“RIGHT FROM HADES”: WATER AND POLITICS IN BOISE, IDAHO

by

Molly Lorraine May

A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Arts in History

Boise State University

December 2015

BOISE STATE UNIVERSITY GRADUATE COLLEGE

DEFENSE COMMITTEE AND FINAL READING APPROVALS

of the thesis submitted by

Molly Lorraine May

Thesis Title: "Right from Hades": Water and Politics in Boise, Idaho

Date of Final Oral Examination: 28 October 2015

The following individuals read and discussed the thesis submitted by student Molly Lorraine May, and they evaluated her presentation and response to questions during the final oral examination. They found that the student passed the final oral examination.

Lisa M. Brady, Ph.D.	Chair, Supervisory Committee
Barton Barbour, Ph.D.	Member, Supervisory Committee
John Bieter, Ph.D.	Member, Supervisory Committee

The final reading approval of the thesis was granted by Lisa M. Brady, Ph.D., Chair of the Supervisory Committee. The thesis was approved for the Graduate College by John R. Pelton, Ph.D., Dean of the Graduate College.

DEDICATION

This thesis is dedicated to my family—Mommy, Daddy, and my brother, Matthew. I am beyond blessed to have your love and support in everything I do. There are not enough words for me to express how much you mean to me, so instead I will simply say—I love you three, beyond measure.

ACKNOWLEDGEMENTS

The path to a thesis is a winding one. This is not the topic that I thought I would write about when I first began my graduate school journey—it's not even the one I decided to research initially. Instead, this topic came to me as an assignment for a class and ignited a spark that burned far beyond that one research project. I found myself returning to the topic again and again—trying to learn more for other classes; examining it from different angles…it was then that I realized my thesis and focus had changed.

I have to thank Dr. Lisa Brady, my Advisor and Committee Chair, for helping me to find this topic initially and introducing me to the wonderful subject of environmental history. Through her classes, a reading and conference, and multiple meetings, Dr. Brady has helped to make sure that my "voice" was the one being heard. I am sure she has read more about the artesian and geothermal water systems of Boise than she ever wanted to, but her assistance and guidance throughout this entire process has been invaluable. I am also indebted to the two other members of my committee, Dr. Barton Barbour and Dr. John Bieter. They both willingly jumped right in and provided a great deal of constructive feedback that helped me to improve and refine this project. Particular thanks to Dr. Bieter for his detailed notes that allowed me to tighten the narrative and tell an engaging story. I sincerely appreciate their time and effort in serving on my committee and helping me to complete this thesis.

Additional members of the History Department faculty also greatly assisted me in developing and honing my skills as a writer and a researcher. A special thank you to Dr.

Jill Gill, Dr. Lisa McClain, Dr. David Walker, and Dr. Lynn Lubamersky, for helping me to find topics I was truly interested in and then allowing me to run with them, even when they fell outside of their own concentrations. I would also like to thank Dr. Gary Moncrief, Department of Political Science.

Finally, although I mentioned it in the Dedication, I truly would not have been able to complete this project without the love and support of my parents and my brother. Words are wholly inadequate to explain how much my family means to me. Thank you to my brother for proofreading the endless number of papers, historiographies, and book reviews that accompany grad school, not the least of which was this thesis. I so appreciate your insights and enthusiasm for my work, even when it falls far outside your own research interests. A very special thank you to my parents who always encouraged me in every dream—big or small. Thank you to my Dad for discussing my paper topics and studies, always providing me with advice, a different approach, and a joke. I will miss those talks and your insights. I don't even know how to begin to thank my Mom for what she has done to help me in this journey (and in all things). You are my biggest champion, my greatest defender, and my best friend. I think the only appropriate thing would be to say, "Thank you, Mom—for everything." I sincerely hope that everyone is lucky enough to have a Mom like mine and I am eternally grateful for her. Lastly, I would also like to acknowledge my grandfather, Peter. Although he passed away long before I began this graduate school journey, I know he would have loved every minute of it. I miss you.

AUTOBIOGRAPHICAL SKETCH OF AUTHOR

Molly Lorraine May graduated cum laude from Boise State University with a Bachelor of Arts in History with emphases on American History and European History as well as a minor in Political Science. During her undergraduate work, Ms. May focused much of her research on the Westward Expansion and exploration of the United States with particular interest in political and religious development throughout the region. Her senior research project, *Christian Continuity: The Building of Churches in Constantinople by Constantine and Justinian*, was nominated for the Caylor-Tozer Award for best undergraduate history paper. During her graduate work, Ms. May turned her studies to the environmental history of the American West with a specific interest and focus on the development of water resources. Ms. May is a sixth-generation Idahoan who is very happy to be able to contribute, in some small manner, to the collective history of the great state of Idaho through this thesis.

ABSTRACT

The western United States has, arguably, been shaped by water—both through its presence and its absence. This thesis examines the history of the artesian and geothermal water resources of Boise, Idaho. The development of these resources has taken a trajectory that is defined by busy periods of expansion punctuated by long stretches of inactivity or stasis. These stages of development closely align with major trends in environmental history. Beyond merely providing additional insight to the history of the region, the commoditization of nature in Boise provides further elucidation of national trends of conservation, environmentalism, and green energy. By examining the microcosm of Boise, we can better understand the far-reaching implications of western water policies, trends, and the role that political power played in each instance of geothermal development within the city.

TABLE OF CONTENTS

CHAPTER ONE – BOISE WATER HISTORY IN CONTEXT

In May of 1890, two brothers—Hosea and Benjamin Eastman—drilled three artesian wells in the Hulls Gulch area north of the city of Boise, Idaho.[1] Their goal was to provide water for their primary business, the Overland Hotel, and at the same time expand their water delivery business beyond the neighbors of their hotel to more of the residents of the city of Boise.[2] In doing so, the two brothers set off a series of changes throughout the region that would, over time, take a variety of twists and turns with international implications and recognition for the Boise region. The story spans more than one hundred years and is punctuated by fits and starts, but nevertheless has played an integral role in shaping not only the capital city but also the entire state of Idaho. It is unlikely that the Eastman brothers anticipated all of the changes that the water movement would bring to their lives or the lives of Boise residents when they first decided to expand their business. Certainly, they could not have foreseen how their actions subsequently connected Boise and Idaho to larger trends outside of the Gem State. Beginning with the Eastmans' water delivery business, Boise oversaw a number of water development

---

[1] Merle W. Wells, "Heat from the Earth's Surface: Early Developments of Western Geothermal Resources," *Journal of the West* (Vol. X, No. 1, January 1971): 55. The original name of Boise, "Boise City," changed during the period examined in this thesis. For clarity, and because the name change is not significant to my argument, I refer to the city throughout simply as Boise. Additionally, as the title changed during the timeline of this thesis, all references to the *Idaho Tri-Weekly Statesman* have been simplified to current name of *Idaho Statesman*.

[2] The Overland Hotel began operations in Boise in 1864.

projects that, despite its relative geographic isolation, placed the city at the center of twentieth century conservation history.

As for much of the West, water was and is one of the most significant factors in the expansion of the Boise Valley. Control over and access to that basic resource has helped to shape the growth of the city and the region. Water often equates to power or, more specifically, political power. As Donald Worster noted, those who control water can exert their authority over those in less influential positions—in a trend repeated around the globe and throughout history.[3] This thesis asserts that water was a driving force behind the development of the Boise Valley as it provided the means for individuals to expand their impact and played a central role in determining who would wield political and economic power in the region. It also links Boise's development to larger trends in environmental history by illustrating the unique manner in which those movements manifested themselves in Idaho.

Early in Boise's history, those who controlled access to water translated that power into political advantages. They openly funded their political agendas and allegedly used their influence to impact the outcome of elections within the city.[4] Conversely, those with political power also sought to gain control over water by exploiting their station of authority. Such wrangling over water was not unique to Boise; indeed Boise's early experience follows the troubled history of water in the West. However, by the middle of the twentieth century, Boise's approach to water moved ahead

---

[3] Donald Worster, *An Unsettled Country: Changing Landscapes of the American West* (Albuquerque, New Mexico: University of New Mexico Press, 1992): 35.

[4] *The Daily Evening Citizen*, July 1, 1891.

of the curve and better reflected progressive trends in environmental history as governmental entities sought resource-based solutions to widespread energy problems.

Water, either through its presence or its absence, shaped the West, both physically and culturally. B. Lynn Ingram and Frances Malamud-Roam noted that settlers moving into the western United States anticipated "lush farms, easy living, and abundant water."[5] Railroads promoted the Snake River Valley of southwestern Idaho as featuring "fertile soils, ample sunshine, and water," everything that prospective farmers would need.[6] While certain areas of the state do feature relatively ample amounts of water, the reality that many of these farmers found was remarkably different from the image that the advertisements suggested or the one they had imagined. These farmers came to rely on irrigation as the primary means of water for their crops, redirecting large sections of the Snake River and thereby conquering the barriers that nature placed in their way. In many ways, they were manifesting their own version of the West and superimposing it upon the landscape. This was a trend repeated throughout the West for other types of water usage.

There has been a great deal of debate among historians over the years regarding what does and does not define the American West. Frederick Jackson Turner's 1893 essay "The Significance of the Frontier in American History" argued that the line marking the beginning of the Western frontier was not fixed but rather moved further west with the creation of new towns and cities—the "meeting point between savagery

---

[5] B. Lynn Ingram and Frances Malamud-Roam, *The West Without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us About Tomorrow* (Berkeley, California: University of California Press, 2013): 5.

[6] Mark Fiege, *Irrigated Eden: The Making of an Agricultural Landscape in the American West* (Seattle: University of Washington Press, 1999): 16.

and civilization."[7] The Turner thesis argued that the West presented a distinct set of situations and circumstances that defined its inhabitants and also asserted that the end of the frontier came in 1890 when the Census reported no more open and unclaimed land existed in the West. While the Turner thesis has shaped the trajectory of Western history since its publication, the approach advocated by the New West historians offers a more inclusive model through which a variety of historical narratives can find a voice. These historians, namely Donald Worster, William Cronon, Richard White, and Patricia Limerick, disputed the Turner thesis as having defined a process more than a place. They argued for a shift in understanding of the West, seeing it as a place that was not separate from other parts of the country or other points in history, but rather very much connected to a larger story. This study adopts the New West historian's definition of the American West as the region west of the 100th Meridian and defined by a level of aridity not frequently found in the eastern United States. Both the location and the conditions play an important role in the development of water resources in the West.

Considering the debate between Old West and New West historians, briefly described here, it is important to place this particular history of water resource development within the appropriate context of the West. The development of the West was in part a reaction to the realities of the East Coast and to the growing acceptance of conservation practice. The population densities of eastern cities and towns, as well as the prevalence of privately owned property in that region, meant that many perceived conservation as necessary in the Midwest and Western areas of the country. As the

---

[7] Frederick Jackson Turner, *The Frontier in American History* (New York: Henry Holt and Company, 1921): 3.

eastern region of the United States lacked any large stores of surplus property, there were very few pockets of concentrated land holdings that could be preserved for future use so conservationists looked to the West. Additionally, conservationists on the East Coast dictated elements of conservationism to the Midwest and the West as an emotional or religious reaction to the Civil War after seeing their communities and much of the countryside destroyed.[8] Seeing that portions of the eastern United States were so devastated by the ravages of that conflict, they believed it was imperative to preserve the future of the country by securing control of the land and protecting it from any sort of abuse or excess use. While the idea of conservationism was not necessarily unwelcomed by those in the Midwest and West, the problem existed more with the messenger than the message. As many in the West came to the region as a response to excessive intrusion – perceived or actual—by others, the dictates of the Easterners felt like an infringement on their sovereignty.[9] Furthermore, Westerners resented having to rely on expertise or even capital investment from outside the region.[10] Conservation was welcome in the West, provided it served the interests and goals of Westerners.

