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IN UTAH, EXTRA VOLUME XIX**

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**CHARLES HILLMAN BROUGH**

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THE FURROW METHOD OF IRRIGATION.

JOHNS HOPKINS UNIVERSITY STUDIES  
IN  
HISTORICAL AND POLITICAL SCIENCE  
HERBERT B. ADAMS, *Editor*

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History is past Politics and Politics are present History.—*Freeman*

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EXTRA VOLUME  
XIX

©

# IRRIGATION IN UTAH

BY

CHARLES HILLMAN BROUGH

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1898

TO

HONORABLE FRANK J. CANNON

UNITED STATES SENATOR FROM UTAH

THIS VOLUME IS DEDICATED IN RECOGNITION OF HIS DISTINGUISHED  
SERVICES IN THE INTEREST OF IRRIGATION.





## PREFACE.

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A study of irrigation as practiced in Utah should prove of more than local interest: (1) Because Utah is the geographical centre of the Arid Region and what has been done there is a fair test of average possibilities. (2) Because both the co-operative and capitalistic methods have been applied in the reclamation of arid land in Utah, and an opportunity is afforded for comparing the results of the two methods. (3) Because problems applicable to the Arid Region as a whole are considered and their solution is attempted.

Of these problems the most important are the cession of the lands now in the hands of the United States Government to the States and Territories in which they are situated, the formulation of a plan by which lands already ceded to the States and Territories may be reclaimed, and the question of state control of water.

The most important general sources on which this study is based are: (1) Manuscript historical records of the Mormon Church, found in the church library at Salt Lake City, Utah. (2) Files of Utah newspapers, including the Deseret News, the Salt Lake Tribune and Herald, and the Ogden Standard. (3) Works on irrigation as practiced in foreign countries, found in the library of the Geological Survey, Washington, D. C. (4) Files of the Irrigation Age, Industrial Reporter, and other irrigation journals. (5) Reports of the proceedings of irrigation congresses and conventions, reports of state engineers, bulletins of agricultural

colleges and experiment stations, etc. (6) Reports issued by the United States Government on irrigation, especially the Eleventh Census Report, *Agriculture by Irrigation*, by F. H. Newell, and the Special Senate Report of the Committee on the Reclamation of Arid Lands, 6 vols., 1890. Other sources used will be found enumerated in the complete bibliography appended, and specific references will be indicated in footnotes. Valuable information has also been gathered from correspondence and interviews with irrigators and persons interested in irrigation throughout the Arid Region.

For assistance in gathering materials my special thanks are due to the Honorable Frank J. Cannon, United States Senator from Utah; Apostle Franklin D. Richards, Librarian of the Mormon Church; F. H. Newell, Chief Hydrographer of the United States Geological Survey; Professor Samuel Fortier, of the Utah Agricultural College; Judge L. W. Shurtliff, Chairman of the Utah Irrigation Commission; Col. C. L. Stevenson, Secretary, Utah Irrigation Commission; W. H. Rowe, Ex-President of the Bear River Irrigation and Ogden Waterworks Company; James A. Wright, President of the Utah State Board of Horticulture; Joseph P. Bache, State Statistician; Bishop C. F. Middleton of Ogden; Elwood Mead of Wyoming; F. J. Mills of Idaho; Donald W. Campbell of Colorado; William Hammond Hall of California; William R. Akers of Nebraska, and other irrigation engineers.

I also wish to acknowledge helpful criticisms and suggestions as to the manner of presenting the results of my study and as to its form of publication made by Dr. Sidney Sherwood, Dr. J. H. Hollander and Professor Herbert B. Adams of the Johns Hopkins University.