIII: Virginia. 64 pp, 1954
    Part IX: Georgia. 79 pp, 1954
26. Rainfall intensities for local drainage design in coastal regions of North Africa, longitude 11° W to 14° E. U S Wea Bur Coop Studies Sec, Sep 1954 (processed)
Presents chart for estimating two-year, one-hour rainfall on the basis of climatic factors, isohyetal map of two-year, one-hour rainfall for the area, and relations for extrapolating to other return periods and durations.

UNKLESBAY, A. G.

1. Geology of Boone County, Missouri. Mo Geol Surv, v 33, 2nd ser, 159 pp, 1952
Includes brief summary on ground water by J. C. GROHSKOPF.

UNZ, M.

1. Apparent resistivity curves for dipping beds. Geophysics, v 18, pp 116-137, 1953
Describes corrections necessary where steeply dipping beds are encountered. Method developed during ground-water surveys in Israel.

UPSON, J. E.

1. (and THOMASSON, H. G., JR.) Geology and water resources of the Santa Ynez River basin, Santa Barbara County, California. U S Geol Surv Water-Supply Paper 1107, 194 pp, 1951

2. (and THOMASSON, H. G., JR.) Geology and ground-water resources of the south-coast basins of Santa Barbara County, California. U S Geol Surv Water-Supply Paper 1108, 144 pp, 1951
Deals with the Carpinteria and Goleta basins. Discusses the geology of the areas as it pertains to the occurrence and replenishment of ground water; assembles the available data on runoff of streams that enter the basins, with particular reference to the streams as a source of ground-water bodies; summarizes the pumpage from them; estimates the long-term average annual yield of the basins; and presents data on the quality of the ground water and the possibility of sea-water contamination.
3. (and WORTS, G. F., JR.) Ground water in the Cuyama Valley, California. U S Geol Surv Water-Supply Paper 1110-B, pp 21-81, 1951
The Cuyama Valley is a large intermontane valley situated mainly in Santa Barbara County. The ground water originating largely as seepage from the Cuyama River occurs in unconsolidated alluvial deposits. Well logs and other well data, as well as chemical analyses of water from wells, springs, and streams in the valley, are included in the report. A map shows geologic features, water-level contours, location of wells and springs, and sites of stream- and spring-flow measurements.

VAN BAVEL, C. H. M. See also Bethlamy, N., 2; Gilbert, M. J., 1; Reeve, R. C., 1
1. Compact wet-sieving apparatus for soil aggregate analysis. Agron J, v 44, pp 97-98, 1952
Use of old washing machine as base for device is described.
2. Gaseous diffusion and porosity in porous media. Soil Sci, v 73, pp 91-104, 1952
Reports result of study of the relationship between rate of gas diffusion in soil and porosity. Precise experimental techniques and exhaustive theoretical analysis indicate that results are sufficiently reliable for use.
3. (and WILSON, T. V.) Evapotranspiration estimates as criteria for determining time of irrigation. Agr Eng, v 33, pp 417-418, 420, 1952
Use of evapotranspiration in a soil moisture accounting is illustrated.
4. A drought criterion and its application in evaluating drought incidence and hazard. Agron J, v 45, pp 167-172, 1953
Data at Raleigh, North Carolina, are used to calculate precipitation minus evapotranspiration as a measure of moisture deficiency.
5. Simple diffusion well for measuring soil specific diffusion impedance and soil air composition. Proc Soil Sci Soc Amer, v 18, pp 229-234, 1954
Cylindrical tubes in the soil serve to measure diffusion impedance by entry of oxygen after flushing with nitrogen. Analysis of gas in tube after equilibration period indicates composition of soil air.
6. (and HOOD, E. E., and UNDERWOOD, N.) Vertical resolution in the neutron method for measuring soil moisture. Trans Amer Geophys Union, v 35, pp 595-600, 1954
The vertical thickness of the layer of soil affecting the indications of the device is determined to depend on soil moisture. Possible screening methods to reduce the effective thickness are explored.

VAN CAMP, J. L.
1. Water . . . is a forest product. Eng J, v 35, pp 18-19, 1952
A general review of forest-water relationships.

VANDERFORD, H. B. See Rai, K. D., 1

VANDER PYL, ADRIAN W. See Lougee, R. J., 1

VAN DOREN, C. A.
1. (and STAUFFER, R. S., and KIDDER, E. H.) Effect of contour farming on soil loss and runoff. Proc Soil Sci Soc Amer, v 15, pp 413-417, 1950
Reports results of nine years of experimental farming on a Corn Belt soil. Also gives data on tile flow and loss of nutrients by tile drainage.
2. (and KLINGEBIEL, A. A.) Effect of management on soil permeability. Proc Soil Sci Soc Amer, v 16, pp 66-69, 1952
Permeability, volume weight, and per cent of pores drained were determined for virgin soil, fertilized and unfertilized soils, well-managed soils, and eroded soils and the effects of the various treatments evaluated in terms of the soil properties.

VANONI, VITO A. See also Einstein, H. A., 2
1. Some effects of suspended sediment on flow characteristics. Iowa Univ Studies in Eng Bul 34, pp 137-158, 1953
Experiments indicate that suspended sediment causes increase in exchange coefficients for momentum and sediment. Friction factor decreases with increased momentum coefficient but is increased by dunes on the bed. Existing theory of sediment transport is inadequate to account for effects of sediment on the flow.

VAN ORNUM, DELBERT G.
1. Long-range weather forecasting. Proc West Snow Conf, pp 4-9, Apr 1954
A brief discussion of the general circulation pattern and its relationship to weather. Discussion by C. P. SMITH.

VAN PRAAG, ALEX, JR. See Ladue, W., 1

VAN SCHILFGAARDE, JAN
1. Analytical and empirical evaluation of water-table behavior as affected by drainage systems. Iowa State Coll, PhD thesis, 191 pp, 1954
Field-drainage laboratory constructed to study the effect of depth and spacing of tile drains on the rate of drawdown of the water table. Porosity, permeability, water table, and outflow measurements were taken. A thorough analysis of theoretical solutions developed by other investigators was made. The field data were also compared with these theoretical solutions and to other field observations.
2. (and FREVERT, R. K., and KIRKHAM, DON) A tile-drainage field laboratory. Agr Eng, v 35, pp 474-478, 1954
Describes equipment and study plan for an investigation of spacing and depth of tile drains.

VAN SICKLE, D. M. See Hains, C. F., 1

VAN TUYL, D. W. See also Mangan, J. W., 1
1. Ground-water resources of the valley-fill deposits in the Pittsburgh area. Pa Acad Sci Proc, v 24, pp 115-160, 1950
2. Ground water for air conditioning at Pittsburgh, Pennsylvania. Pa Topog Geol Surv Bul W10, 34 pp, 1951

VAN'T WOUDT, BESSEL D.
1. On factors governing subsurface storm flow in volcanic ash soils, New Zealand. Trans Amer Geophys Union, v 35, pp 136-144, 1954
Experimental data on the amount of subsurface storm flow is presented. Most of the experimentation is in the field with lysimeters.

VAN VEEN, J. See Glover, R. E., 1

VARNES, D. J. See Truesdell, P. E., 1

VARTIA, KARL O.
1. Analog circuit solves open channel problem. Eng News-Rec, v 149, pp 44-45, Dec 4, 1952
A discussion of the analog computer developed by the Bureau of Reclamation and its use in determining the flow characteristics in sluggish streams that are subject to large changes in the flow rate for a few hours.

VAUGHAN, HARRY C.
1. The spontaneous freezing temperatures of melted snow and small water drops. Bul Amer Met Soc, v 35, pp 52-55, 1954
Reports results of experiments for the determination of the spontaneous freezing point of drops of various sizes.

VEATCH, N. T.
1. The Kansas flood of 1951. J Amer Water Works Assn, v 44, pp 765-774, 1952
A review of the Kansas flood with regard to the causal weather, flood magnitude, damages, and flood-protection plans. It is pointed out that a relocation of the storm would have produced peaks almost 35 pct higher than the 1951 flood.
2. Application of sedimentation data to water project design. Ill Water Surv Bul 41, pp 63-66, 1952
A general discussion of the problems of sedimentation as viewed from the engineering aspect of reservoir design and water treatment.
3. Flood protection for the Kansas River basin. J Amer Water Works Assn, v 45, pp 685-693, 1953
An appraisal of programs of flood reduction.