Water conservation was a particularly contentious issue. Donald J. Pisani argued in *Water, Land, and Law in the West: The Limits of Public Policy, 1850-1920* that the American West afforded the opportunity where "water could be used far from the channel of a living stream and become a commodity that could be bought and sold like

---

[8] Donald J. Pisani, *Water, Land, and Law in the West: The Limits of Public Policy, 1850-1920* (Lawrence: University Press of Kansas, 1996): 119.

[9] Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (New York: Pantheon Books, 1985): 14.

[10] Samuel P. Hays, *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement 1890-1920* (Cambridge, Massachusetts: Harvard University Press, 1959): xii.

coal, timber or land."[11] In the minds of most westerners, the utilization of those resources was best left to the discretion of those who actually lived in the region. It was within their purview, they asserted, to ensure that the natural world was "explored, conquered, and tamed."[12]

Because aridity is a common condition throughout much of the West, particularly the southwestern section of Idaho surrounding Boise, access to water became a central political and economic concern. Logically, residents of the region looked outside of their own efforts to more collaborative enterprises in order to provide for their basic water needs. Fulfilling that demand for water offered some within Boise's community a lucrative business model. Water development in the West was under the oversight of state law rather than federal control.[13] When Idaho's first law related to water appeared in 1881, standard operating procedures were already well established, allowing those who controlled the water to essentially make their own rules.[14] Idaho's law recognized these practices, stating "nothing in this act shall be so construed as to interfere with the vested rights of individual companies or corporations," allowing those who put in the time and effort to harness the hydrologic resources a great deal of leeway to exploit their product.[15] Beyond simply exercising control over the water, this autonomy provided a means for those individuals to increase their political and economic power. This was not

---

[11] Pisani, *Water, Land, and Law in the West*, 1.

[12] Robert Glennon, *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters* (Washington, D.C.: Island Press, 2002): 17.

[13] Hays, *Conservation*,17.

[14] Donald J. Pisani, *To Reclaim A Divided West: Water, Law and Public Policy 1848-1902* (Albuquerque: University of New Mexico Press, 1992): 51.

[15] *General Laws of the Territory of Idaho Including the Code of Civil Procedure, Passed at the Eleventh Session of the Territorial Legislature* (Boise, Idaho, 1881): 273-275.

unique to Idaho, as most other locations throughout the West experienced the same consolidation of control, specifically where water was concerned.[16]

Much of the scholarship on the subject of western water usage has focused on the topics of irrigation, damming, and the lasting effects of the Reclamation Act of 1902. Although several scholars such as Charles Wilkinson, Donald Pisani, and Donald Worster have written on water in the West, Marc Reisner's *Cadillac Desert* is the standard for histories of western water development.[17] Although primarily set in California, Reisner's work is beneficial in understanding the natural progression of water projects in the West as a whole, and in Boise in particular—from irrigation to geothermal drilling—as both a civilizing force and a tool of empire building.

Also significant in the exploration of water history are regional histories. Mark Fiege's *Irrigated Eden: The Making of an Agricultural Landscape in the American West* examines the implementation of irrigation systems in the Snake River Valley of southwestern Idaho. His work is particularly beneficial when examining the mentality of the settlers who came to Idaho and sought to recreate the landscape into something more familiar to them and more hospitable to their crops. Fiege asserts that the settlers believed their actions were a "conquest" of nature.[18] Despite this, he argues the early

---

[16] Worster, *An Unsettled Country*, 37.

[17] Charles F. Wilkinson, *Crossing the Next Meridian: Land, Water, and the Future of the West* (Washington, D.C.: Island Press, 1992); Donald J. Pisani, *To Reclaim A Divided West*; Donald J. Pisani, *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935* (Berkeley: University of California Press, 2002); Donald J. Pisani, *Water, Land, and Law in the West*; Donald Worster, *An Unsettled Country*; Donald Worster, *Rivers of Empire*; Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Penguin Books, 1986).

[18] Fiege, 17.

settlers of Idaho had a collaborative relationship with nature as they worked to bend the resources to their needs while still responding to changing conditions of the environment.

Donald Worster's *Rivers of Empire: Water, Aridity and the Growth of the American West* further explores the power relationships that developed out of the control of the environment in the West. Worster's argument goes further than Fiege's by highlighting humanity's "sharply alienating, intensely managerial relationship with nature" in the West.[19] This relationship—characterized by a hydraulic society—evolved over three distinct periods where control of water resources moves from community-based and collective to an imperial model where control is centralized.

While the subjects of irrigation and damming represent a significant portion of the water story of the American West, they do not tell the entire tale. These two issues impacted western life on a large scale, but there were other hydrologic decisions that also had a direct, significant impact and influence on the daily lives of citizens. As Samuel Hays states in *Conservation and the Gospel of Efficiency*, there was a great degree of disagreement throughout the West related to water policy.[20] Part of this was due to the disparate climates found throughout the region and part was due to the conflicting uses that competed for the same water. Without a consensus, Hays suggested, there was a live-and-let-live attitude for most water development.

Drawing from this broader scholarship, this thesis examines one western city's approach to water development within the context of larger regional and national trends. Nestled in a valley at the foothills of the Rocky Mountains, Boise features a diverse

---

[19] Worster, *Rivers of Empire*, 5.

[20] Hays, *Conservation*, 241.

climate with elevations ranging from 2,500 feet to 4,000 feet. The areas located along the Boise River were home to large stands of trees, which gave the city its name.[21] Aridity is the hallmark to the southern portion of the Valley and represents the climate that faced most of the settlers. Irrigation was a necessity in order to provide any sustenance for the community. The arid desert climate contributes to dry, hot summers with little rainfall, however the winters skew to the other extreme with frequent freezing temperatures. In hydrologic terms, Boise has substantial groundwater reserves along the Boise Front, located at the base of the foothills. Artesian water, particularly geothermal, emanates through these fractured media networks.[22] Additionally, Boise has a system of shallow groundwater that runs through the area. While these climatological and geographical features can be found throughout the American West, the proximity of such diverse characteristics in the Boise Valley makes the region remarkable.

Water in History

Donald Worster asserts in *Rivers of Empire* that nature, like history, is a "set of cycles."[23] The history of artesian and geothermal water development in Boise illustrates this concept. As the city grew and expanded, enterprising citizens sought new opportunities to expand the offerings of water available. An increase in the available amenities allowed for new residents and businesses to come to the region, which in turn

---

[21] The name Boise is derived from the French phrase, "les bois" or "the woods." According to legend, fur trappers traveling through the region cried out "Les bois! Les bois!" when they saw the trees along the Boise River. *See* Hiram T. French, M.S., *History of Idaho: A Narrative Account of Its Historical Progress, Its People and Its Principal Interests, Volume I* (Chicago, Illinois: The Lewis Publishing Company, 1914): 228.

[22] C.J. Waag and S.H. Wood, *Evaluation of the Boise Geothermal System: Final Report to Idaho Department of Water Resources, Boise, Idaho* (Boise, Idaho: Idaho Department of Water Resources: December 1987): 10.

[23] Worster, *Rivers of Empire*, 261.

inspired additional exploration and development. While the cycles do not follow the same trajectory in each instance, the common threads are there: a need presents itself in the community, an entity—private business or government—steps in to address that need, and a new power structure emerges. Although the water developments were not the only factors in determining the control within the region, they were significant.

This thesis demonstrates that, in Boise, water development led to political and economic influence for those able to exploit the resource. This link can first be seen in the Eastmans' artesian water development. This set in motion a race between competing water companies, conflicts over city contracts, and the development of geothermal resources that had been utilized but never before harnessed.[24] All of these advancements during the last decades of the nineteenth century gave rise to a new power group within Boise, which in turn pursued their own political goals.

Following the passage of the Reclamation Act in 1902, as well as the creation of the Idaho Public Utilities Commission in 1913, water development in Boise and elsewhere across the region took on a different trajectory as it shifted from private to public management. While there were still private enterprises controlling water, increasingly development took place under the auspices of governmental jurisdiction at the local level, a process described as the "concentration of power" that took control away from citizens in a manner not seen before.[25] This was highlighted by transfers from established, private businesses to public management at both the city and state level.

---

[24] A point of clarification: most geothermal wells are artesian wells, but not all artesian wells are geothermal. For the purposes of this thesis, the term "artesian" will refer to cold water sources while "geothermal" will refer to hot water sources.

[25] Worster, *An Unsettled Country*, 43.

During this interval, the City of Boise and the State of Idaho each essentially re-discovered geothermal technology. This movement to governmental control was particularly important during the multiple energy crises of the 1970s as agencies sought better options for taxpayer funded expenses.

More recently, the geothermal system has again gained popular support. The latest iteration of geothermal energy has advocates who are pushing the system and its perceived limits to new frontiers. The geothermal development has again been reborn under the direction of a public university, rather than by private enterprise or state government. Boise State University's implementation of geothermal power represents a further evolution of the public-private partnership that existed between the city's first water companies and the governmental entities. Each instance of artesian and geothermal development from 1890 to today has shaped the overall fabric of the city of Boise and the surrounding region. Water offered the means for increased power, which in turn, allowed individuals to establish their own vision for the city.

Prior studies of the water system development in Boise are scattered and fail to frame the issues of Idaho within a larger context of water in the West. They are limited in number and in analytical depth. Among the earliest extant resources available is from Merle W. Wells, a noted historian and archivist with the Idaho State Historical Society from 1956 until his retirement in 1986. Wells originally published "Heat from the Earth's Surface: Early Development of Western Geothermal Resources" in 1971 in the *Journal of the West* and later reprinted and bound it as a booklet.[26] Wells outlined how water helped shape the development of Boise and highlighted the transition from artesian

[26] Merle W. Wells, "Heat from the Earth's Surface."

to geothermal projects. While he provides a great deal of information on the beginnings of the artesian and geothermal systems in Boise, he drew heavily from the *Idaho Statesman*. Although the *Statesman* affords chronological coverage of the water systems, it lacks investigative analysis of the developments. Additionally, one of the owners of the *Idaho Statesman* was involved in geothermal development and promotion. Wells did not acknowledge these limitations of his sources, nor did he critically examine the overarching implications of repeated drilling on the environment, an aspect of Boise's history that this thesis seeks to explore.

In 1982, Dean M. Worbois published *Glad to Be in Hot Water: Geothermal Development in Boise, Idaho, 1890-1983*, which draws heavily on Wells's earlier scholarship for the historical background and context.[27] Worbois also conducted interviews to fill in more contemporary details. Although Worbois covered a longer timeframe than Wells, his publication, like Wells's, is limited in coverage and analysis. The booklet totals only thirteen pages, with one page covering seventy years of development. Worbois's study lacks important contextual details that would have contributed to a greater understanding of the subject. Nevertheless, Worbois did expand on Wells's earlier study, helping to provide a more complete version of Boise's water development history. This thesis adds to this work by not only bringing the discussion into the twentieth century, but also by engaging in more rigorous analysis of the city's water history by exploring the political aspects of water development, as well as the environmental implications of resource exploitation.

---

[27] Dean Worbois, *Glad to Be in Hot Water: Geothermal Development in Boise, Idaho, 1890-1983* (Boise, Idaho: Parker Printing Company, 1982).

Carol Lynn MacGregor's 1999 article, "Pioneer Geothermal Development in Boise, Idaho," drew a great deal from Wells and Worbois, adding little new to that discussion.[28] MacGregor's primary contribution is on citizen end-use of the geothermal system rather than its role in shaping Boise's political history. While MacGregor's work does provide additional information that both Wells and Worbois lack, there are problematic factual inconsistencies such as attributing key actions to the incorrect water company.[29] Robert T. Kent's 2007 report *Boise's Water: The Private Side of Public Works* is the latest publication focused on Boise's water history.[30] There, Kent examines the totality of water usage in Boise, not just geothermal. Kent included a comprehensive chronology of water development in the capital city as well as a detailed overview of the legal interactions of the City of Boise, especially later court decisions affecting geothermal development, which are useful for contextualizing the political aspect of Boise's water history. Kent's work does offer more detail in terms of the ins and outs of the public works but neglects some of the more basic questions of power and control.

