

TABLE OF CONTENTS

	PAGE
PREFACE	v
FOREWORD	xiii
INTRODUCTION	xvii

PART I.—THE NATURAL HISTORY OF WATER

CHAPTER

I. THE CONSTITUTION OF WATER	3
Introductory Remarks	3
Forms of Water	4
Mode of Occurrence	5
Physical Properties of Water	7
Chemical Characteristics of Water	11
Heavy Water in Atomic Energy Development	16
II. THE DISTRIBUTION OF WATER	20
The Atmosphere	20
The Oceans and Seas	24
Lakes and Rivers	30
Polar Ice and Glaciers	34
Water in the Soil	35
Water Held in the Rocks	36
III. THE CIRCULATION OF WATER	40
The Heat from the Sun	40
Evaporation from the Sea and Land	41
Precipitation as Rain and Snow	46
Run-off Rainfall	51
Percolation and Infiltration	57
Weathering and Hydration	62
Hot Springs and Volcanoes	63
Summary of Rainfall Disposal	64

PART 2.—THE WORK DONE BY WATER

IV. EROSION OF THE LAND SURFACE	69
Denudation by Rain and Rivers	69
Waterfalls and Gorges	73
Action of Frost and Ice	76
Sediment carried by Rivers	78
Solids carried in Solution	79
Coastal Erosion by Currents	81
Erosion caused by Man	84

CHAPTER	PAGE
V. THE ACTION OF UNDERGROUND WATER	85
Percolation and Absorption	85
Weathering of Rocks	88
Underground Rivers and Springs	92
Thermal Springs and Volcanoes	95
Mineral Veins, Pegmatites, and Metamorphic Rocks	100
Radioactive Waters	102
VI. THE DEPOSITION OF SEDIMENTS	104
Introductory	104
The Stratified Sedimentary Deposits	104
Fluviatile and Marine Deposition	108
Shoals and Silting	110
Deposits of Saline Residues	114
Deposits from Hot Springs and Fumaroles	117
Tinstone and Fossil Wood	119
PART 3.—THE UTILIZATION OF WATER	
VII. GENERAL CONSIDERATIONS	123
Hydrographic Considerations	123
Collection of Data	124
Water Supply Factors	125
Danger from Contamination	126
Stream Gauging and Storage	128
Measurement of Silt	129
Wells and Springs	130
Artesian Water	130
VIII. WATER SUPPLY ENGINEERING	132
Multiple Purpose Schemes	132
Power from Rivers	135
Power from Natural Steam	136
Volcanic Energy	138
IX. CONCLUDING REMARKS	140
The Radioactive Water in Bikini Atoll	140
Water Rights	140
The National Aspect of Water Supply	142
INDEX	145