VEIHMEYER, F. J.
1. Don't waste water. Recl Era, v 38, pp 244-246, 1951
Call attention to avoidable waste of water during irrigation which may also very often be harmful for the crops.
2. Use of water by native vegetation versus grasses and forbs on watersheds. Trans Amer Geophys Union, v 34, pp 201-212, 1953
A study and investigation of the relationship of the water lost from soil by transpiration to that lost by direct evaporation from the soil. Discussion by B. FRANK, H. C. FLETCHER and L. R. RICH, and V. L. BOSAZZA, v 35, pp 652-658, 1954.
3. (and BROOKS, F. A.) Measurements of cumulative evaporation from bare soil. Trans Amer Geophys Union, v 35, pp 601-607, 1954

Reports observations of evaporation from natural soil, soil in tanks, and evaporation pans. Soil was maintained free of vegetation and with the water table at various levels below the surface.

VELEZ, ISMAEL

1. Soil conservation practices in the Caribbean Archipelago. Sci Mon, v 74, pp 183-185, 1952
   Describes with pictures some established practices on St. Vincent, St. Thomas, and Montserrat.

VENNARD, JOHN K.

1. Stokes law confirmed by falling sphere experiment. Civ Eng, v 24, p 58, 1954
   Describes simple apparatus for verifying Stokes' law.

VERBER, JAMES L.

1. Nomographs for determining seiche periods. Sci, v 116, pp 62-63, July 18, 1952
   Presents two nomograms relating depth, fetch, and period of seiches in lakes.
2. (and BRYSON, R. A., and SUOMI, V. E.) Short-term variation of temperature in Lake Mendota, Wisconsin. Ohio J Sci, v 53, pp 72-76, 1953
   Reports bathythermographic survey of the lake involving over 500 soundings. Concludes that random soundings are often not indicative of true conditions because of rapid temperature changes.
3. (and BRYSON, R. A., and SUOMI, V. E.) Currents in Lake Mendota, Wisconsin. Ohio J Sci, v 53, pp 221-225, 1953
   Reports extensive current measurements and briefly compares these with theoretical concepts of wind currents.

VERNON, R. O.

1. Geology of Citrus and Levy Counties, Florida. Fla Geol Surv Bul 33, 256 pp, 1951
   Short discussion of the waters of the counties on pages 240-244.

VESTAL, FRANKLIN E.

1. Webster County geology. Miss Geol Surv Bul 75, 144 pp, 1952
   Includes brief discussion of water resources.

VETTER, C. P.

1. Sediment problems in Lake Mead and downstream on the Colorado River. Trans Amer Geophys Union, pp 249-256, 1953
   Outlines the effects on the regimen of the river, which were produced by the construction of Hoover Dam.

VILD, D. J. See Parmalee, G. W., 1

VILLEMONTE, JAMES R.

1. (and GUNAJI, VASUDEO N.) Equation for submerged sharp crested weirs found applicable to six-inch Parshall flume. Civ Eng, pp 62-63, 1953
   Tests at Wisconsin University indicate that application of an equation for submerged sharp-crested weirs give results that compare favorably with Parshall's equation.

VISHER, F. N. See also Babcock, H. M., 1, 2

1. (and DURUM, W. H.) Reconnaissance of the geology and ground-water resources of the Pass Creek Flats area, Carbon County, Wyoming. U S Geol Surv Circ 188, 19 pp, 1952
   The principle aquifers of the area are described. A possible source of water may be wells in fault zones which now are the source of springs.
2. (and BABCOCK, H. M., DURUM, W. H., and KRIEGER, R. A.) Ground-water conditions in the soil and moisture conservation demonstration area near Torrington, Goshen County, Wyoming. U S Geol Surv Circ 238, 51 pp, 1953
   Seepage from canal and from irrigation water applied to the land is the principal source of recharge. Water moves through fractures in the Brule formation and upward through the slope wash under hydrostatic head that is sufficient in some places to force the water to the surface. Transpiration by plants and evaporation from the land surface are the principal means of ground-water discharge. In places the dissolved minerals in the ground water have become concentrated on the land surface.

VOGT, EVON Z.

1. Water witching: an interpretation of a ritual pattern in a rural American community. Sci Mon, v 75, pp 175-186, 1952
   Tests and trials are summarized and it is concluded that water witching is a ritual carried over from earlier times.

VOGT, JOHN E. See Pierce, D. M., 1, 2

VOLLBRECHT, HOWARD ALBERT

1. A correlation study of infiltration, permeability, and pore-size distribution. Mich State Coll, MS thesis, 82 pp, 1954
   A statistical analysis is made of the infiltration rate as found in the field as compared to various soil physical properties such as permeability, pore size, volume weight, etc.

Equations and curves for predicting the infiltration of soil from laboratory measurements of the physical characteristics of the soil are included.

VOMOCIL, JAMES A.

1. In situ measurements of soil bulk density. Agr Eng, v 35, pp 651-654, 1954
   Describes use of a gamma-ray absorption method for measurement of bulk density in place.

VONNEGUT, BERNARD See also Inn, E. C. Y., 1; Reynolds, S. E., 1

1. Cloud seeding. Sci Amer, v 186, pp 17-21, 1952
   A review of the General Electric work in the field.
2. (and MAYNARD, KIAH) Spray-nozzle type silver-iodide generator for airplane use. Bul Amer Met Soc, v 33, pp 420-428, 1952
   The generator is described and the results of some test operations in cloud seeding are presented.
3. (and NEUBAUER, RAYMOND L.) Counting sodium-containing particles in the atmosphere by their spectral emission in a hydrogen flame. Bul Amer Met Soc, v 34, pp 163-169, 1953
   Describes apparatus for counting particles by the pulses of light emitted when they enter a hydrogen flame.

VORHIS, ROBERT C.

1. Geology and ground water of the Fort Lauderdale area, Florida. Fla Geol Surv Rep Inv 6, 36 pp, 1948 (processed)
   Comprehensive discussion of the ground-water geology and hydrology of the area.

WADDELL, THOMAS B.

1. Water requirements and supply. Calif Mon, v 64, pp 31-33, June-July 1954
   The available water supply within various portions of the State is summarized and compared with estimated demands in the same areas. Some plans for development of California water resources are discussed briefly.

WADLEIGH, C. H.

1. (and FIREMAN, MILTON) Multiple regression analysis of soil data. Soil Sci, v 78, pp 127-139, 1954
   Illustrates the application of multiple correlation to numerous soil characteristics including permeability.

WADSWORTH, GEORGE P. See Emmons, G., 1

WAHL, EBERHARD W.

1. The January thaw in New England (an example of a weather singularity). Bul Amer Met Soc, v 33, pp 380-386, 1952
   The presence of a period of warm temperatures about January 20-23 is demonstrated and explained in terms of the general circulation patterns of the world. Discussion by C. E. P. BROOKS, v 34, pp 224-225, 1953, and by G. W. BRIER, v 35, pp 378-379, 1954
2. Singularities and the general circulation. J Met, v 10, pp 42-45, 1953
   Local and regional singularities are related to the general circulation pattern. Cases drawn from the Boston, Massachusetts, record.
3. A weather singularity over the U. S. in October. Bul Amer Met Soc, v 35, pp 351-356, 1954
   A sudden increase in probability of snow at Denver during mid-October is explored and explained as the result of a pronounced weather singularity. The synoptic development of the singularity is described on the basis of 40-year mean pressure maps and associated climatological peculiarities are noted.

WALDRON, R. L.

1. Preliminary investigation of ground-water in the East Sound area, Orcas Island, San Juan County, Washington. Wash Div Water Res, 25 pp, June 1954
   A reconnaissance of the East Sound area for the purpose of determining the feasibility of developing a community water supply from ground-water resources.

WALKER, ALFRED C.

1. (and SCHMIDT, JAMES J.) The water resources of Scioto County, Ohio. Ohio Div Water Inf Circ 2, 22 pp, 1953
   A summary of surface- and ground-water conditions in the county. Includes a ground-water resources map.
2. The water resources of Jackson County, Ohio. Ohio Div Water Inf Circ 3, 19 pp, 1953
   A summary of surface- and ground-water conditions in the county. Includes a ground-water resources map.

WALKER, E. H.

1. Geology and ground-water resources of the Covington-Newport alluvial area, Kentucky. U S Geol Surv Circ 240, 26 pp, 1953
   The water is hard to very hard and contains enough iron to be objectionable for certain uses. Ground-water temperature varies a few degrees, especially near the river, but averages

about 57° F. Tables give information on all wells and borings in the area and the quality of water; and a map and cross section showing extent, type, and thickness of the alluvial deposits.