This brief historiography of the aforementioned works provides the totality of scholarship produced, thus far, on the artesian and geothermal water systems of Boise. None of these sources, however, offers a synthesis of the water development of Boise or how developments in that arena impacted the larger political framework of the region.

---

[28] Carol Lynn MacGregor, "Pioneer Geothermal Development in Boise, Idaho," *Journal of the West* (Vol. 38, No. 1, January 1999).

[29] MacGregor, "Pioneer," 36. The article lists the Eastman brothers as founding the Artesian Water and Land Improvement Company while their rivals founded Boise Water Works. The reverse is true. The Eastman brothers began drilling first but formed their company, Boise Water Works, after the Artesian Water and Land Improvement Company was created.

[30] Robert T. Kent, *Boise's Water: The Private Side of Public Works* (Boise, Idaho: Boise Public Works Department, 2007).

This thesis offers a means of better interpreting the motivations behind the actions and examining the intricate connections that exist between Boiseans and water.

With regard to primary sources available, there are a variety of newspaper accounts, letters to the editor, and advertisements that highlight the changes and development of the topic. The inherent difficulty with primary sources such as these, however, is the contextualization of their authorship, which can be further hampered by relationships between the newspaper and key figures in the water companies. Political writings also offer a certain level of insight into the decisions; however, they tend not to offer both sides of the issue. Unfortunately, as is the case with most primary sources, these pieces frequently lack some sort of background to frame the circumstances of the writing. Engineering reports, scientific studies, and journals document both the artesian and geothermal systems, but these writings are often more technical than narrative. The collections available at the Idaho State Archives provide information on key business developments and shifts but raise their own issues, as the records that were provided to the Archives are not exact and have several large gaps. The City of Boise maintained records of passed ordinances only from the earliest time period covered in this history. All of this is important to note as the lack of complete extant records compels a reliance on newspaper accounts in order to bridge the information gap. Furthermore, despite their individual limitations and taken as a whole, this set of sources does provide important insight into water development issues.

Boise's water history is only part of the city's broader story. Several scholars have written general histories of the city, which are beneficial to this study as they offer additional information about key players in both the commercial and political arenas.

Merle Wells's *Boise: An Illustrated History*, Jim Witherell's *History Along the Greenbelt: An Idaho Centennial Project of the Ada County Centennial Committee,* Arthur Hart's *Historic Boise* and *The Boiseans: At Home*, as well as Hugh H. Hartman's *The Founding Fathers of Boise,* each detail the founding of the city of Boise and the multitude of individuals who took part.[31] One drawback to such specific studies that bears mentioning, however, is the absence of critical analysis. Hartman's work, in particular, has a great deal of information on all of the key players in Boise's early years while also offering detailed chronologies of specific years. It lacks an overall focus, aside from Boise's early history, tends towards hagiographical accounts, and suffers from a confusing organizational style. The works by Wells and Hart help to mitigate some of these concerns, as both are trained historians. None of these works, however, critically assesses the city's past or the lasting legacy of development within the community. This thesis seeks to expand both the analytical depth and the descriptive breadth of Boise's water development history in terms of its connections to the city's political and conservation history.

Early geothermal development in Boise helped to shape the overall foundation of both the city and the region. Building upon private enterprise, the early artesian and geothermal developers were able to translate their financial successes into political authority and control. Public entities—those who already wielded political power—undertook later geothermal development. For them, geothermal was more of a means of

---

[31] Merle Wells, *Boise: An Illustrated History* (Woodland Hills, California: Windsor Publications, Inc., 1982); Jim Witherell, *History Along The Greenbelt: An Idaho Centennial Project of the Ada County Centennial Committee* (Boise, Idaho: Ada County Centennial Committee, 1990); Arthur A. Hart, *Historic Boise* (Boise, Idaho: Historic Boise, Incorporated, 1985); Arthur A. Hart, *The Boiseans: At Home* (Boise, Idaho: Historic Boise, Incorporated, 1985); Hugh H. Hartman, *The Founding Fathers of Boise* (Boise, Idaho: Private printing, 1989).

shoring up their positions rather than creating them. The final period of geothermal development presents a unique melding of the two previous periods as a public university utilizes geothermal energy in much the same manner as a private enterprise would.

Boise's water history is a long and winding one, which covers more than one hundred years. The players changed frequently, conflicts over the water resources fought their way through the legal system—all the way to the U.S. Supreme Court—and yet the artesian and geothermal water systems still managed to remain intrinsically connected to the very fabric of the city. Given the nature of the topic and the manner in which each development built upon a previous change, it is important to follow a chronological narrative beginning with the city's founding and early history as a supply center for mining, in order to understand their intricate linkages. As much as this is a history of water development in the American West, it is also a history of power and control and how the flow of water changed a small town into a thriving capital city.

CHAPTER TWO – FROM WATER TO POWER

Early Boise

The area that would become Boise had a long history of being a gathering place and point of trade among the Native American tribes of the region—Nez Perce, Shoshone-Bannock, and Paiute. These Native American tribes referred to the Boise Valley as "Awa" or "Peace Valley."[32] The best estimates indicate that the tribes had been meeting at the same location for close to 12,000 years before being displaced beginning in the mid-nineteenth century by the coming waves of settlers.[33] The U.S. Government later used the site as a holding area before removing Native Americans to reservations. The hot springs of "Awa" were a frequent wintering ground for Native American tribes as the geothermic activity and more temperate climate of the Valley offered better conditions than the Idaho mountains. The area east of Boise known as Castle Rock, or Eagle Rock to some Native Americans, was a significant site to the tribes and contained sacred burial grounds.[34] For the Native Americans, the geothermal areas served as cultural gathering places that connected them to one another. Once settlers

---

[32] Jim Witherell, *History Along The Greenbelt*: 17.

[33] "Peace Valley," *Boise Parks and Recreation* (via: http://parks.cityofboise.org/parks-locations/parks/greenbelt/historical-maps/): 2014.

[34] Resolution of the Business Council of the Duck Valley Shoshone Paiute Tribes (Resolution No. 90-SPR-111).

moved into the region, replacing and supplanting the Native American populations, the springs became a commodity that could be exploited for economic and political power.[35]

Prior to the founding of the city of Boise, there were two separate locations known as Fort Boise. The Hudson's Bay Company founded the first Fort Boise in 1834 as a fur trade outpost in the area where the Boise River and Snake River meet.[36] The rivers flooded in 1853, damaging the fort. In 1855, the Hudson's Bay Company abandoned the site largely due to attacks by Native Americans. The U.S. Army founded its own Fort Boise in 1863, during the Civil War. Miners had discovered gold in the Boise Basin, roughly twenty-five miles north of the city of Boise, during the summer of 1862. Westward migration was already a national trend but the gold strike was the catalyst that led many to the Boise Valley. The Army established the fort to counteract the increase in violence between Native Americans and the waves of settlers coming to find gold and passing on their way further West on the Oregon Trail. Sherlock Bristol noted in his memoir that the second Fort Boise, located near the Boise River, cost of $500,000 to build, and was large enough to hold one thousand men.[37] The city of Boise

---

[35] John W. Lund, "Historical Impacts of Geothermal Resources on the People of North America," *Stories from a Heated Earth: Our Geothermal Heritage*, Raffaele Cataldi, Susan F. Hodgson, and John W. Lund, editors (Sacramento, California: Geothermal Resources Council and the International Geothermal Association, 1999): 450.

[36] Idaho State Historical Society Reference Series No. 62: "Fur Trade Posts in Idaho," October, 1970.

[37] Sherlock Bristol, *The Pioneer Preacher; Incidents of Interest, and Experiences in the Author's Life, Revival Labors in the Frontier Settlement: A Perilous Trip Across the Plains in the Time of Indian Wars and Before the Railroad – Three Years in the Mining Camps of California and Idaho* (Chicago, Illinois: Fleming H. Revell Company, 1898): 283; The 2015 value of the project would be $7,720,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

grew quickly around the fort, providing important services for the expanding mining community.[38]

Though it existed on a much smaller scale than the California Gold Rush, the gold found at the headwaters of the Boise River in the foothills and mountains above the city supported a mining community for almost one hundred years. The promise of prosperity drew miners seeking their fortunes as well as the associated industries that typically supported mining camps. This accompanying increase in population led to the creation of Idaho Territory on March 4, 1863.[39] The boundaries of Idaho Territory shifted several more times before becoming somewhat settled in 1868 and permanent by 1872.[40] By the summer of 1863, approximately 19,000 people were in the area attempting to strike it rich by mining.[41] This influx of population – inextricably tied to natural resource exploitation – served as a stimulus for moving the territorial capital from Lewiston and, eventually, to Boise becoming the capital city.[42]

As the Boise Basin and surrounding areas grew with people rushing to the region in search of gold, a heightened demand for additional amenities developed. As a result, the service industries that the miners and accompanying settlers depended upon rapidly expanded. The new residents required food and water, clothing, shelter, and work to

---

[38] Bristol, *The Pioneer Preacher*, 284.; Idaho State Historical Society Reference Series, No. 356: "Fort Boise – (United States Army)," August 2, 1965.

[39] Merle W. Wells, "Territorial Government in the Inland Empire: The Movement to Create Columbia Territory." *The Pacific Northwest Quarterly* Vol. 44, No. 2 (April 1953): 80.

[40] Merle W. Wells, "The Creation of the Territory of Idaho." *The Pacific Northwest Quarterly* Vol. 40, No. 2 (April 1949): 123.

[41] Paul L. Murphy, "Early Irrigation in the Boise Valley," *The Pacific Northwest Quarterly* Vol. 44, No. 4 (October 1953): 177.

[42] Annie Laurie Bird, "A Footnote on the Capital Dispute in Idaho," *The Pacific Northwest Quarterly* Vol. 36, No. 4 (October 1945): 342.

support themselves and their families. As not all of these necessities could be grown or procured in a mining camp, the population began to spread south towards Boise where businesses developed to serve the miners. Vacant land was plentiful around Boise as was water in the form of the Boise River. Accordingly, farmers sold fruit and vegetables grown around Boise to the mining camps by the wagonload.[43] Thomas Davis, for example, sold his first harvest of cabbages, potatoes, and onions to the mining camps for $50,000.[44] As more settlers recognized the profitability of providing agricultural goods to the miners and others around Boise, farming gained in popularity and access to water became an increasingly important issue. Greater demand for water in this period foreshadowed future development in the region wherein nature became commoditized.

Boise Beginnings

Mrs. James Agnew, an early pioneer who came to Boise in September 1864, recalled the river winding through the valley, dotted by farms with "small fields of grain harvested and in the shock [*sic*] and gardens of vegetables and melons."[45] Like Agnew, many emigrants to the Boise Valley came from the East Coast or the Midwest—areas with significantly different climates than the aridity that southwestern Idaho offered. Partially through naiveté and also, perhaps, a desire to make something familiar and welcoming, these pioneers sought to recreate their previous environment through the

---

[43] Liping Zhu, *A Chinaman's Chance: The Chinese on the Rocky Mountain Mining Frontier* (Boulder: University Press of Colorado, 1997): 74.

[44] Hartman, 80; The 2015 value would be $772,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[45] Mrs. James D. Agnew, "Idaho Pioneer of 1864," *The Washington Historical Quarterly* Vol. 15, No. 1 (January 1924): 45. The Agnews were one of the original founding families of Boise.

manipulation of the natural state of water in the Boise Valley.[46] This was not a unique story. Throughout the West, residents repeatedly diverted or channeled water away from its natural location to an area that was more convenient for farming, for commerce, or for flood control. As Donald Worster noted, water became an "instrument of secular materialism."[47] Water became a tool for individuals to utilize as a means to further their own ambitions.

