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Rachel M. Sobrero

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BOOK NOTES

MARQ DE VILLIERS, WATER: THE FATE OF OUR MOST PRECIOUS

RESOURCE, Houghton Mifflin Company, New York, N.Y. (2000); 313pp; \$15.00; ISBN 0-618-03009-3, softcover.

Marq De Villiers' book, *Water: The Fate of Our Most Precious Resource*, guides the reader through the realities of the status of water on the planet. The book combines science, theory and personal experience to provide a telling look at the fate of water and everything that depends on it.

The book is divided into four sections, each with a theme that carries through the chapters contained within. Part I, titled *The Where, What and How Much of the Water World*, introduces the concept that the planet's water is in peril. It begins with the debate between Botswana and Namibia in Africa, chosen because the problems of the small area of Africa represent the status of water troubles around the world. Aquifers diminishing, dropping water tables and alarm about sustainability concern countries the world over, as well as increasing population and increasing interstate tension about the fate of water. Through stories of personal experience from different places around the world, the imminent destruction of the ecosystem becomes apparent. The supply of water is in peril everywhere; but it is not merely supply, but management, allocation and distribution problems that plague the world.

The first section continues with the science of water, discussing where it came from and how much really exists. The solar system, hydrologic cycle and the estimation of water on earth are discussed. Problems such as aquifer depletion, groundwater over drafting and water mining are introduced. The section concludes with a chapter on the history of water, chronicling stories of the importance and the significance of water from history, mythology, folklore, ancient Roman times and the Bible.

Part II discusses the world of water from its natural existence to the change and destruction of it caused by humans. Climate, weather and water are all interrelated. Climate changes alter the hydrologic systems. Some climate changes are natural, but anthropogenic processes have caused and continue to cause desertification and global warming. Humans are changing the natural relationships between climate, weather and water for the worse.

Changes are brought about by population growth and industrialization. In the past couple of centuries, growth and industrialization have led to "gross pollution" and a dangerous threat

to human health and the water supply. Examples from Russia, Europe, North America, Africa, China, South America and Australia demonstrate that countries and cultures across the world are all to blame; destruction of natural water resources is common to all societies. Different situations that contribute to the poisoning of the water supply, from termite killing chemicals to ocean bound sewage pipes are discussed, along with their consequences: waterborne diseases, modified chemistry of ground water, contaminated rivers and consequences in the oceans.

The next chapter presents stories of dams. Rationales in favor of dams are discussed, followed by the "true economics of dams." Dams affect wildlife, the environment and agriculture; they alter the flow and temperature of rivers, the sediment loads, saline concentrations of the rivers, cause silt build up and delta destruction. They also collapse.

Dams modernized irrigation, an ancient technique. The increased saline levels dams create can poison crops. Concentrated salt accumulates, and a cycle begins that is difficult to break. The chapter concludes with suggestions of how to cure this problem.

Shrinking aquifers are an area of great concern worldwide. Several aquifers, including ones in Libya and the American West are discussed in detail. Decreasing aquifers have "human, political and geopolitical consequences" that must be dealt with before it is too late. Water mining has become widespread and contributes to the depletion of the aquifers.

Part III addresses *The Politics of Water*. Five chapters detail the histories, politics and near wars over water, as well as the problems with the natural water systems in different countries. The Middle East, The Tigris-Euphrates System, and The Nile are discussed. The Colorado River Basin is addressed, as well as the Rio Grande. Mexico has experienced a great deal of problems because of the United States' policies over water usage and allocation. Tension also exists between the United States and Canada over the Great Lakes and other water bodies. The disputes over the North American lakes and rivers has left "Mexicans . . . hoping for more water, the Canadians . . . determined on no less and Americans in the middle. Problems in China of allocation, supply, water quality and management are also presented.

The final section of the book is dedicated to *Solutions and Manifestos*. Four ways of coping with the water crisis are proposed. The first is to get more water. Suggestions include piping water, both by land and by sea, melting icebergs, shipping water and desalinization. Different methods of desalinization are introduced, with discussion of the benefits (for example, it is cheaper than funding a war over water). Desalinization has its detriments, however, such as increasing greenhouse gases and cost.

The second strategy for coping with the crisis is to use less water and decrease the demand. Human ingenuities from rainmakers to dew, and fog collectors to fog drip irrigation have existed for a long time. Agricultural industries can contribute by using controlled water

stress like some wineries use. Wastewater recycling helps. But technology is not enough to solve the crisis. Removing water subsidies could lead to decreased demand by reflecting the true cost of water. It could be priced so that waste hurts. But this too comes with a detriment: the urban poor would not be able to afford water.

Controlling and reducing the world population would help because fewer people would mean less demand. Some population projections actually estimate that the population increase of India and China will slow by the middle of this century. The surveys are hopeful, but a population decrease would likely not be enough to save the fate of the dwindling water supply.

The final strategy in dealing with the water crisis is to steal it from others. "The solution to the problems of water is ultimately political." Violence and war over water, which have been part of the history of humankind, may decide who gets access to water. "Water wars might be caused by human folly, but they might still be prevented by human inventiveness.... We are not without weapons in these wars we are waging against our own worst nature."

Water is very well written and easily readable. The combination of science, trivia and personal stories present an enjoyable but important look at the fate of the world's water resources.

Rachel M. Sobrero

G. EMLEN HALL, HIGH AND DRY: THE TEXAS-NEW MEXICO STRUGGLE FOR THE PECOS RIVER, University of New Mexico Press, Albuquerque, N.M. (2002); 304pp; \$39.95; ISBN 0-8263-2429-0, hardcover.

This book tells the story of the battle between Texas and New Mexico over the water provided by the Pecos River. The river begins in the Sangre de Cristo mountains, running through New Mexico then Texas before it joins the Rio Grande.

The story deals with the politics and personalities involved in the court case, *Texas v. New Mexico*. The book describes the original irrigators in the region, their attempts to harness the flows of the Pecos River, and the effect of the case on the people involved. It personalizes the people who rely on the river, as well as those involved in the courtroom fight over apportionment of the river's flows.

Chapter One, *Flying Court*, introduces and sets the context for the case, *Texas v. New Mexico*. The two states entered into a compact to apportion flows from the Pecos River in 1948. In 1974 Texas claimed that New Mexico had deprived Texas of 1,000,000 acre-feet of water since the date of the compact. The Supreme Court allowed the suit to proceed in 1976, appointing Judge Jean Breitenstein as Special Master.

Chapter Two, *The Tracys' Dream of Carlsbad*, discusses the Carlsbad Irrigation District, which is the New Mexico agency closest to the Texas state line with control over Pecos water use. The chapter discusses the