WALKER, F. C. See Mason, M. A., 1

WALKER, G. O. See Stall, J. B., 6

WALKER, PHELPS

1. Depth and spacing for drain laterals as computed from core-sample permeability measurements. Agr Eng, v 33, pp 71-73, 1952
   The theory of spacing is reviewed and compared with observations in Virginia. Limitations of method are discussed.

WALKER, W. H. See Pree, H. L., Jr., 1, 2

WALLACE, P. R.

1. Interpretation of the fluctuating echo from randomly distributed scatterers, Part II. Can J Phys, v 31, pp 995-1009, 1953
   A mathematical treatment of a problem inherent in radar measurement of precipitation.

WALLIN, J. R.

1. (and POLHEMUS, DALE N.) A dew recorder. Sci, v 119, pp 294-295, Feb 26, 1953
   Describes a simple instrument for recording duration of dew.

WALLING, I. W. See also Bacon, V. W., 1; Lohr, E. W., 5

1. (and SCHOFF, S. L., and DOVER, J. B.) Chemical character of surface water in Oklahoma, 1946-1949. Okla Plan Res Bd Bul 5, 180 pp, 1951

WALRAVEN, W. B.

1. Water - mysterious, common, strange, destroying, vital water. Water, Sewerage Works, v 98, pp 253-257, 1951
   A general interest paper on water covering historical facts, hydrologic cycle, pollution, and other topics.

WALSH, K. J.

1. Wind-speed and air-temperature gradients for January-May, 1951, at micrometeorological project, Central Sierra Snow Laboratory. U S Corps Eng Snow Ice Permafrost Res Estab Snow Inv, Jan 5, 1953
   A preliminary survey of wind and temperature gradients in the surface 50-ft of the atmosphere. The influence of snow cover, forest cover, and topography are examined and an index to turbulent mixing is derived.

WALSTROM, J. E.

1. The quantitative aspects of electric log interpretation. Trans Amer Inst Min Metal Eng, v 195, pp 47-58, 1952
   A review of the status of electrical logging with emphasis on quantitative interpretation.

WALTERS, K. L.

1. Geology and ground-water resources of Jackson County, Kansas. Kans Geol Surv Bul 101, 91 pp, 1953
   Describes a county in northeastern Kansas with field data.
2. Geology and ground-water resources of Marshall County, Kansas. Kans Geol Surv Bul 106, 116 pp, 1954
   Surveys ground-water conditions in a county in northeastern Kansas. Includes geologic maps and field data.

WALTON, WILLIAM C. See also Foley, F. C., 1

1. The hydraulic properties of a dolomite aquifer underlying the village of Ada, Ohio. Ohio Div Water Tech Rep 1, 31 pp, 1953
   Describes in detail the conduct, method of analysis and result of a pumping test of a dolomite formation. Computations are given and theories explained. Describes and explains water level fluctuations.

WANDER, L. W.

1. (and REITZ, H. J.) The chemical composition of irrigation water used in Florida citrus groves. Fla Agr Exp Sta Bul 480, July 1951
   A summary of chemical analyses.

WANG, KIA KANG

1. Geology of Ouachita Parish. La Geol Surv Geol Bul 28, 126 pp, Nov 1952
   Discusses water resources of parish in northern Louisiana briefly.

WANTLAND, DART

1. Experimental resistivity investigations on canal seepage problems, Courtland Canal, Nebraska - Bostwick Division - Kansas River District - Missouri Basin project. U S Bur Recl Res and Geol Div Geol Rep 125, 23 pp, 1953
   Reports on 42 resistivity measurements which showed that different earth material could be distinguished and the data used in seepage studies.

WARD, F. N. See Lakin, H. W., 1

WARING, F. H.

1. A statistical study of the sources of public water supply. Ohio Univ Eng Exp Sta Bul 147, pp 48-56, May 1952
   A summary of water sources and water systems in Ohio.

WARN, G. FREDERICK

1. Drought and dust on the Plains. Weatherwise, v 6, pp 67-71, 1953
   Discusses historical droughts, the drought of 1951-52 in Texas and the factors contributing to dust storms.

WARNER, D. A. See Rapp, J. R., 1

WARNER, D. K.

1. Symposium on standardization of thermocouple curves. Instrum, v 24, pp 877-957, 1951
   Summarizes a panel discussion on thermocouples and their standardization.

WARNER, R. F. See Izzard, C. F., 2

WARNICK, C. C.

1. Laboratory and field experiments with snow gages in Idaho. Proc West Snow Conf, pp 57-68, Apr 1951
   Describes tests of various types of storage precipitation gages with a variety of shield patterns in wind tunnel and in actual field installation. Comparative performance data are presented.
2. (and ABBEY, R. J.) Prefab canal linings rated by seepage tests. West Const, v 28, pp 74, 75, 142, Apr 1953
   Reports seepage rates observed in canals with and without linings. Variety of prefabricated linings were tested in canals in Idaho.
3. Experiments with windshields for precipitation gages. Trans Amer Geophys Union, v 34, pp 379-388, 1953
   Reports field and laboratory wind-tunnel tests of various types of shields for precipitation gages and suggests possible improvements in design. Discussion by S. B. CROSS, v 35, pp 511-512, 1954

WARREN, H. V.

1. (and DELAVAULT, R. E.) Water testing in geochemical prospecting. Min Cong J, v 40, pp 82-85, 99, Apr 1954
   Methods of field testing water for presence of the heavy minerals are reviewed.

WARREN, J. H. See Oakes, M. C. 1

WATERFIELD, HAROLD H. See Hilliard, C., 1

WATERMAN, WALTER G. See Johnson, A. J., 1

WATKINS, J. WADE

1. (and MARDOCK, E. S.) Use of radioactive iodine as a tracer in water-flooding operations. J Pet Tech, v 6, pp 117-124, 1954
   Reviews previous use of tracers for ground-water flow and reports results of successful use of radio-iodine as a tracer for water used in repressurizing oil fields.

WATSON, J. R., JR.

1. (and MUSSER, H. B., and JEFFRIES, C. D.) Soil compaction determinations with a soil penetrometer as compared with the Geiger counter X-ray spectrometer. Agron J, v 43, pp 255-258, 1951
   The two techniques are compared statistically under varying conditions.

WATT, A. K.

1. Ground water in Ontario, 1948, 1949, and 1950. Ont Dept Mines Bul 145, 364 pp, 1953
   Presents data for almost 7700 wells. Data on ground-water conditions overburden and bedrock formation included.

WATTS, GEORGE M.

1. Development and field tests of a sampler for suspended sediment in wave action. U S Beach Eros Bd Tech Mem 34, 41 pp, Mar 1953
   Based on the principle of hydraulic similitude a circulatory pipe system is designed for use in the study of suspended sediment in wave action is discussed.
2. A study of sand movement at South Lake Worth Inlet, Florida. U S Beach Eros Bd Tech Mem 42, Oct 1953
   A discussion of the efficiency and effectiveness of the South Lake Worth sand by-passing plan, as determined from field measurements of waves, currents, sand characteristics, and amount of material pumped. A relation between the incident wave energy and the amount of littoral movement is also developed.
3. Laboratory study of effect of varying wave periods on beach profiles. U S Beach Eros Bd Tech Mem 53, Sep 1954

A laboratory study investigating the effect on wave-formed equilibrium beach profiles of varying the wave period about a mean value. In particular the effect of a variable wave period on formation of offshore bars was investigated.

4. Laboratory and field tests of sounding leads. U S Beach Eros Bd Tech Mem 54, Nov 1954
   A study to determine degree of penetration of various sizes, shapes and weights of sounding leads in viscous materials in connection with determining the top elevation of silt deposits requiring dredging operations for restoring navigable depths in rivers.
5. (and DEARDUFF, R. F.) Laboratory study of effect of tidal action on wave-formed beach profiles. U S Beach Eros Bd Tech Mem 52, Dec 1954
   A series of profile charts and graphs are presented illustrating the effect of tides on wave-formed equilibrium beach profiles in the laboratory. In particular investigations were made of the effect of tidal action in reducing the formation of offshore bars.

WAVVE, WILLIAM E.

1. Water and the world. Recl Era, v 37, pp 185-188, 1951
   Non-technical discussion of the water problem in the world.

WEAVER, FRANK L. See DeLuccia, E. R., 1

WEAVER, H. A. See also Jamison, V. C., 1, 2

1. (and JAMISON, V. C.) Limitations on the use of electrical-resistance soil-moisture units. Agron J, v 43, pp 602-605, 1951
   Nylon and fiberglas elements are tested under controlled conditions to check reproducibility, determine effect of electrolyte concentration, and mechanical durability.