Consequently, the demands that the sudden growth placed on the territory presented opportunities as well as problems for the newly formed government to deal with. The issues surrounding water usage were of particular concern, as more than half of the territory's population resided in the Boise Basin area and that population was "rapidly expanding."[48] Due to a lack of centralized government, water laws were not well defined. Additionally, rules governing the jurisdiction and use of water resources in the West were still developing. Legal authorities made decisions over issues of contested water on a case-by-case basis, frequently supporting the side of those individuals who had existing mining claims. Secondary consideration went to those who provided goods or services to the miners, usually ranchers and farmers. In some instances, however, the water was diverted so many times that it was difficult to determine which operation actually had the prior claim. Additionally, it was sometimes hard to pinpoint exactly how much water was available.[49] Lack of governmental oversight further complicated this problem. The default position of the government was that "the right to divert and

---

[46] Fiege, 16.

[47] Worster, *Unsettled*, 33.

[48] Wells, "Territorial Government," 80.

[49] Hays, *Conservation*, 16.

appropriate the unappropriated waters of any natural stream to beneficial uses, shall never be denied."[50] Therefore, any use—provided there was some benefit in it—could make an equal, defensible claim to the water.

In the West, the common view held water as a ready resource—self-renewing in most cases—that provided everyone with an even starting point. Beyond the basic necessity of water, the ability to access it provided a level of self-sufficiency that many depended upon. This led to the development of what historian Donald Worster calls a "hydraulic society."[51] According to Worster, a hydraulic society is one wherein technological innovation enables the transportation of water from its natural location to one that is of greater benefit to an individual or a community. Southwestern Idaho's hydraulic societies, particularly the area around Boise, represents a remarkable example of the power, ingenuity, and determination settlers exerted to transform something dry and unforgiving into something lush and green through irrigation, or in Mark Reisner's words, "a useless place made rich."[52] The climate in southwestern Idaho is arid and inhospitable to agricultural uses without human intervention. Boise's development depended on direct intervention—first with irrigation and later with other water developments.

As in Boise, water across the West seemed to be an unending resource—despite its relative scarcity—that allowed a variety of interests and enterprises to take root. Although water took a great deal of effort to secure, once found, streams and springs

---

[50] *Constitution of the State of Idaho*, Article 15, §3.

[51] Worster, *An Unsettled Country*, 43.

[52] Reisner 384.

seemed to flow continuously. At the same time, however, Westerners viewed water as a resource and commodity that should be preserved for the exclusive use of those in the West.[53] As Donald Worster has shown, Westerners resisted any attempts to transport water from the West to other areas.[54] This did not mean that all westerners agreed as to a basic standard on what was the best possible usage for western water. Each of the many sides—mining; farming and irrigation; domestic use; and others—believed that their own interests represented the best possible future for the water and the territory.[55]

In the late nineteenth century, with the development of the region and its water resources still in play, tremendous growth in Boise spurred the first exploitation of nearby hot springs. At the time, hot springs were little more than a novelty. They were convenient sources for bathing or soaking for healing properties but, unlike other hot springs found across the country, the Boise area springs during the latter part of the nineteenth century had not yet been commoditized. This changed as mining and farming industries in the region grew. Most of southern Idaho sits in what is known as a "geothermically favored zone."[56] For example, hot springs located between Glenns Ferry and Boise were a frequent resting point for travelers on the Oregon Trail, but until 1867, when the first resort opened in Idaho, the resource was not exploited for profit.[57]

---

[53] Reisner, 46.

[54] Worster, *Rivers*, 264.

[55] Fiege, 44.

[56] Wells, "Heat from the Earth's Surface," 54.

[57] Arkansas's famous hot springs first became a resort in 1807 and were well established by the 1830s. Sharon Shugart, "Hot Springs National Park: A Brief History of the Park," *National Park Service* (via: http://www.nps.gov/hosp/historyculture/index.htm), November 2003.

Isaac Bedell was one of the first to operate the hot springs in Idaho as a business. He marketed them as a restorative treatment and proclaimed, "There is no place where people can recuperate their health more than to go and bathe in these springs."[58] As a result, people traveling through the Boise Valley frequently stopped to rest and rejuvenate by "taking the 'vapors'."[59] There were a variety of hot springs locations that dotted the landscape around Boise, but the most popular were the sites in the Peace Valley that had been preferred by Native American tribes. James Pollard first opened these hot springs as a proper business in 1867.[60] Dr. John L. Stephens later took over the hot springs and reopened them as a health spa in 1871. Over time, the resort expanded to include therapeutic mud baths, a plunge, showers, a café, and a dance hall. The location had undergone a series of managers, renovations, and name iterations when Dr. Stephens sold the springs to Judge Milton Kelly, the recently retired editor, publisher, and owner of the *Idaho Statesman* in 1889.[61] Kelly renamed the resort "Kelly Hot Springs" and it became a more exclusive destination.

Geothermal sites were not the only means of water development. As settlers moved into the Boise Valley, irrigation quickly came to the forefront as the primary means of water usage. The arid climate made irrigation a practical and necessary step in order to make the region habitable and self-sustaining. A gold rush era miner noted that following the miners' arrival they staked "claims until the valley was preempted for a

---

[58] *Idaho Statesman*, April 15, 1888.

[59] MacGregor, "Pioneer," 36.

[60] Wells, *Boise*, 30.

[61] Hart, *The Boiseans*, 22.

dozen miles on either side of the river."[62] This step was particularly important for those attempting to supply the mining camps with food. It was also the manner in which the early settlers built community, purpose, and belonging. Water is a basic necessity for life so the settlers had two options—continue to live close to a water source, most likely the river, or move the water to a more desirable location and build the home, farm, and life that they moved West to have.

Thomas Davis filed the first Boise River diversion claim. Davis also held the first documented homestead in the territory.[63] He utilized the natural flow of the river to irrigate his crops and orchard before eventually installing a headgate to control the water.[64] Through the established standards that gave irrigation and other beneficial uses priority over water flow, there was a cascading effect as settlers placed more and more demands on the river. Additionally, there was a lack of oversight with regards to water usage within the territorial government structure. This loophole was frequently exploited as a means for individuals to further establish their own power base.

While irrigation was immediately beneficial to the many farming and agricultural uses throughout the valley, it introduced potential problems. The right to divert water—what has been referred to as the "doctrine of riparian rights"—allowed those next to the water to monopolize the flow, many times to the detriment of those further downstream.[65] The State Constitution of Idaho established a hierarchy for water usage

---

[62] Sherlock Bristol, *Idaho Nomenclature* (Berkeley, California: Bancroft Library, 1883).

[63] Hartman, 80.; Madeline Kelley Buckendorf, "National Register of Historic Places – Historic Rural Properties of Ada County, Idaho" (2001): 4.

[64] Murphy, 177.

[65] Reisner, 43.

where too many interests were placing demands on the same stream. Domestic use was given the highest level of priority with mining (in organized mining districts) or agriculture receiving the next level ahead of manufacturing.[66] The Constitution further attempted to mitigate some of the issues by ensuring all future water rights had to be approved by a state agency. Most of the water rights in existence prior to Idaho gaining statehood in 1890 were grandfathered in to the system, however, which only succeeded in further stabilizing the monopoly that the early water developers already enjoyed. This issue would again come to the fore with later artesian and geothermal development in the region. Control of the water resources remained centralized through a few select individuals, which in turn gave them power and influence in the community.

Each subsequent draw on the Boise River caused the claims to soon exceed the available water flow. There were 151 claims on the Boise River in 1898 alone, totaling 6,361,800 inches of water. Unsurprisingly, those numbers were wildly outside of the actual flow of the Boise River, which in September 1898 was just 35,000 inches.[67]

During this period of irrigation and diversion of large quantities of water from the natural stream, it quickly became evident that water played a key role—if not the most significant role—in shaping the development of the Boise Valley. Water was essential for growth and, despite popular belief, not unending. Those with control of the resource

---

[66] *Constitution of the State of Idaho*, Article 15, §3.

[67] Ray Palmer Teele, *Irrigation in the United States* (New York: 1915): 86-87. Quoted in Murphy, 178.; Murphy, 179 – *see footnote 25: inch standard measurement for water in Idaho*; IDWR: Idaho Department of Water Resources, *Water Measurement* (available at: http://www.idwr.idaho.gov/WaterManagement/WaterMeasurement/water_measurement.htm), Accessed January 5, 2015; Within the state of Idaho, the standard formula followed the "miner's inch" for determining an inch of water as "one-fiftieth of a second foot; a second foot being the amount of water that will flow through an opening one foot square in one second."

ended up gaining wealth and, consequently, influence. In preserving their rights to the water, they manifested that power as a means of retaining control of the West.

Water in Boise

The water that Boise residents utilized in their daily lives came from two basic sources – the Boise River or a private spring or well. Distance was frequently an issue with the former, while the latter was not always reliable or accessible. In order to remedy these problems, a team of men attempted to bore an artesian well for public use on the public square at the Capitol near a statue of George Washington in 1871.[68] Predictions that the exercise would "strike cold water, oil, or hot water" filled the *Idaho Statesman*'s account of the drilling. The article optimistically proclaimed that a "boiling spring" would allow them to raise crops during the winter months. A number of problems plagued the project and, despite attempts that included a variety of methods and solutions such as treadmills and steam engines, the well was never completed.[69]

Steady and dependable water service remained an issue in Boise as the city grew. Fire protection became a particular concern. Although the proximity of the river and the abundance of irrigation canals throughout the city made water available, access to that water proved problematic as the locations were not evenly distributed and their reliability for use as fire protection remained questionable. There were a few wells available in downtown Boise, including one located at Sixth and Idaho and another at Eighth and Idaho.[70] Although these wells were accessible, their location only served a small portion

---

[68] Hartman, 44.

[69] *Idaho Statesman*, July, 15, 1871; *Idaho Statesman*, July 27, 1871.

[70] Kent, *Boise's Water*, 6.

of the city. Boise thus stored water in cisterns near the foothills in the event of a fire, but it was not the most ideal solution to the problems facing the city.

Another problem that further exacerbated the already overtaxed water sources was the rapidly expanding population of Boise. The 1890 census of Boise, which was finalized in June that year, showed Boise's population to be approximately 2,500 residents. The city conducted a survey in September that same year and reported 4,026 people.[71] In just three short months, the population had almost doubled and with it came an increased demand on resources, especially water. A variety of concerns related to the sanitation of existing water sources increased the need for better water development.[72] At the time of Idaho's statehood in 1890, the capital city boasted telegraph, telephone, electrical, and railway lines in addition to the existing irrigation system but it lacked a reliable water system.[73] Hosea and Benjamin Eastman would play a crucial role in creating that system.

Well, Well, Well

The Eastmans purchased the Overland Hotel, located on the northwest corner of Eighth and Main Street in Boise, in 1877.[74] The Eastmans provided their hotel and their neighbors with water from their spring located in Hulls Gulch, roughly a mile north of the city. Advertisements for their hotel boasted that the Overland Hotel was "Well Supplied

---

[71] Worbois 1.

[72] "Historical Valuation" (Boise, Idaho: Idaho State Archives, May 31, 1921): 14.

[73] Worbois, 1.

[74] The Overland Hotel or Overland House existed from 1864 until 1904, when it was torn down in order to build the Eastman Building. The original Eastman Building had four stories, with a later addition adding two more floors. The Eastman Building was destroyed by fire in 1987 and the site, plagued by development problems, was known as the "Boise Hole" until Zions Bank built their Idaho headquarters on the location in 2012. For more information on early Boise, see: Merle W. Wells, *Boise: An Illustrated History*.

With Mountain Spring Water."[75] When the time came to expand their system in order to offer more reliable water service, the Eastmans saw a chance to partner with the City of Boise and provide water for the entire city. Following the October 3, 1889, Boise City Council meeting, the Eastman brothers received the necessary permission through Ordinance No. 94 to begin installing Boise's first domestic water system. Ordinance No. 94 stated, in part, that the Eastman brothers had the right to "lay and repair their waterpipes in, through, and along, and across the streets and alleys of Boise."[76] Although they had not yet discovered the water source to supply such a potentially large system, the Ordinance provided the Eastmans the rights to create one in the future. An additional factor that likely influenced their water system expansion was the pending statehood of Idaho, due the following year. Development, particularly instances related to water development, had far less regulation and restriction under the territorial system of government.

When the Eastman brothers began drilling their additional wells north of Boise, they expanded the water delivery system that they had developed over the course of many years. They took water from their spring in Hulls Gulch and piped it down Eighth Street to the Overland Hotel and the hotel's neighbors.[77] Various other homes and businesses, including the Capitol, also received water from the Eastmans. Although the spring continued to supply them with ample water, it was not enough to expand the delivery

---

[75] Advertisement, *Idaho Statesman*, August 1890.

[76] Boise City Council, "Ordinance No. 94," October 3, 1889.

[77] Kent, *Boise's Water*, 29.

routes or install a meaningful fire protection system.[78] The Eastmans began digging above their spring hoping to find a water source with enough power to fulfill the needs of the growing city. The *Idaho Statesman* reported on their progress in May 1890, when the Eastmans "struck three large flows."[79] The artesian wells that they dug were particularly beneficial for their purposes, as the natural pressure in the well forced the water up and into the system. The continual flow that these wells offered would provide more than enough water to fulfill the needs of the city and its residents, while also providing a surplus that the Eastmans would be able to sell at a profit. The three artesian wells at Hulls Gulch produced 800,000 gallons of water per day from a depth of just twenty feet.[80] Of particular note was that subsequent wells did nothing to diminish the flow of the first well. The *Idaho Statesman* noted that the new artesian wells offered a "supply of pure, healthful water for the inhabitants of this city in inexhaustible quantities."[81] This development generated a lot of excitement within the city, as residents were hopeful about finally being able to have water in their own homes, rather than having to collect and transport it themselves.[82] The Eastmans proposed to charge their residential customers a monthly rate of $3.00 per faucet.[83] This rate was the same amount that they had been charging their neighbors for years. The water that they now provided did not

---

[78] Kent, *Boise's Water*, 64.

[79] *Idaho Statesman*, "Artesian Water," May 15, 1890.

[80] *Idaho Statesman*, "Pure Water for Boise," May 15, 1890.

[81] *Idaho Statesman*, "Pure Water for Boise," May 15, 1890.

[82] Wells, "Heat from the Earth's Surface," 55.

[83] *Idaho Statesman*, July 11, 1891. The 2015 value would be $73.80. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

require the same effort to obtain and deliver as the spring water had, offering a greater level of profit for a decidedly smaller degree of effort. Having previously secured permission from the city for their efforts prior to statehood, the Eastman water system was grandfathered in.

Even though the Eastmans' wells drew 800,000 gallons of water each day, others saw opportunities to increase that supply or at least give the Eastmans some competition. Nathan Falk owned and operated a mercantile business located on the southwest corner of Eighth and Main Streets.[84] He objected to the price that the Eastman brothers proposed and decided to form his own water company along with other prominent Boise businessmen, Frank Coffin, John Lemp, and Thomas Davis. They incorporated as the Artesian Water and Land Improvement Company on June 2, 1890.[85] They began drilling on land held by Mr. Falk, also located near Hulls Gulch. Their work further strengthened and reinforced the development of the city.

In response to the new Artesian Water and Land Improvement Company, the Eastmans formed Boise Water Works with several other prominent Boise businessmen on June 23, 1890. The Boise Water Works team, led by Hosea Eastman, included C.W. Moore, Peter Sonna, Alfred Eoff, W.H. Ridenbaugh, and Timothy Regan.[86] The Artesian Water and Land Improvement Company "struck a large flow of water" shortly after Boise Water Works incorporated.[87] As their land was located directly below the Eastman (Boise Water Works) wells, it presented interesting questions as to how the water from

---

[84] Hartman, 115.

[85] Wells, "Heat from the Earth's Surface," 55.

[86] Kent, *Boise's Water*, 94.

[87] *Idaho Statesman*, "Water! Water!," June 28, 1890.

the latter would move through the property of the former. The Boise City Council passed Ordinance No. 100 on July 10, 1890, which granted the Artesian Water and Land Improvement Company the right to install pipe beneath the roadways of the city.[88] The *Idaho Statesman* noted that the competition to serve Boise residents was offering "supremacy, quality, quantity, pressure and temperature" of water.[89]

The City of Trees had experienced a relative drought in terms of water delivery options when it suddenly confronted a multitude of possibilities. The corporations racing to complete their systems first in order to gain Boise residents as customers had at their helms savvy and astute businessmen who recognized that the water businesses would actually require relatively little active management once they completed the initial set-up. Uniting the community through the access to water and thereby gaining their support was an additional benefit for the water company principals. In moving quickly and seizing the opportunity when it presented itself, the two water companies were able to begin laying the foundation for an increased level of prominence for themselves within the city and outside.

Private interests and capital established the Boise water companies for a public good. The Boise Water Works (Eastman) had previously secured the right to implement the city system and they were not interested in losing their monopolistic foothold on the contract. The Artesian Water and Land Improvement Company believed that the contest between the two companies was the most beneficial for the citizens of Boise.[90] As each

---

[88] Boise City Council, "Ordinance No. 100," July 10, 1890.

[89] *Idaho Statesman*, "Water! Water!," June 28, 1890.

[90] Wells, "Heat from the Earth's Surface," 56.

side was actively engaged in direct competition with the other, the ultimate victor was the consumer who enjoyed a variety of options for water service at prices that made it accessible for almost all residents of Boise. Additionally, whichever company successfully held on to the greatest share of the water market would have a greater level of access, interest, and political influence in both Boise and the newly formed state of Idaho. Power and politics were playing a significant role in the water fight as each side sought to expand their impact within Boise.

Once each company had its wells dug and reservoirs completed, the race was on to see which would be able to complete laying the pipe for the water system. While Boise Water Works completed its wells first, the Artesian Water and Land Improvement Company was the first to receive delivery of piping. Throughout the summer and fall of 1890, water companies repeatedly ripped up the streets of Boise as they installed their systems. Citizens dealt with streets that "were reopened as soon as they had been leveled by the first construction crew."[91] As a result of the hectic nature of the enterprise, there were repeated clashes between the two companies and frequent claims of damage caused by one side or another. The *Idaho Statesman* watched the ongoing developments with a great deal of interest and reported the happenings back to their readers on a regular basis.[92]

Once the systems were finally complete, the battle for customers began. The Artesian Water and Land Improvement Company promised reasonable and competitive rates to anyone who signed up for their service. Boise Water Works, hoping to secure its

---

[91] *Idaho Statesman*, September 3, 1890; *Idaho Statesman*, September 4, 1890.

[92] *Idaho Statesman*, August 28, 1890; *Idaho Statesman*, September 3, 1890; *Idaho Statesman*, September 4, 1890.

domination in the field, offered free water service until 1892.[93] The goal for each side—beyond water contracts—was to utilize the advantage that the associated influx of capital would bring into further opportunities within the city. With those favorable circumstances, the water company principals translated their newfound statuses to other businesses outside of the Boise Valley, such as mining. Additionally, an increased profile would allow them to branch out to opportunities that might have previously been closed to them.

Not content with only the domestic service, the two water companies also began a competition to win the fire prevention contract with the City of Boise. Artesian Water and Land Improvement Company installed and tested a fire hydrant on its newly completed pipe system. It then forwarded a bid to the City Council offering to install twenty hydrants belonging to the city at a fixed rate of $600 per year. They also offered a second bid for forty-five hydrants for a cost of $1,200 a year.[94] As the City Council considered the two different offers at its meeting on November 6, 1890, Boise Water Works requested the ability to submit its own bid before any final decision was made.[95] The intense debate, covered by the *Idaho Statesman*, questioned whether the City should allow Boise Water Works the opportunity to compete because the offer from Artesian Water and Land Improvement Company was not part of an open bidding process and because members of the Artesian Company were part of the city government. *Statesman*

---

[93] *Idaho Statesman*, October 8, 1890; *Idaho Statesman*, October 11, 1890.

[94] *Idaho Statesman*, "City Council Meeting," November 7, 1890. The 2015 value of the $600 cost would be $14,600. The 2015 value of the $1,200 cost would be $29,200. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[95] *Idaho Statesman*, November 7, 1890.

coverage of the fire hydrant contract negotiations referred to city leaders as "City Daddies," further highlighting the level of influence that these key individuals had within the city.[96] At this juncture, Boise Water Works had the benefits of the system while Artesian Water and Land Improvement Company had the political influence. It seems likely that each side was looking for an opportunity to leverage its advantage over the other.

Idaho Statesman coverage indicates that the community widely attended a special November 8, 1890 meeting of the City Council. Hoping to compromise, the Artesian Water and Land Improvement Company representatives proposed that the city determine what it felt was a fair dollar amount for the service and that each side—Artesian and Boise Water Works—install half of the fire hydrants. Boise Water Works did not agree and argued that a competitive bidding process resulting in only one company receiving the contract was the most fair.[97] The Council delayed its decision until further information could be gathered. In the meantime, the City Council and members of the community toured both of the water systems on November 13. The local newspaper noted, "it was the unanimous opinion of all present that the city would not suffer for any lack of water for a long time, the present supply being so great."[98] At the time of the tours, there were relatively few demands on the systems.

As reported in the *Idaho Statesman*, the City Council offered a contract split between the two water companies—fifteen hydrants each—at a rate of $25.00 per

---

[96] *Idaho Statesman*, "City Daddies Meet: The Water Works Squabble Settled At Last," December 5, 1890.

[97] *Idaho Statesman*, November 9, 1890.

[98] *Idaho Statesman*, "The Council Inspect the Plants of Both Companies," November 14, 1890.

hydrant per year.[99] A representative from Boise Water Works, George Ainslie, argued against the proposal, stating "that his company did not propose to be forced into any unwelcome combination" with the other company (Artesian).[100] His position, and that of his company, was that the citizens of Boise deserved the best possible arrangement and that could only be achieved through a sealed bidding process. Although the representative from Artesian Water and Land Improvement Company, S.H. Hays, would have preferred to receive the entire contract, he was willing to accept the Council's offer. Boise Water Works, though, continued to argue against the shared system, as it saw that they would be required to handle more than its fair share of the contract.[101]

After hearing both sides, the Council elected to only consider the original offer from Artesian. The president of Boise Water Works, C.W. Moore, then began what could essentially be described as a public relations campaign in order to garner the support of the public and force the City Council to hear the Boise Water Works proposal. The notice from C.W. Moore ran in the *Idaho Statesman* in November 1890. In it, he proposed thirty to sixty-five hydrants be installed by the city at a rate of $8.00 per hydrant per year.[102] As the city was responsible for purchasing the hydrants and the cost to supply them once they were connected to the system would be negligible, both water

---

[99] The 2015 value would be $609. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[100] *Idaho Statesman*, "The Council Inspect the Plants of Both Companies," November 14, 1890.

[101] *Idaho Statesman*, "Council Inspect," November 14, 1890.

[102] *Idaho Statesman*, "To the Taxpayers and Citizens of Boise," November 22, 1890. The 2015 value would be $195. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

companies were looking at a long-term contract that would be almost entirely profit. Extant data on the cost of purchasing the hydrants by the city is not available.[103]

Ultimately, the City Council decided to enter into contracts with both Artesian Water and Land Improvement Company and Boise Water Works on December 4, 1890. Artesian received a contract for twenty fire hydrants at a rate of $25 per hydrant per month. Boise Water Works received a deal to install thirty hydrants at a rate of $8 per hydrant per month.[104] Looking back at the contest for the fire hydrants, the *Idaho Statesman* referred to it being a "fierce factional fight" characterized by "hatred and strife."[105] The Boise City Council determined the two different rates were justifiable as a means to ensure continued competition between the two companies. Boise Water Works was much larger and had more customers as a result of their free water offer. Boise Water Works never implemented its contract and the company never had to support the $8.00 price that they proposed.[106] Extant records of the bidding process prove elusive; however, the Boise Water Works offer was likely just a means of undercutting the competition.[107] As Merle Wells notes, once it became evident that Boise Water Works would not be granted a monopoly, they realized the contract was not worth the effort at such a low level of profit.[108] After the dust settled, Boise Water Works had two wells

---

[103] City of Boise email correspondence with the author. March 30, 2015.