WEAVER, JOHN C.

1. Changing patterns of cropland use in the Middle West. Econ Geog, v 30, pp 1-47, 1954
   A detailed discussion of cropland changes during 1939-1949 in the North Central Region.

WEAVER, O. D., JR.

1. Geology and mineral resources of Hughes County, Oklahoma. Okla Geol Surv Bul 70, 150 pp, 1954
   Mainly geologic study with some data related to ground water.

WEAVER, PAUL See also Hastings, W. W., 1

1. Water supplies. Ind Eng Chem, v 43, pp 1734-1737, 1951
   A brief review of the availability of water in Arkansas, Oklahoma, Texas, and Louisiana.

WEBBER, EARL E. See Winslow, J. D., 2

WEBER, ROBERT H. See Stubbs, M. F., 1

WEICKMANN, H. K. See Aufm Kampe, H. J., 1, 2; Kumai, M., 1

WEIGLE, J. M. See also Mundorff, M. J., 2

1. (and MUNDORFF, M. J.) Records of wells, water levels, and quality of ground water in the Spokane Valley, Spokane County, Washington. Wash Div Water Res Ground-water Bul 2, 102 pp, Sep 1952
   A compilation of well logs, pump test data, chemical analysis, and hydrographs showing the fluctuation of the water table for the part of the Spokane Valley lying in Washington.

WEIR, WALTER W.

1. Land drainage in California. Agr Eng, v 35, pp 482-485, 1954
   A historical survey.

WEIS, LEONARD W. See Melone, T. G., 1

WEISS, A. See Quintero, A. G., 1

WEISS, LEONARD L. See also Harmon, R. W., 1

1. Moisture accumulation rates in thunderstorm cells. Trans Amer Geophys Union, v 33, pp 13-20, 1952
   Limits on the duration and rates of moisture accumulation in thunderstorm cells are estimated from computations based on the empirical results of Byers and Braham applied to idealized cells involving assumptions of radial symmetry, divergence of specific momentum, U. S. standard atmosphere and a steady-rate flow pattern.

WEISS, R. H.

1. Sewage- and water-treatment problems caused by the Rio Grande flood. Pub Works, v 85, pp 145-150, 1954
   A historical review of the flood of June and July, 1954, with emphasis on its effect on treatment plants.

WEITZMAN, SIDNEY See also Trimble, G. R., Jr., 1

1. (and TRIMBLE, G. R., JR.) Skid-road erosion can be reduced. J Soil Water Cons, v 7, pp 122-124, 1952
   Describes means by which erosion along lumber roads can be minimized.

WELLER, HARVILLE See Haas, R. H., 1

WELLS, JOSEPH V. B.
1. The water situation in the United States. J Soil Water Cons, v 6, pp 78-82, 100, 1951
A summary of the growth of demand for water in the U. S. and of the overall supply of water available.

WELSCH, W. FRED See Lieber, M., 1

WENTWORTH, CHESTER K.
1. Geology and ground water resources of the Honolulu - Pearl Harbor area, Oahu, Hawaii. Bd Water Supply, Honolulu, 111 pp, 1951
A comprehensive report of studies initiated in 1934 including summary of geography and geology of the area, summary of data from drill holes and excavations, hydrologic factors affecting the ground water supply, occurrence and behavior of the ground water, the Ghyben-Herzberg principle, and the relation between rainfall, draft, and storage in the aquifers.

WERNER, P. WILH.
1. (and NOREN, DANIEL) Progressive waves in non-artesian aquifers. Trans Amer Geophys Union, v 32, pp 238-244, 1951
The article deals with progressive waves in ground water aquifers under water-table conditions.
2. On the origin of river meanders. Trans Amer Geophys Union, v 32, pp 898-902, 1951
Attempts to correlate the constant nodal distance between bends of a given river with transverse oscillations of the stream.

WEST, RICHARD L.
1. Alluvial rivers, basic characteristics and theory of meandering. Princeton Univ, MS thesis, 139 pp, 1954
Discusses the forces affecting the flow of alluvial rivers. Formation of river systems and valleys, formation of meanders as developed in laboratory tests and observation of natural streams, and meanders as related to river regulation.

WETMORE, L. B.
1. (and LIPMAN, W.) Water-resources program for Rhode Island (preliminary). R I Dev Coun Water Res Mem 3, Feb 1954

WHALEY, RICHARD C. See Silverman, M., 1

WHEELER, W. W.
1. Water resources. Ind Eng Chem, v 45, pp 2459-2466, 1953
A summary by states for Idaho, Montana, Wyoming, and New Mexico of the legal and physical availability of water and its quality.

WHELAN, DONALD E.
1. (and MILLER, LEMUEL E., and CAVALLERO, JOHN B.) A method of determining surface runoff by 'routing' infiltrated water through the soil profiles. NE For Exp Sta Paper 54, 15 pp, 1952
The storm of July 18, 1942, in the upper Allegheny River is analyzed by considering the progressive movement of water through the soil and determining the amounts of water retained in the various soil horizons.

WHETSTONE, GEORGE A. See Lowry, R. L., 1
1. Mechanism of ground water recharge. Agr Eng, v 35, pp 646-647, 1954
A survey of the problem of improving the intake characteristics of soil for water spreading.

WHIPPLE, WILLIAM, JR.
1. Comprehensive plan for the Columbia Basin. Trans Amer Soc Civ Eng, v 116, pp 1416-1440, 1951
A summary of a comprehensive Federal plan for the development of the Columbia River. Discussion by L. E. RYDELL.

WHITAKER, J. R.
1. Erosion of farmery sites in the Nashville Basin of middle Tennessee. Econ Geog, pp 207-211, July 1952
The article describes conditions of erosion around farmery sites in the Nashville Basin of Tennessee.

WHITAKER, R. W.
1. (and LYTLE, W. F.) Supplemental irrigation of pasture. Agr Eng, v 32, pp 163-165, 1951
The effect of amount and frequency of water application and the fertilizer treatments on irrigated pasture are evaluated in terms of crop yields and annual gain for an area in southern Illinois.

WHITE, G. N.
1. Early American geology. Sci Mon, v 76, pp 134-141, 1953
Describes early geologic work in the U. S. with considerable reference to ground- and surface-water problems.

WHITE, GEORGE W. See Smith, R. C., 2; Winslow, J. P., 2
WHITE, W. F., JR. See Graham, J. B., 1; Lohr, E. W., & 9; Mangan, J. W., 1
WHITE, WILLIAM A.
1. Systematic drainage changes in the Piedmont of North Carolina and Virginia. Geol Soc Amer Bul, v 64, pp 561-580, 1953
The historical development of the present stream systems is traced.
WHITESIDE, E. P.
1. Some relationships between the classification of rocks by geologists and the classification of soil by soil scientists. Proc Soil Sci Soc Amer, v 17, pp 138-142, 1953
An attempt to unify the two classifications.
WICKER, CLARENCE F.
1. Sediment discharge in tidal waterways. U S Corps Eng Comm on Tidal Hydr Tech Bul 1, 8 pp, 1954
The problems associated with sediment measurement in tidal waterways are analyzed. It is suggested that a continuous observation might be obtained through use of photoelectric device. Comments from several sources on this proposal are included.
WIESLANDER, A. E. See also Storie, R. E., 1
1. (and STORIE, R. E.) Vegetational approach to soil surveys in wildland area. Proc Soil Sci Soc Amer, v 17, pp 143-147, 1953
Describes methods used to map vegetation and soil on three million acres of mountainous land in California. Classification includes vegetation type, age, and density of timber stand, timber site quality, and series and depth of soil.
WIESNET, D. R.
1. (and RANDALL, L. E., and JONES, D. E.) Reports and maps of the Geological Survey released only in the open files, 1951. U S Geol Surv Circ 227, 16 pp, 1953
This circular contains a list of maps and reports released by the Geological Survey in 1951 that are available only in the open files in Washington, D. C., or other depositories. The reports contain information on streamflow, ground water, quality of water, and related geology and hydrology in the United States, Alaska, Virgin Islands, Puerto Rico, and Chile.
WILBERT, L. J., JR. See Fisk, H. N., 3
WILCOX, J. C.
1. (and MASON, J. L.) Consumptive use of water in orchard soils, I, Effect of soil depth. Can J Agr Sci, v 33, pp 101-115, 1953
Observations showed that almost all plant moisture is removed from the upper 4 ft of soil.
2. (and MASON, J. L., and McDOUGALL, J. M.) Consumptive use of water in orchard soils, II, Effect of evaporative power of air and length of irrigation interval. Can J Agr Sci, v 33, pp 231-245, 1953
Consumptive use of water to a depth of 6 ft in 41 plots of mature apple trees is determined and compared with loss from 12-inch diameter evaporation pans. Significant correlation between panevaporation and length of irrigation interval and consumptive use are found.
WILCOX, L. V.
1. A method of calculating the solution percentage from the weight of a known volume of saturated soil paste. Soil Sci, v 72, pp 233-237, 1951
The relationship is expressed as a simple algebraic equation.
2. (and BLAIR, GEORGE Y., and BOWER, C. A.) Effect of bicarbonate on suitability of water for irrigation. Soil Sci, v 77, pp 259-266, 1954
Pot cultures are used to evaluate the limits of bicarbonate for waters for irrigation.
WILDE, R. H. See Schulz, E. F., 1
WILDE, S. A.
1. (and RANDALL, S. W.) Chemical characteristics of ground water in forest and marsh soils of Wisconsin. Trans Wisc Acad Sci, Art, Let, v 40, pp 251-259, 1951
Methods of sampling and analysis and chemical data on a number of surface- and shallow ground-water samples are reported.
2. (and STEINBRENNER, E. C., PIERCE, R. S., DOSEN, R. C., and PRONIN, D. T.) Influence of forest cover on the state of the ground-water table. Proc Soil Sci Soc Amer, v 17, pp 65-67, 1953
Observations of water levels in Wisconsin suggest that forest cover lowers the water table no more than nine inches in strongly podsolized, morainic soils. Clear-cutting of an aspen stand produced an average rise of 14 inches.
WILDHACK, W. A.
1. Review of some methods of flow measurement. Sci, v 120, pp 191-197, Aug 6, 1954
Discusses various devices adapted to measurement of small flows in pipes.