[104] *Idaho Statesman*, "City Daddies Meet."

[105] *Idaho Statesman*, March 29, 1891.

[106] Wells, "Heat from the Earth's Surface," 58.

[107] Minutes from the Boise City Council, January 8, 1891; Minutes from the Boise City Council, June 4, 1891; Minutes from the Boise City Council, July 7, 1891, as cited in Merle Wells, "Heat from the Earth's Surface," 58.

[108] Wells, "Heat from the Earth's Surface," 58.

and a 550,000-gallon reservoir. The Artesian Water and Land Improvement Company had nine wells and a 125,000-gallon reservoir.[109]

City Council members convened again in March of the following year in order to test the newly installed and operational fire hydrants. The drill included a steam engine and hose carriage on Seventh as well as an additional hose carriage at Eighth and Main (near the Eastman brothers's Overland Hotel and Nathan Falk's mercantile store). As they completed the test, a portion of the steam engine burst and caused "the discomfort of those near by."[110] While no one was seriously injured, the accident further highlighted the difficulties inherent in providing these resources for the public.

Hot Water

At the same time that the Eastman brothers were digging the first of their artesian wells above Hulls Gulch, Judge Milton Kelly ran large ads in the *Idaho Statesman* promoting his Kelly Hot Springs and promising that those "who are afflicted with rheumatism, paralysis or other chronic diseases soon improve their health, and often times secure a permanent cure by bathing in the waters of these springs."[111] Geothermal had existed in the background for much of Boise's early history. People were aware of it and even utilized the springs on occasion. The Kelly Hot Springs was the one lasting commercial hot springs enterprise in the region, essentially creating a monopoly for itself.

With the city's fresh water delivery well in hand, the two companies began to seek additional possibilities to expand their holdings and further shore up their positions

---

[109] Kent, *Boise's Water*, 30.

[110] *Idaho Statesman*, "An Impromptu Drill," March 25, 1891.

[111] Advertisement, *Idaho Statesman*, May 1890.

within the city; geothermal development became their new focus. Boise Water Works began drilling for geothermal water shortly after the fire hydrant ordeal. The corporation purchased land near the Penitentiary on the advice of a well driller, John Grumbling. Grumbling deemed the land a good location for further exploration because snow never accumulated due to the heat generation.[112] On Christmas Eve, 1890, Boise Water Works hit 92° water after drilling down about eighty feet. They eventually achieved temperatures of 115° at 112 feet. An *Idaho Statesman* article announcing the success referred to the water as being "right from Hades."[113] The drillers completed a second well near the first and as the two wells descended deeper into the ground, the temperatures increased. The water from the wells came out with so much force that it interrupted the drilling process several times. The workers eventually hit a depth that had a temperature of 154° and provided approximately 150 gallons each minute. According to Merle Wells, this discovery prompted a great deal of excitement, as the water was warmer than that found at the famous hot springs in Arkansas.[114] They kept exploring these two wells until the water force was too great for them to continue. The workers started a third well in February and discovered even hotter water, 170°, at a depth of 404 feet. From this single well, the flow was in excess of 800,000 gallons each day.[115] The well drilling quickly became a sort of attraction for the residents of Boise, as people would plan day trips out to watch the progress. The water company had the geothermal

---

[112] Wells, "Heat from the Earth's Surface," 59; Kent, *Boise's Water*, 95.

[113] *Idaho Statesman*, "Right From Hades: An Artesian Well of Hot Water," December 31, 1890. (All temperatures listed are Fahrenheit.)

[114] Wells, "Heat from the Earth's Surface," 59.

[115] Wells, "Heat from the Earth's Surface," 60.

water tested numerous times to ensure its safety, with the final tests conducted by the U.S. Department of Agriculture, who determined it to be "suitable for domestic consumption."[116] Several months later, in July 1891, a Mr. H.P. Grumbling somehow fell into the water and "sustained severe injuries."[117] The familial connection between H.P. Grumbling and John Grumbling, who proposed the initial drilling, is unclear. While Grumbling's injuries were "not likely to prove fatal," they were a prime example of the intrinsic difficulties in bringing hot water to the citizens.[118] Despite the accident, and in light of the favorable conditions for geothermal development, Boise Water Works planned big projects for Boise's future including a resort using the geothermal water and a city-wide hot water delivery system.[119]

Boise Water Works development gave it a distinct advantage over its competition. The corporation had the larger artesian cold water system and the only active geothermal wells, and in March 1891, the Artesian Water and Land Improvement Company agreed to a merger. The board of the new company, the Artesian Hot and Cold Water Company, included members from both of the parent companies. The members of the board were Hosea Eastman, C.W. Moore, Nathan Falk, Peter Sonna, Timothy Regan, W.H. Ridenbaugh, Alfred Eoff, John Lemp, W. Northrop, Thomas Davis, and J.R. Delamar.[120] Members of the original Boise Water Works received stock options at a two to one rate over the original Artesian Water and Land Improvement Company—largely

---

[116] Worbois, 2.

[117] *Idaho Statesman*, "Immersed in Hot Water," July 14, 1891.

[118] *Idaho Statesman*, "Immersed in Hot Water," July 14, 1981.

[119] *Idaho Statesman*, January 14, 1891.

[120] "Articles of Incorporation and By-Laws: Artesian Hot and Cold Water Company," March 29, 1891, Idaho State Archives. Boise, Idaho.

on the basis of which company held the geothermal assets.[121] At the time of the merger, the corporation's total stock was valued at $137,500 with Hosea Eastman being the largest shareholder with 455 shares valued at $45,500.[122]

As the two companies merged, the new organization gave the principals an impressive profile within the larger community. Many already had successful careers outside of the water companies but the prominence of the artesian and geothermal projects certainly heightened their status as community leaders. The coverage of their businesses and activities in the local newspaper increased as they rose in prominence. Additionally, they were able to turn the attention they had focused on their competition with one another outward to determine how best to further raise their profile and level of influence. The City of Boise had municipal elections in July 1891. With the two major national political parties, the Republicans and Democrats, represented, the members of the Artesian Hot and Cold Water Company, along with members of the streetcar company formed a new, third party, the Citizen's Party.[123] Interestingly, the party drew support from a wide range of individuals, including many who had ties to one or the other national parties. This new political party was very clearly a tool by which the members of the water and streetcar companies intended to upset the status quo and elevate themselves to new positions of power within the city. Candidates made a great deal of claims back and forth through the newspaper. The *Idaho Statesman* tended toward the

---

[121] Wells, "Heat from the Earth's Surface," 60; "Articles of Incorporation and By-Laws: Artesian Hot and Cold Water Company," March 29, 1891, Idaho State Archives. Boise, Idaho.

[122] "Articles of Incorporation and By-Laws: Artesian Hot and Cold Water Company," March 29, 1891, Idaho State Archives. Boise, Idaho. The 2015 value of $137,500 would be $31,000,000. The 2015 value of $45,500 would be $10,200,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[123] Worbois, 2.

Republican point of view, so the Citizen's Party created its own paper, *The Daily Evening Citizen*.[124] The Republican ticket was concerned primarily with the danger of having the members of the sole water monopoly make up the entirety of the City Council. A story in the *Idaho Statesman* accused the Citizen's Party of buying votes through the bars and saloons of Boise.[125] Considering that paper's political leanings, the report may or may not have had validity to it. The back and forth between the two sides continued unabated until the election.

Shortly before the election, in what Dean Worbois contends was likely an attempt to draw voters, the water company lowered fees from $3.00 per faucet to $1.00 per faucet.[126] Not surprisingly, the Citizen's Party won every seat in the election. One race, that of city attorney, was particularly close. W. E. Borah ran on the Republican ticket and C.C. Stevenson ran for the Citizen's Party. According to election returns, Borah lost by 3 votes—372 to 369. Several years later, Borah learned he had actually won the election but political bosses in Boise had decided it was better for all of the Citizen's Party candidates to be elected as a slate.[127] Borah's future career appeared to be unaffected by this early loss as he later served as Idaho's representative in the U.S. Senate for 33 years—elected both by the legislature and then the citizens of Idaho, once permitted by direct election.

---

[124] *The Daily Evening Citizen*, July 9, 1891.

[125] *Idaho Statesman*, July 10, 1891.

[126] Worbois, 2.

[127] Claudius O. Johnson, *Borah of Idaho* (New York: Longmans, Green, 1936): 40; Wells, "Heat from the Earth's Surface," 65; Marian C. McKenna, *The Early Career of William E. Borah: 1865-1917* (PhD diss., Columbia University, 1954): 48.

Following the election, the principals of the water company now held the contracts for city service while at the same time holding the positions in city government that approved the contracts. Although many in Boise were concerned that monopolistic holds on both city government and the water company would lead to outrageous rate increases, their fears were unfounded. While they were in a position to certainly promote their own interests through the city government, it does not appear that they were particularly underhanded or unscrupulous about it. Despite the lack of extant evidence, however, the possibility that the members of the water company and the streetcar company colluded with one another in order to gain political access and power for themselves should not be overlooked.

The Natatorium

Hot springs resorts were good business in Boise. The most popular—Kelly Hot Springs—underwent a series of renovations in 1892, including the addition of a hotel, and became a destination resort. Prior to the overhaul, the hot springs was a short jaunt to the country for most Boise residents—many would take a picnic lunch with them and spend the day relaxing.

The hot springs owner, Judge Milton Kelly, was an influential individual in Idaho's early history. He was a member of the territorial legislature and served on the Idaho Supreme Court from 1865 to 1870.[128] Following his legal career, he purchased the *Idaho Statesman* and served as publisher and editor until his retirement in 1889. Under his leadership, the *Statesman* continued its Republican leanings. Following his

[128] Idaho State Historical Society Reference Series No. 545: "Milton Kelly: September 9, 1818 – April 9, 1892," 1971.

retirement from the *Statesman,* Kelly turned his attention to the hot springs he owned outside the city. Given his long career in a variety of fields, Kelly had numerous well-placed connections and was part of the Boise Ring, an influential group of businessmen.[129]

In Kelly's case, water did not bring power, but the two were still connected. Kelly wielded political influence for much of the city's early history and enjoyed a monopoly over the area's recreational hot springs. Kelly's prestige increased when he added the hotel. Then, in 1890, Kelly Hot Springs became more exclusive, eventually taking on private club status in order to offer alcohol to guests. Judge Kelly's frequent advertisements in the *Idaho Statesman* also promoted "a bar with the best of wines, liquors and cigars."[130] Not surprisingly, this caught the notice of temperance activists in Boise. According to Jim Witherell, the prevalence of alcohol at the hotel led to rumors that the resort promoted prostitution and supported a brothel.[131] The truth in these accusations cannot be confirmed, but they nevertheless contributed to the resort's demise. In 1906, a fire destroyed Kelly Hot Springs. Some suspected a local temperance group, although charges do not appear to have been filed. Kelly rebuilt the resort, which was again damaged by a fire in 1911, another suspected arson by the temperance group.[132] The two fires proved to be too much for Kelly Hot Springs and the location fell into

---

[129] Idaho State Historical Society Reference Series No. 545: "Milton Kelly: September 9, 1818 – April 9, 1892," 1971.

[130] Weekly Advertisement, *Idaho Statesman*, 1890.

[131] Witherell, 35.

[132] Witherell, 35.

disuse. Boiseans' demand for a hot springs resort did not wane, however, and the Artesian Hot and Cold Water Company rose to the challenge.

The geothermal wells to the east of the city offered possibilities for the water company as well as expansion of other city services. After their geothermal drilling successes, the Artesian Hot and Cold Water Company bought land along Warm Springs Avenue to open its own hot springs spa – The Natatorium. Hoping to expand and raise Boise's profile outside of Idaho, they brought in an architect who had designed a similar resort in Montana. The building itself was over 15,000 square feet, designed in a Moorish architectural style. It was three stories high, housed one of the largest indoor pools in the United States, and offered approximately fifty bath and dressing rooms, a dining room, a café, and space where guests could play billiards or cards.[133] A special cover placed over the pool created a dance floor or a roller-skating rink. A rock formation created a waterfall with a 47-foot tall diving board.[134] The goal of the "Nat" was to draw tourism from the Pacific Northwest and, to that end, a 1913 brochure published by the Boise Commercial Club described the Natatorium as the "Taj Mahal of the West."[135]

Original bids and contracts called for a $25,000 budget for the building.[136] Two months later, the budget was increased to $50,000.[137] Eventually, following a $100,000

---

[133] Worbois, 4.

[134] Boise Parks and Recreation, "The Natatorium" (via: http://parks.cityofboise.org/parks-locations/parks/greenbelt/historical-maps/): 2014.

[135] *Boise, Idaho* (Boise, Idaho: Syms-York Co., 1913).

[136] June 9, 1891 Correspondence from Artesian Hot and Cold Water Company, Boise Water Corporation Collection (MS 395). Idaho State Archives. Boise, Idaho.

investment from the Artesian Hot and Cold Water Company, the Natatorium opened its doors on May 25, 1892.[138] In a period of approximately two years, the principals of the water company such as Hosea and Benjamin Eastman, C.W. Moore, and the Regans, among others, provided for fresh, running water delivered to people's homes, fire protection for the city, new leadership in City Hall, and now a large, world-class spa facility designed to attract outside visitors while also providing convenient entertainment for the community. The admission fee of twenty-five cents was an attempt to limit attendance to the facility. While they were less exclusive than Kelly Hot Springs had been, the owners of the Natatorium still wanted the best of Boise to be seen at their resort. More than a half-mile of wooden pipes transferred the water from the geothermal well to the Natatorium and then to downtown areas of Boise. Initially thought to provide better insulation for the hot water, the wooden pipes were discarded in 1896 as "dangerous and useless."[139] The wells that supplied the Natatorium, as well as the city system, produced roughly 1,300,000 gallons of water per day.[140]

The addition of a streetcar system that ran directly to the Natatorium helped drive visitors to the spa. This was, perhaps, a foregone conclusion as the water and streetcar interests had united in the election and shared many of the same key players. An additional factor was "White City," Boise's amusement park located on the west side of

---

[137] August 21, 1891 and August 26, 1891 Correspondence from Artesian Hot and Cold Water Company, Boise Water Corporation Collection (MS 395). Idaho State Archives. Boise, Idaho.

[138] The 2015 value would be $2,410,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[139] Wells, "Heat from the Earth's Surface," 68.

[140] *Boise, Idaho* (Boise, Idaho: Syms-York Co., 1913).

the Natatorium grounds.[141] White City, which opened in 1907, was home to a carousel, boating pond, scenic railway, roller-skating rink, pavilions, and Boise's only rollercoaster. The water company had taken the idea—as well as the name—for the amusement park from another community leader, Walter Pierce, who had planned to build White City on the west side of Boise at Pierce Park.[142] Due to the status and profitability of the Natatorium, the Artesian Hot and Cold Water Company was able to build and complete its version of the park first, thereby ensuring that the community would still be drawn to its spa and ride its rail system rather than that of its competitors.

The opportunities that the artesian and geothermal systems provided to the water company principals cannot be denied. The Artesian Hot and Cold Water Company used its political power to consolidate its control over water and connected business ventures, thus solidifying its directors' economic and, consequently, political power providing them with the means to block their competition. While a seemingly small development in the history of the city, building the White City amusement park on Warm Springs Avenue instead of at Pierce Park allowed the centralized focus to remain on the east side of the city along with the power base.

Over time, the company's reach in the community continued to grow. A 1914 Annual Report of the Boise Artesian Hot and Cold Water Company Limited showed that the company served 4,739 taps representing 4,703 consumers, 169 fire hydrants, and 45 water cranes.[143] Cold water lines for the company totaled 377,846 feet or approximately

---

[141] Witherell, 58.

[142] Witherell, 59.

[143] "Annual Report of General Manager and Secretary: Boise Artesian Hot and Cold Water Company," December 31, 1914 (Idaho State Archives. Boise, Idaho): 2.

71.5 miles while the hot water service covered 45,554 feet or approximately 8.75 miles of steel pipe.[144]

The Natatorium changed ownership several times before the Boise Artesian Hot and Cold Water Company bought it back in 1920.[145] Later that year, due to the creation of the Idaho Public Utilities Commission, the hot and cold water divisions split into two separate companies, but the principals remained the same in each. At the time of the split, the company possessed 118,176 rights and licenses, 20 artesian wells in the Hulls Gulch area ranging from 6 to 10 inches in diameter, and 50 to 1500 feet in depth.[146] The company owned 15,397 acres of land, including 360 at the original site of the Eastman artesian wells in Hulls Gulch.[147]

The companies were not without problems, however, as a typhoid outbreak in January and February 1921 tainted the water supply and was traced back to the wells located near the Natatorium. The outbreak caused 26 cases of typhoid and resulted in 7 deaths.[148] The Natatorium remained in operation until 1934. Several factors prompted its closing. There were other cases of illnesses, such as polio, allegedly caused as a result of swimming at the Natatorium.[149] Decades of steam generated by the hot water weakened vital structural supports, as well. Finally, a damaging windstorm destroyed

---

[144] "Annual Report of General Manager and Secretary: Boise Artesian Hot and Cold Water Company," December 31, 1914 (Idaho State Archives. Boise, Idaho): 2-3.

[145] The Natatorium was even briefly owned by Walter Pierce, Artesian's competitor in the White City Amusement Park. Boise Water Corporation Collection (MS 395), Idaho State Archives. Boise, Idaho.

[146] "Historical Valuation," May 31, 1921 (Idaho State Archives. Boise, Idaho): 6-8.

[147] "Historical Valuation," May 31, 1921 (Idaho State Archives. Boise, Idaho): 13.

[148] C.N. Harris, "Report of Investigation of the Boise City Water Supply," March 1921, Idaho State Archives. Boise, Idaho.

[149] Interview with Mary May, May 21, 2011. Author's personal correspondence.

part of the building, leading to its condemnation and eventual demolition. The pool survived the downfall of the Natatorium building and the City of Boise purchased it for the community shortly thereafter. The name is the only element of the Natatorium to survive, however, as the City owned pool is coldwater only. White City continued operations after the Natatorium ceased to exist until finally closing due to condemnation during World War II.[150]

In their heyday, both the Natatorium and the White City amusement park significantly benefitted the water company principals. In addition, residential growth in the area around these two attractions further enriched the company. Beginning in 1892, the Artesian Hot and Cold Water Company began delivering geothermal water to the homes surrounding the Natatorium. That year C.W. Moore's mansion on the corner of Warm Springs Avenue and Walnut was the first to connect to the system, making it the first residence heated with geothermal in the United States.[151] Hosea Eastman followed closely behind with his home on Warm Springs Avenue as well. A series of social events at the homes introduced the residents of Boise to the simplicity and cleanliness of geothermal heating, as opposed to coal or oil.[152] Other prominent Boise citizens built homes along Warm Springs Avenue. In March 1892, the members of the company proposed that city buildings such as city hall and the fire station be connected to the geothermal system. They also took out a full-page ad in the *Idaho Statesman* in April

---

[150] Witherell, 60.

[151] "Moore, Cunningham, and Bettis Family Papers" (Boise State University Special Collections and Archives).

[152] Worbois, 5.

1892 that suggested, among other uses, "flushing the sewers" to improve sanitation and the overall health of the citizenry.[153]

In their own way, the principals of the Artesian Hot and Cold Water Company, in all its iterations, were able to translate control of those resources first into political capital and eventually into political power for themselves. Although not all of the principals remained heavily involved in city government, they were able to leverage the exposure and recognition into other ventures within Boise and the surrounding area. What had begun as an expansion of an existing water delivery system in order to serve more neighbors, quickly grew to include a system that served the city by providing fire hydrants, geothermal heating, and a spa, all of which enabled the company principals to gain power and influence through the electoral process, as well. In Boise's early water history, we can see a clear connection between access to and control over resources and political power.

With Boise's growth and expansion came additional geothermal facilities from the Artesian Hot and Cold Water Company. In 1895, they added two new wells near the Natatorium and in 1903 seven more wells and a new reservoir in Hulls Gulch, designed to hold 230,000 gallons of water.[154] The company undertook a variety of steps to increase water flow and improve the volume of water moving through the system. Some options worked, while others merely wasted money, and all the while the temperature of the water coming from the geothermal wells never changed. This fact was lost on some users and the company issued a notice asking people to stop letting their faucets run

---

[153] *Idaho Statesman*, April 2, 1892.

[154] Kent, *Boise's Water*, 30-31.

while hoping for hotter water. The company claimed that "waste and unauthorized use" was "a menace to the efficiency of the service."[155] Although the water maintained a steady temperature, too much demand on the system forced some slow down in delivery.

Problems with end users coincided with worsening relations between the company and the city. In 1895, the Artesian Hot and Cold Water Company and the City of Boise began arguing over water supplied for fire protection, how much the company could charge, and, ultimately, what the charges were for. That same year, Artesian Hot and Cold Water Company principal Peter Sonna's term as mayor ended and Walter Pierce, the company's main competitor, came to office.

The back and forth between the water company and the city over fire protection continued unabated. At stake in the dispute was the issue of the City of Boise paying the water company for retaining a 550,000-gallon reservoir exclusively for fire protection.[156] An 1895 court decision found in favor of the City of Boise and the water company subsequently appealed that decision. After several years of protracted legal dispute, the Artesian Hot and Cold Water Company disbanded and re-incorporated in the state of West Virginia. The newly formed company took the name Boise Artesian Hot and Cold Water Company on September 1, 1900. This action forced a change of jurisdictional venue in the company's legal wrangling with the City of Boise. As a West Virginia company, the Boise Artesian Hot and Cold Water Company had the right to have its case heard in federal rather than state court.[157] Additionally, by choosing to locate in a state

---

[155] Wells, "Heat from the Earth's Surface," 69.

[156] *Idaho Statesman*, September 16, 1898.

[157] Kent, *Boise's Water*, 99.

across the country from Idaho, they guaranteed that there was no shared jurisdiction for a lower level judicial option. The city balked at the price increase that the company proposed for the fire protection service and argued based on an Idaho Statute that water for that purpose should carry no charge. The water company agreed to the interpretation of the Statute but noted that there needed to be charges to cover the expense of maintaining the pipes, hydrants, and reservoir associated with fire fighting. Despite this agreement, the city and the water company still fought back and forth over the case.[158]

The Idaho State Legislature amended the Statute in 1905 in order to allow the water companies to charge the city for the actual water. The Amendment asserted that the water company "must also furnish water to the extent of its means" in order to provide protection from fire and other similar emergencies.[159] Rates were to be reasonable and set by representatives selected by both parties.[160] The monthly rate to be charged to the City of Boise was $300. The City of Boise passed its own ordinance (No. 678), which, in turn, charged the water company $300 a month for running its pipes under city streets. The Council passed the Ordinance on May 31, 1906. Mayor James A. Pinney promptly vetoed it on June 2, 1906. The Council overturned Pinney's veto with a

---

[158] "History of Litigation Relating to the Franchises of the Boise Artesian Hot and Cold Water Company." Boise Water Corporation Collection (MS 395) Box 55. Idaho State Archives, Boise, Idaho.

[159] "History of Litigation Relating to the Franchises of the Boise Artesian Hot and Cold Water Company." Boise Water Corporation Collection (MS 395) Box 55. Idaho State Archives, Boise, Idaho; *General Laws of the State of Idaho Passed at the Ninth Session of the State Legislature* (Boise, Idaho: Syms-York Company, 1907): 555-557.