WILKINSON, GARFORD L.

1. The Canadian River project. Recl Era, v 37, pp 48-50, 1951
   A general discussion of the project designed to provide municipal water supplies for 11 Texas cities, which get their water from wells in an area where the withdrawal is 20 times as much as the natural replenishment.
2. Rounding up the Rio. Recl Era, v 38, pp 113-116, 1952
   A description of new channels being excavated to keep the Rio Grande River within planned bounds.

WILL, JOHN GEOFFREY

1. Plans for the Upper Colorado River. West Const, v 28, pp 72-73, Jan 1953
   Summarizes proposed water-control work in Colorado River basin above Lee Ferry.

WILLETT, HURD C. See also Emmons, G., 1

1. Extrapolation of sunspot-climate relationships. J Met, v 8, pp 1-6, 1951
   Some apparent correlations between sunspots, temperature, precipitation, glacial advance, and lake levels over the period 1740-1940 are presented. Some forecasts for the period ending about 2000 AD are presented on the basis of these correlations. Discussion by L. H. BEAN, v 9, pp 76-78, 1952.

WILLEY, C. K.

1. Production economics in hydro-power. Midwest Eng, v 3, pp 12-14, 26, Mar 1951, and pp 10-12, 19, Apr 1951
   Traces historical development of hydro-power and especially discusses factors bearing on relative competition of hydro and thermal power including hydrologic factors.

WILLIAMS, B. H.

1. (and BOWSER, W. EARL) Gray wooded soils in parts of Alberta and Montana. Proc Soil Sci Soc Amer, v 16, pp 130-133, 1952
   A description of the soils based on field and laboratory tests.

WILLIAMS, E. ALLAN See also Isaacs, J. D., 1

1. (and ISAACS, JOHN D.) The refraction of groups and of waves which they generate in shallow water. Trans Amer Geophys Union, v 33, pp 523-530, 1952
   Describes process which may account for surging in the surf zone as well as other phenomena.

WILLIAMS, JOHN R.

1. Effect of wind-generated waves on the migration of the Yukon River in the Yukon Flats, Alaska. Sci, v 115, pp 519-520, May 9, 1952
   Wind waves accelerate erosion of leeward stream bank and cause channel migration.

WILLIAMS, M. See McCardell, W. M., 1

WILLIS, WAYNE O.

1. Wetting and drying, freezing and thawing in soils treated with organic chemicals. Iowa State Coll, MS thesis, 1953
   Experiments were performed to determine what the effect would be on certain physical properties of soils which had been through a series of wetting and drying or freezing and thawing cycles after being treated with some types of organic chemicals. Laboratory and field experiments were carried out.

WILM, H. G. See also Nelson, M. W., 1; Work, R. A., 1

1. Statistical control in hydrologic forecasting. Sci Mon, v 72, pp 185-188, 1951
   An abridged version of a longer, mimeographed manuscript. Outlines the logic and statistical techniques employed in developing equations for the forecasting of water yields, flood flows, and other hydrologic phenomena.
2. Watershed management and flood-control surveys. J Forestry, v 49, pp 511-513, 1951
   Summarizes the development of watershed problems in the United States, and discusses activities carried on by the U. S. Department of Agriculture under the Flood Control Act of 1936. Points out the relationship between flood control, watershed protection, and watershed management, with particular emphasis on forest and range lands.
3. The pattern of scientific inquiry for applied research. J Forestry, v 50, pp 120-125, 1952
   The logic of experimental inquiry in applied research, particularly as applied to the problems that are encountered in forest and range management and hydrology.
4. The relation of different kinds of plant cover to water yields in semi-arid areas. Proc Int Grassland Conf, pp 1046-1050, 1952
   An analysis of the principles involved in the disposal of precipitation, especially as to the effects of vegetation on water yields. Concludes that the protection of soil stability is the one most important feature of watershed management in semi-arid areas with very low water yields.
5. The place of forest and range in watershed conservation. Trans 19th N Amer Wildlife Conf, pp 50-57, 1954

An analysis of the comparative roles of cropland, upstream engineering works, and forest and range land in programs of watershed improvement. Among the conclusions: soil-conservation work on cropland benefits soil stability and crop production, but it is not considered to reduce floods substantially; small upstream structures exert their principal effects on the smaller watersheds and smaller floods; land drainage can hardly be expected to reduce floods; and, though it has definite limitations, the management of forest and range lands offers special promise for the solution of watershed problems.

WILSEY, EDWARD F.

1. Flow in open channels. Proc Amer Soc Civ Eng sep 466, 18 pp, Aug 1954
   The Chezy formula is derived in dimensional form and two categories of open-channel flow are illustrated. The stream function of aerodynamics is introduced to explain the entrainment of air on steep slopes, and a formula is derived for the velocity of flow in channels on gradual slopes.

WILSON, BASIL W. See also Carr, J. H., 1

1. Generation of long-period seiches in Table Bay, Capetown, by barometric oscillations. Trans Amer Geophys Union, v 35, pp 733-746, 1954
   An analysis of the cause of the seiches which are observed.

WILSON, C. W., JR.

1. Annotated bibliography of the geology of Tennessee through December, 1950. Tenn Dept Cons Bul 59, 308 pp, 1953
   A comprehensive bibliography with regional, subject, and author indices.

WILSON, CHARLES MORROW

1. Good earth from bad rivers. Nat Hist, v 61, pp 366-371, 1952
   Description of method used along the Ulna River, Honduras, to build up flood-plain land by encouraging sediment deposits.

WILSON, CLARENCE M.

1. (and LOVVOM, RAY R., and WOODHOUSE, W. W., JR.) Movement and accumulation of water soluble boron within the soil profile. Agron J, v 43, pp 363-367, 1951
   Field tests in North Carolina show that boron movement depends greatly on soil texture.

WILSON, CURTIS M.

1. The Box Butte tableland. Ohio J Sci, v 51, pp 227-248, 1951
   Describes an area in Nebraska with respect to climate, soils, topography, drainage, vegetation, and water resources.

WILSON, H. M. See Terry, C. W., 1

WILSON, JAMES T. See Zumberge, J. H., 2

WILSON, RICHARD W.

1. Ground-water investigations of a portion of the Kendrick project, Natrona County, Wyoming. Wyo Univ, MA thesis, 1951
   Only source of domestic water is alluvium. Best water is found in the flood plains of creeks. Irrigation is raising the water table and will determine future water quality.

WILSON, T. V. See Van Bavel, C. H. M., 3

WILSON, W. W. See Prescott, G. G., 4

WILSON, WALTER T. See also Hamon, R. W., 1; Kehrlein, O., 1

1. Some fundamental problems and investigational techniques in snow melt forecasting. Proc West Snow Conf, pp 47-56, Apr 1951
   A general review of the statistical and hydrologic problems involved in snow melt forecasting. The principle parameters are discussed, limitations of field observations noted, and possible methods of analysis discussed. Discussion by W. D. CRIDDLE.
2. (and TARBLE, RICHARD D.) Estimated frequencies and extreme values of snow-pack equivalent at major cities in the United States. Trans Amer Geophys Union, v 33, pp 871-880, 1952
   Depth of snow and accumulated seasonal snowfall are employed as the basis for estimating maximum water equivalent for roof load design.
3. Analysis of winter precipitation observations in the Cooperative Snow Investigation. Mon Wea Rev, v 82, pp 183-195, 1954
   Observation of precipitation and water equivalent of snow on ground are compared. Effect of wind on gage sheltering is evaluated.

WINSAUER, W. O. See McCardell, W. M., 1

WINSLOW, A. G. See also Goines, W. H., 1

1. (and FLUELLEN, T. R., JR.) The Houston District, Texas, pumpage and decline of artesian pressures during 1950-51. Tex Bd Water Eng Bul 5201, 25 pp, Jan 1952
2. (and DOYEL, W. W.) Salt water and its relation to fresh ground water in Harris County, Texas. Tex Bd Water Eng Bul 5409, 37 pp, 1954

An extensive study on the problems of salt ground-water including not only sea-water intrusion but the movement of salt from below, through leaking wells, etc. Rate of advance of salt water is related to hydraulic gradient.

3. (and DOYEL, W. W.) Land-surface subsidence and its relation to the withdrawal of ground water in the Houston-Galveston region, Texas. Econ Geol, v 49, pp 413-422, 1954
Land subsidence coincides with a region where large volumes of waste have been pumped from sand aquifers interbedded with clay layers. Ratio of artesian pressure reduction to subsidence is computed and percentage of withdrawal from the clay layers is estimated.

WINSLOW, J. D.

1. Map showing ground-water resources in Cuyahoga County, Ohio, and the approximate contours on the bedrock surface. Ohio Dept Nat Res, Oct 1952
2. (and WHITE, GEORGE W., and WEBBER, EARL E.) The water resources of Cuyahoga County, Ohio. Ohio Div Water, Bul 26, 123 pp, Aug 1953
A summary of the geography and geology of the county (Cleveland area) and a description of the surface-water and ground-water conditions. Includes well records, stream flow, flood, and drought data, and maps showing geology and ground-water conditions.

WISLER, C. O. See also Stramel, G. J., 1

1. (and STRAMEL, G. J., and LAIRD, L. B.) Water resources of the Detroit area, Michigan. U S Geol Surv Circ 183, 36 pp, 1952
The minimum and average flow of the Clinton River, River Rouge, and Huron River are given. Flow-duration curves and curves of maximum period of deficient discharge show the low-flow characteristics of these streams. A flood profile of the River Rouge is also given. Depth of glacial drift and areas favorable for greater ground-water development are shown on maps. Ground-water supplies developed by inducing infiltration from the Huron River are described. Information is given on chemical quality of both ground water and surface water. The report also contains tables and graphs showing the chemical characteristics of water from public supplies. Laws affecting the use of water in the area are described briefly and a summary of the potential water resources of the region is given.

WITHERSPOON, DAVID FRANKLIN

1. Recommended yields of surface runoff from small watersheds on the Hillsdale soil complex and rates of surface runoff for use in the design of farm ponds in southern Michigan. Mich State Coll, MS thesis, 40 pp, 1952
Recommendations are made for the yield of surface runoff to use in the design of farm ponds in southern Michigan. Also the main factors which govern the design of a farm pond are discussed.

WOHLETZ, LEONARD R.

1. (and HOUGHTON, FRED A., JR.) Pacific Coast reports progress in using power for soil sampling. J Soil Water Cons, v 8, pp 236-239, 1953
Describes power-driven truck-mounted auger for rough soil sampling.

WOLFF, EDWARD

1. An airborne flow meter for measuring rain. Bul Amer Met Soc, v 33, pp 369-372, 1952
The rate of flow of water from a collector is measured by the oscillations of a mercury plug in a small bore capillary tube.

WOLMAN, ABEL

1. The complexities of a national water policy. Edison Elec Inst Bul, v 20, pp 248-250, 255, 1952
A review of the problems of formulating and maintaining a national water policy.
2. The complexities of a national water policy. J Amer Water Works Assn, v 44, pp 775-779, 1952
The growing complexities of the field of water resources and their development is traced from 1930 to the present. The four principles determined by the Engineers Joint Council are stated. Deplores the lack of a "single, uniform federal policy governing comprehensive development of water and land resources," and questions the extensive spending for flood control until the technical, legal, and administrative issues are resolved.

WOLMAN, M. GORDON

1. A method of sampling coarse river-bed material. Trans Amer Geophys Union, v 35, pp 951-956, 1954
Presents method based on the relative area covered by particles of various sizes. Sampling consists of measuring the intermediate axis of 100 pebbles picked from the channel bed on the basis of a grid system. A frequency distribution from this sample leads to the desired size parameters.

WOOD, GEORGE W.

1. Ground-water supply for New Britain, Connecticut. J NE Water Works Assn, v 66, pp 143-157, 1951
Describes investigation and final development of sites.

WOOD, IVAN D.
1. Land preparation for irrigation and drainage. Agr Eng, v 32, pp 597-599, 1951
Methods of arranging irrigation and drainage structures are reviewed.
WOOD, REX C. See Foskett, L. W., 1
WOOD, WALTER A.
1. The Arctic Institute of North America. Weatherwise, v 5, pp 85-87, 1952
Describes the organization, history, and activities of the Institute.
WOOD, WILLIS A. See Jay, L. A., 1
WOODFORD, A. O. See Gilluly, J., 1
WOODHOUSE, W. W., JR. See Wilson, C. M., 1
WOODRUFF, N. P. See also Chepil, W. S., 7; Englehorn, C. L., 1; Zingg, A. W., 3, 4
1. (and ZINGG, A. W.) Wind-tunnel studies of fundamental problems related to windbreaks. U S Soil Cons Serv SCS-TP-112, Aug 1952
A report of basic research.
WOODWARD, GUY O.
1. (and MILLER, W. McNAB) A study of soil-water movement by electro-osmosis. Agr Eng, v 34, pp 29-33, 1953
A summary of the work of various investigators in the field of electro-osmosis. Bibliography.
WORK, R. A. See also Beaumont, R. T., 1; Houston, C. E., 1; Nelson, M. W., 1
1. (and NELSON, MORLAN W., and WILM, H. C.) Use of snow surveys in planning of regulation of Columbia River floods. Proc West Snow Conf, pp 1-27, Apr 1951
Illustrates the use of graphical and regression techniques for the forecasting of flood flows and water yields from snow-survey data and other meteorological factors. Discussion by C. PEDERSON.
2. General requirements of a satisfactory over-snow machine. Proc West Snow Conf, pp 69-75, Apr 1951
Discusses in qualitative terms the desirable performance characteristics of snow vehicles and presents a suggested rating scale for evaluating the vehicle. Discussion by G. J. KLEIN.
3. (and HOUSTON, CLYDE E.) Droughts, floods forecast. Elec West, v 106, pp 69-71, May 1951
A summary of April 1 water supply forecasts for 1951.
4. (and HOUSTON, CLYDE E.) Runoff forecasts - 1951 water supply in western states. West Const, v 26, pp 76-78, 144, May 1951
Summary of forecasts from snow surveys as of April, 1951.
5. (and HOUSTON, CLYDE E.) Runoff forecasts - 1952 water supply in western states. West Const, v 27, pp 81-83, 144, May 1952
Summarizes the SCS water-supply forecasts for the western states as of April, 1952.
6. (and HOUSTON, CLYDE E.) Water, water everywhere. Elec West, v 108, pp 67-70, May 1952
A summary of the 1952 water supply forecasts.
7. Water report. Recl Era, v 38, pp 249-251, 1952
General discussion of western water supplies and analysis of the 1951 runoff forecasts.
8. (and POLOS, ANTHONY J.) A new program of co-ordinated Federal-State water-supply forecasting. Proc West Snow Conf, pp 4-5, Apr 1953
A summary of the proposed co-ordinated activities of the Weather Bureau and Soil Conservation Service. Discussion by F. A. STRAUSS, p 69.
9. (and HOUSTON, CLYDE E.) Stream-flow forecast below normal. Elec West, v 110, pp 77-80, May 1953
Summary of 1953 water-supply forecasts.
WORLEY, L. D.
1. Planning water disposal for minimum maintenance. Agr Eng, v 32, pp 37-38, 1951
A general discussion of techniques of disposing of excess storm water from farmlands.
WORTS, G. F., JR. See also Upson, J. E., 3
1. Geology and ground-water resources of the Santa Maria valley area, California. U S Geol Surv Water-Supply Paper 1000, 169 pp, 1951
WRATHER, WILLIAM E.
1. A new tool for marine geology. Mil Eng, v 44, pp 411-412, 1952
Use of sonic gear to study stratification of underwater sediments is described.
2. A summary of the water situation with respect to annual runoff in the United States. Physical and Economic Foundation of Natural Resources, v 2, pp 36-41, U S House Rep, 1952
A general discussion of runoff. Includes maps of mean annual runoff and comparative average precipitation, runoff, and evapotranspiration for major U. S. drainage basins.

WRIGHT, JOHN C.

1. The hydrobiology of Atwood Lake, a flood-control reservoir. Ecology, v 35, pp 305-316, 1954
   Includes temperature profiles over about two years, and data on turbidity and chemistry of the lake waters.

WRIGHT, KENNETH K.

1. Underground water problems in California. J Amer Water Works Assn, v 44, pp 662-668, 1952
   A brief discussion of California water laws and the problems that the severe drought of eight years duration has caused.

WU, K. C. See Jansen, R. B., 1

WUNNECKE, GEORGE W. See Bay, C. E., 2

WYATT, JACK H.

1. Instrumentation in the laboratory. J Amer Water Works Assn, v 45, pp 129-144, 1953
   A discussion of laboratory techniques for water analysis.

WYNDHAM, HERBERT B. See Smallwood, C., Jr., 1

WYSS, G. See Bradley, J. N., 1

YAMAMOTO, GIICHI

1. (and ONISHI, GAISHI) Absorption of solar radiation by water vapor in the atmosphere. J Met, v 9, pp 415-421, 1952
   A chart showing absorption as a function of precipitable water is presented as the result of analysis of the work of several authors.

YIH, CHIA-SHUN See also McNown, J. S., 3

1. Comparative study of momentum transfer, heat transfer, and vapor transfer, pt I, forced convection, laminar case. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 1, 54 pp, Sep 1950
   A critical review of the literature treating the mathematics of heat, vapor, and momentum transfer under conditions of forced convection, laminar case. The analogous equations for the various cases are compared.
2. A comparative study of momentum transfer, heat transfer, and vapor transfer, pt II, forced convection, turbulent case. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 2, 135 pp, June 1951
   A critical review of the mathematical literature concerned with momentum, heat, and vapor transfer where forced convection and turbulence are involved. Analogous equations are compared and certain aspects of the mathematics are extended.
3. A comparative study of momentum transfer, heat transfer, and vapor transfer, pt III, free convection. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 3, 32 pp, Feb 1951
   A critical review of the literature treating the mathematics of heat, vapor, and momentum transfer under conditions of free convection. The analogous equations for the various cases are compared.
4. Atmospheric diffusion from a point source. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 4, 9 pp, Aug 1951
   Exact solutions for the differential equations of diffusion for a point source when wind velocities and diffusivities are power functions of the height.
5. A comparative study of momentum transfer, heat transfer, and vapor transfer, pt II, forced convection, turbulent case, Chap 2, Reynolds' analogy and its extensions. Colo Agr Mech Coll, Dept Civ Eng, 23 pp, 1951
   A critical review of the literature treating the mathematics of heat, vapor, and momentum transfer from conditions of forced convection, turbulent case. The analogous equations for the various cases are compared.
6. Atmospheric diffusion from a line and point source of mass above the ground. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 5, 9 pp, Apr 1952
   Under the assumption that the wind velocity and the diffusivities vary as power functions of height, the mass distribution in the atmosphere resulting from a line or point source above the ground is calculated. The results obtained has a direct bearing on the problem of smog control.
7. On the asymptotic behavior of any fundamental solution of the equation of atmospheric diffusion and on a particular diffusion problem. Colo Agr Mech Coll, Dept Civ Eng, Off Naval Res Cont N90nr-82401, Rep 8, 11 pp, Sep 1952
   The asymptotic behavior of any fundamental solution of the differential equation of atmospheric diffusion is studied. It is found that if the wind velocity and the diffusivity increase monotonically with height, then the 'amplitude' and the spacing of the zeroes of the fundamental solution will decrease asymptotically in certain definite ways. As an application a particular problem in atmospheric diffusion is solved.

8. Laminar free convection due to a line source of heat. Trans Amer Geophys Union, v 33, pp 669-672, 1952
   Closed solutions are given for the velocity and temperature distributions in a fluid which is set in laminar free convection by a line source of heat embedded in an infinite horizontal plane, for Prandtl numbers 2/3 and 7/3. The variations of the kinematic viscosity and of the thermal diffusivity of the fluid with temperature as well as the heat due to viscous dissipation are neglected.
9. On tides in estuaries and around small islands. Trans Amer Geophys Union, v 34, pp 389-393, 1953
   Under the assumption that the width and the mean depth of the estuary can be expressed as power functions of the longtitudinal distance from a certain point upstream, and that the depth of the ocean varies as a power function of the radial distance from the island, analytical solutions can be found by simple transformations.
10. Stationary waves in water flowing over a rough surface. Trans Amer Geophys Union, v 34, pp 889-892, 1953
    A study of stationary waves in a stream caused by a slight two dimensional roughness in the bed of the stream.

YOST, C. B., JR. See Feth, J. H., 1

YOUHOTSKY, M. J. See Rich, L. R., 1

YOUKER, R. E.

1. (and DREIBELBIS, F. R.) An improved soil-moisture measuring unit for hydrologic studies. Trans Amer Geophys Union, v 32, pp 447-451, 1951
   A fiberglass gypsum-block soil-moisture unit is described. Operation explained. Especially useful in studying soil moisture from field capacity to saturation.

YOUNG, L. L. See also Jones, B. E., 1

1. (and JONES, B. E.) Annotated bibliography of U. S. Geological Survey reports on water-power resources, including floods and droughts. U S Geol Surv Circ 200, 32 pp, 1953
   Brings up to date a mimeographed bibliography prepared in 1940 by B. E. Jones. Water-supply papers, circulars, and manuscript reports dealing with water-power resources, floods, and droughts are listed together with short summaries of the contents. The primary purpose of the bibliography is to catalog and describe reports which deal specifically with water-power potentialities.

YOUNG, VERNON A. See Thomas, G. W., 1

YOUNGQUIST, C. V. See also Hazen, R., 1

1. The increasing usage of water. Ohio Univ Eng Ser Bul 147, pp 7-20, May 1952
   A summary of unit water requirements for Ohio industry.

ZANGAR, CARL N.

1. Theory and problems of water percolation. U S Bur Rec Eng Mono 8, 76 pp, 1953
   Discusses the problems of seepage and methods of control. Gives several methods for field determination of permeability.

ZETTER, BERNARD D.

1. Some effects of the diversion of the Santee River on the waters of the Charleston Harbor. Trans Amer Geophys Union, v 34, pp 729-732, 1953
   The effect of discharging more fresh water into the Charleston Harbor is discussed. A reduction in salinity, rise in sea level, and an increased tidal range were noted.

ZIMMERMAN, H. L. See Hussey, K. M., 1

ZINGG, A. W. See also Chepil, W. S., 2, 5; Englehorn, C. L., 1; Woodruff, N. P., 1

1. Evaluation of the erodibility of field surfaces with a portable wind tunnel. Proc Soil Sci Soc Amer, v 15, pp 11-17, 1950
   Reports tests to evaluate effect of soil structure, roughness, and vegetal cover on wind erosion.
2. A portable wind tunnel and dust collector developed to evaluate the erodibility of field surfaces. Agron J, v 43, pp 189-191, 1951
   A description of field equipment for evaluation of wind erosion.
3. (and WOODRUFF, N. P.) Calibration of a portable wind tunnel for the simple determination of roughness and drag on field surfaces. Agron J, v 43, pp 191-193, 1951
   Reports results of laboratory tests.
4. (and WOODRUFF, N. P., and ENGLEHORN, C. L.) Effect of wind row orientation on erodibility of land in sorghum stubble. Agron J, v 44, pp 227-230, 1952
   Using a portable wind tunnel, field tests near Hays, Kansas, are reported.
5. The wind erosion problem in the Great Plains. Trans Amer Geophys Union, v 35, pp 252-258, 1954

Reviews present knowledge on the topic and stresses need for further research. Present historical aspects of the problem are oulined. An equation for wind-erosion loss as determined in wind-tunnel tests is presented. Methods of wind-erosion control are described.

ZOCH, RICHMOND T.

1. On the varlation of the average daily temperature at Washington. J Wash Acad Sci, v 42, pp 105-113, 1952
   Standard deviation and extremes of temperature for each day of year are computed for 60-year record.

ZUMBERGE, JAMES H.

1. The lakes of Minnesota: Their origin and classification. Minn Geol Surv Bul 35, 99 pp, 1952
   Lakes are classified as to origin and typical characteristics of each class illustrated by a 'type' lake.
2. (and WILSON, JAMES T.) Quantitative studies on thermal expansion and contraction of lake ice. J Geol, v 61, pp 374-383, 1953
   Reports field observations during 1951-52 on a lake in Michigan.

ZWERMAN, PAUL J.

1. Problems of drainage in a soil and water conservation program. J Soil Water Cons, v 6, pp 185-186, 194, 1951
   A discussion of drainage problems encountered in soil and water conservation programs.

ANONYMOUS

1. Coordinated development of water resources recommended by President's commission. Civ Eng, v 46, p 72, 1951
   Proposal for unification of all existing agencies for basin wide planning.
2. Water in the United States. Focus, v 1, 4 pp, Jan 15, 1951
   A general review of water problems with small scale maps of climate, population, principal drainage basins, runoff, and possible trouble areas.
3. Predicting (and preventing) Columbia River floods. West Const, v 26, p 83, May 1951
   A fairly complete, semi-technical report of a paper by Work, Wilm, and Nelson. (See Work, R. A., 1)
4. How much pollution can a river take? Eng News-Rec, v 140, p 40, May 24, 1951
   River pollution on the Wabash River below Terre Haute was surveyed with consideration of the following items: hydrologic data, drought minimum flow, water temperature, future city growth, waste discharge, and river water quality. Describes methods of sampling, testing, and interpretation of data.
5. Stanley County wins its struggle for water. Soil Cons, v 16, pp 3-4, June 1951
   An account, with comparative photographs from 1938-1949, telling how the soil and water-conservation plan for this county in South Dakota has approached the problem with construction of water facilities - stockwater dams and ponds.
6. Flood waters roll into history. Eng News-Rec, v 147, p 25, July 26, 1951
   Discusses the flood damage of the July, 1951, Kansas flood; compares alternate plans for flood control by Army Engineers and Bureau of Reclamation.
7. Flood damage estimate increases. Eng News-Rec, v 147, p 25, Aug 2, 1951
   Discusses in detail the validity of the Army Engineers estimate of flood damage of July, 1951, flood. Describes method of computing flood losses.
8. How to stem salt-water intrusion. West City, v 27, pp 32-35, Sep 1951
   A description of the intrusion problem in Southern California and of the experimental work with water spreading and injection wells to prevent further encroachment.
9. Biggest flood could have been worse. Eng News-Rec, v 148, p 128, Mar 20, 1952
   The article relates the 1951 Kansas flood and justifies greater expenditures for flood control showing the storm could have been worse if its center had moved a few miles to the north.
10. Procedure for rating water current meters. Pub Works, v 83, pp 72-73, 1952
    Describes National Bureau of Standards procedures.
11. Arizona ground-water law gets realistic rewrite. West Const, v 27, p 76, 1952
    A review of ground-water law intended to conform to the realistic facts of hydrology.
12. Flood tears gap in dam. Eng News-Rec, v 148, p 24, Apr 24, 1952
    Flood exceeds the design capacity of spillway at Montana State Water Board's Frenchman Creek Dam last week. Hydrological reasons for the flood are given.
13. Obstacles threaten underground dam. Eng News-Rec, v 148, p 78, Apr 24, 1952
    Obstacles have developed which made an underground dam of water impractical to stop sea-water intrusion.
14. Removing the 'guess' from flood warnings. West Const, v 27, pp 80, 136, 1952
    Describes automatic radio rain gages of the Bureau of Reclamation and organization of flood warning program in the Central Valley of California.

15. Greatest Kaw River flood. Eng News-Rec, v 147, p 23, July 19, 1951
A discussion of the July 2, 1951, Kansas City flood and comparison with 1903 all-time record.
16. Recharging wells installed to stem sea-water intrusion. Water Works Eng, v 105, pp 871-872, 893, 1952
Describes operation in Los Angeles area.
17. Water. Power, v 96, pp 71-117, 1952
A broad review of water from the ocean through use. Extensively illustrated with schematic diagrams. Discusses hydrologic cycle, weather, reservoirs, ground water, water requirements, pollution, new water sources, development plans, wells, and water treatment.
18. Project Cirrus - the story of cloud seeding. Gen Elec Rev, v 55, pp 8-26, 1952
A historical review of work of General Electric personnel in the field. Many trials are described though little actual data are presented.
19. South Saskatchewan River project. Rep of R Comm, 423 pp, Ottawa, 1952
A comprehensive report on a possible irrigation project. Contains hydrologic data.
20. They welcome silt in these reservoirs. Eng News-Rec, v 150, pp 32-36, Apr 23, 1953
In two reservoirs at Holtwood and Safe Harbor, Pennsylvania, the sediment contains coal that can be reclaimed at little more than half the cost of newly-mined fuel. A description of such sediment-reclamation plant is in this article with diagram showing coal-reclamation process.
21. Snow surveys made on the wing. Elec West, v 110, p 81, 1953
Use of aerial photographs of permanent markers to obtain snow depth is described.
22. Increasing water yield. Eng News-Rec, v 151, p 92, July 16, 1953
Reference to Rocky Mountain Forest and Range Experiment Station at Fort Collins, Colorado, where research has indicated that periodic harvesting and thinning of young trees could produce a permanent increase of 25 pct in water yield from a watershed.
23. Erosion control in reservoir areas. J Amer Water Works Assn, v 45, pp 790-796, 1953
A general discussion of the problems of erosion and methods of control. Bibliography.
24. Research flume requires no deflection correction. Eng News-Rec, v 151, p 48, Dec 24, 1953
Describes the structural design of a rigid flume for study of channel hydraulics. The structure insures negligible deflection under full load so that correction of point-gage measurements of depth of flowing water will not be necessary.
25. Weather Bureau issues new degree-day normals. Heat, Piping, Air Cond, v 25, pp 133-134, Nov 1953; pp 109-110, Dec 1953
Summary of monthly normal degree days below 65° F for Weather Bureau stations.
26. How waste-water reclamation affects ground-water pollution. Pub Works, v 85, pp 59-60, 104, 1954
A summary of a more extensive report (see GREENBERG, A. E.) on the problem of ground-water recharge by spreading of treated sewage with emphasis on the extent of travel of pollutants.
27. How to trace ground-water flow. Pub Works, v 85, pp 75-76, 1954
Describe briefly the use of dyes, salts, and electrolytes for tracing subsurface flow.
28. New meter measures flow in pressure-relief wells. Eng News-Rec, v 152, p 38, Mar 25, 1954
Describes eight-bladed vertical flow meter for measuring discharge of eight- and ten-inch pressure-relief wells.
29. Radioactive gages show snow water. Elec West, v 112, pp 68-69, Mar 1954
Describes use of radioisotopes for evaluating water equivalent of the snow pack and of automatic radio equipment for transmitting the data to a central station.
30. Fighting 6800-gpm hot-water flow. West Const, v 29, pp 59-62, 128, Aug 1954
Describes the occurrence of hot ground water in Tecolote Tunnel near Santa Barbara, California.
31. Niagara Falls remedial program. Can Geog J, v 49, pp 118-124, 1954
A general review of plans for correcting the erosion of Horseshoe Falls.
32. Inventory and adequacy of major U. S. water supplies. Water Works Eng, v 107, pp 918-948, 1954
A comprehensive review and summary of a federal report.
33. C and H pumps gas-laden corrosive water from deep Osceola lode. Min World, v 16, pp 38-45, Nov 1954
A description of the methods and problems involved in dewatering the Osceola lode in the copper country of Michigan. Before the lode can be made accessible for mining approximately seven billion gallons of gas-laden water must be removed.

Agricultural engineering: Salter, R. M., 1
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