[160] *The Revised Statutes of Idaho Territory, Chapter V,* §*2711* (Boise, Idaho*)* Idaho State Legislature, "House Bill 168: An Act Relating to Water Corporations Supplying Towns and Cities with Water for Public and Private Uses, and Amending Sections 2711 and 2712, Revised Statutes of the State of Idaho, March 9, 1905," *General Laws of the State of Idaho Passed at the Eighth Session of the State Legislature* (Boise, Idaho: Statesman Printing Co.,1905).

vote of 8 to 3 on June 7, 1906.[161] This action amounted to nothing more than political grandstanding by the City of Boise, as both Boise Water Works and the Artesian Water and Land Improvement Company received permission before installing their pipes (Ordinance No. 94 and Ordinance No. 100, respectively). As the Boise Artesian Hot and Cold Water Company was the successor of both companies, it had the right to run pipes and water under city streets. The city's case held that the previous two ordinances, No. 94 and No. 100, only granted the water company a revocable license. Their argument was predicated on two main points. The first was that the water company had an obligation, under Idaho statute, to provide water, and the second that the city had no reason to pay for the water, as there was no agreement between the city and the company.[162] Nevertheless, the parties went back and forth in the judicial system until the U.S. Supreme Court ruled on a verdict in 1913, finding in favor of the Boise Artesian Hot and Cold Water Company.[163] The decision stated, in part, that the water company would have had no reason to expend significant amounts of capital to install and maintain a water delivery system if they thought that there was any chance that the license to do so could be revoked at any time.[164] In 1915, the Boise Artesian Hot and Cold Water Company reincorporated within the state of Idaho. A 1921 original pencil document from the water company showed a request for unmetered fire protection at Boise City Hall, Pinney Theater, the U.S. Assay Office, Bristol Hotel, Bryant and Son, the Falk Mercantile, as well as Boise City National Bank, and the Sonna Building, further

---

[161] Boise City Council, Ordinance No. 678, June 7, 1906.

[162] Boise Artesian Water Co. v. Boise City, 230 U.S. 84 (1913).

[163] Boise Artesian Water Co. v. Boise City, 230 U.S. 84 (1913).

[164] Boise Artesian Water Co. v. Boise City, 230 U.S. 84 (1913).

highlighting that the water company was still firmly rooted in the business community in Boise.[165]

After finally settling the power struggle over water in the courts, Boise's geothermal system moved into a period of stasis. Minor points of growth occurred over the next two decades. The Edwards Greenhouse geothermal well, completed in 1927, expanded the system, as did several other small wells, used primarily for residential purposes around the Boise Valley. Ownership of the Boise Artesian Hot and Cold Water Company changed several times in this period, as did its name. Many of the individuals who had used the water company as a means of gaining power and influence within the city moved on to other ventures and some eventually divested themselves of interest in the company. In those instances, they moved the financial resources that were previously dedicated to the water company to other interests. Additionally, some of the original investors passed away and their families elected to cash in their shares. Others, such as the Eastman brothers, C.W. Moore, and several individuals with the surname of Regan, remained active throughout various iterations of the water companies. The community-focused elements of the geothermal system such as the Natatorium and White City amusement park continued to exist for a period but interest in them declined as the city developed more modern attractions.

In 1938, the city granted Boise Water Corporation (the successor to Boise Artesian Hot and Cold Water Company) a license to supply the city's water for thirty years. The city granted ten and fifteen year extensions in 1968 and 1978, respectively. A

---

[165] "Original Pencil Copies of Supporting Data." Boise Artesian Cold Water Company. May 31, 1921. Idaho State Archives. Boise, Idaho.

1977 study conducted by the Boise Center for Urban Research noted 216 wells in Boise.[166] Not all of the 216 wells were owned by the water company, however, as a previous inventory indicated that the company owned just twenty wells in the Hulls Gulch area. Although the geothermal system remained active in areas such as Warm Springs Avenue, it was not expanded or adapted for additional use in more modern buildings elsewhere in the city. Several of the older buildings that had been previously connected to the geothermal system were also lost during this period as Boise underwent urban renewal and redevelopment in the downtown area and developers did not choose to implement geothermal in these new buildings. This was partly due to the prevalence and relative ease with which natural gas and electricity were available. In the 1950s and 1960s, both of those sources were, according to Donald Worbois, the preferred means of heating for new homes and businesses.[167] Seemingly, water's starring role in shaping local politics began to fade.

---

[166] Boise Center for Urban Research, *Domestic Water Delivery in Boise, Idaho* (Boise, Idaho: Boise State University, 1977).

[167] Worbois, 6.

CHAPTER THREE – THE POWER OF HOT WATER

Rediscovering Geothermal

The 1960s and 1970s ushered in a new approach to water development, one focused less on profits and political power and more on an ethos of conservation. As the new decades dawned, environmentalism came to the forefront and began to influence the energy-based decisions that people made. There was also a tendency during this era to move towards a model reflecting a "concentration of power" as individuals became further removed from the actual procurement of daily necessities.[168] The trajectory of environmentalism in the American West was slightly different in the way it manifested than in other areas of the country. It took on two forms—one on the basis of the private enterprises that dot the West and the other focused on publicly owned interests. A primary factor for this distinction is the large amount of land in the West that is directly owned and controlled by the Federal government. The same forces, however, impact both sides to a much larger scale and degree than their East Coast counterparts.

As the 1970s and the environmental movement emerged, it became increasingly important for individuals to find environmentally sensitive and responsible methods of supplying utilities. Whereas conservationism had a more singular focus on using—not necessarily preserving—natural resources, environmentalism focused on the significance of individual resources to the entire ecosystem in an interconnected manner. As Hal

---

[168] Worster, *An Unsettled Country*, 43.

Rothman asserted, "progress must be tempered with a new ethic of responsibility based on consideration of the impact on future generations."[169] The focus was on the whole instead of merely one facet of the natural world. While that is not particularly unique to the West, the assertion's impact was that the manner with which individuals engaged with the environment shifted under environmentalism. Rather than merely exploiting nature, there was an understanding and realization that humans were a part of nature.

A 1970 presentation on the geothermal potential of Idaho to the United Nations noted that in the previous decade, the economic benefits of geothermal development had come to the fore.[170] At the same time, politicians recognized the significance of the environmental movement throughout the country as events such as Earth Day garnered grassroots support. Interpreting that movement in the West, however, was a more difficult proposition, as it appeared to be the imposition of outside forces—federal or otherwise—into local level concerns. In 1970, Cecil Andrus, a Democrat campaigning for Governor of Idaho, ran on a platform that included "protecting Idaho's grand natural beauty."[171] This rhetoric was a clever merging of both the conservationist ethic already embraced by many throughout the West and the newer environmental concerns that were becoming popular in other portions of the country. Andrus, as a result, was the "first Western governor elected on an environmental platform" in 1970.[172] The primary

---

[169] Hal K. Rothman, *The Greening of a Nation? Environmentalism in the United States Since 1945* (Ft. Worth, Texas: Harcourt Brace College Publishers, 1998): 106.

[170] Sylvia H. Ross, *Geothermal Potential of Idaho: Preprint of a paper prepared for the United Nations symposium on the development and utilization of geothermal resources, Pisa, Italy, 22 September – 1 October 1970* (Moscow, Idaho: Idaho Bureau of Mines and Geology, January 1970): 27.

[171] Cecil D. Andrus and Joel Connelly, *Cecil Andrus: Politics Western Style* (Seattle, Washington: Sasquatch Books, 1998): 20.

[172] Andrus and Connelly, 19.

environmental focus of his campaign was the White Cloud Mountains, although other issues related to the environment and resources were likely to garner the attention of the man who described himself as having the "conscience of a conservationist."[173] Andrus recognized that due to the large Republican tendencies in the state, any leadership had to be able to find the middle ground between the two sides in order to be effective and advance any sort of political agenda.[174] Andrus's focus also had to be much larger than that of the water company principals. Where they were able to zero in on downtown Boise and the area surrounding Warm Springs Avenue, Andrus had to find the best options for the entire state of Idaho. To that point, the best possible option had to be one that appealed to both sides of the aisle while at the same time set an example for other organizations to follow in order to raise the profile of Idaho to those inside and outside the state.

The energy crises of the 1970s presented a double-edged sword for people and governments to deal with. On the one hand, oil, electricity, and natural gas prices soared. There were such demands on power providers that they began utilizing coal-powered plants in order to generate electricity. This created an additional hazard to the environment as the smoke and pollution from the coal affected the air quality—this was especially true for the air that could get trapped in the Boise Valley during inversion conditions. During the rate surges and increase in coal usage, federal programs made funds available for alternative energy sources. A 1972 report indicated that one of the

---

[173] Andrus and Connelly, 170.

[174] Andrus and Connelly, 41.

greatest potential uses for Idaho's geothermal energy was for heating and greenhouse usage.[175]

Early in 1974, Governor Andrus asked the U.S. Energy Research and Development Administration to evaluate Boise's geothermal systems.[176] According to Kenneth Neely, a hydrogeologist with the Idaho Department of Water Resources, the State was beginning a project to renovate and expand the Capitol Mall and the high-energy prices were cost prohibitive for much of the work. The final 1976 report recommended that Idaho complete a test case converting a building away from natural gas in order to determine the best application of geothermal energy.[177]

The Idaho State Health Laboratory, which was located off of Warm Springs Avenue near the original geothermal heating district, served as the best candidate for retrofitting. The lab was a good choice for the test as it had very specific requirements that had to be met in order to run. The building was 40,000 square feet and needed to have a constant interior temperature of 70°F.[178] Retrofitting began in 1977 and was completed within the year. The price tag for the endeavor was $120,000, although more than two-thirds of those costs were one-time expenses that would not be necessary for

---

[175] C. R. Nichols, C.E. Brockway, and C.C. Warnick. *Geothermal Water and Power Resources Exploration and Development for Idaho* (Moscow, Idaho: University of Idaho Water Resource Research Institute, December 1972): 35.

[176] Kenneth W. Neely, "Production History for the State of Idaho Capital [*sic*] Mall Geothermal System 1983-1994," *GHC (Geo Heat Center) Bulletin*, February 1996 (via: http://geoheat.oit.edu/bulletin/bull17-1/art2.pdf): 19.

[177] Leland L. Mink and Michael LeBaron, *Hydrology and Groundwater Supply of the Boise Area* (Boise, Idaho: Boise Center for Urban Research, 1976).

[178] Worbois 7.

other buildings joining the same system.[179] The savings were immediate and there was a substantial drop—roughly sixty percent—in costs associated with heating the facility. The bill for heating the Idaho State Health Laboratory via the gas system in 1977 was approximately $12,800. Following the building retrofit, the 1978 bill for roughly the same length of time was approximately $3,300.[180] Even taking weather fluctuations into account (colder or warmer weather trends between the two comparison years), the savings were hard to ignore.

The substantial cost benefits made the conversion an ideal project for the politicians involved, as the endeavor was likely to be supported by both sides of the aisle. Democrats would support an environmentally minded agenda that helped mitigate pollution, like that produced by coal-fueled power plants. At the same time, the plan appealed to Republicans as it allowed for a greater savings in state funding—money that could be spent on other projects that were either more desirable or favored by their constituents. As Hal Rothman notes, during the protest filled 1960s and 1970s, environmental causes were the ones that most frequently found acceptance by the mainstream.[181] The projects that could argue for a significant cost savings to the public were most likely to garner widespread support.[182] This brief period represented a time

---

[179] The 2015 value would be $371,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[180] Worbois 7. The 2015 value for $12,800 would be $50,000. The 2015 value for $3,300 would be $12,000. Samuel H. Williamson, "Seven Ways to Compute the Relative Value of a U.S. Dollar Amount, 1774 to present," MeasuringWorth.com/uscompare/, 2015.

[181] Rothman, 107.

[182] Rothman, 112.

when, for many in state government, it was advantageous to be on the side of environmental concerns.[183]

In the instance of this particular project, geothermal development was not the result of a race between two private entities. At this point, it was the product of a concerted effort to find alternative solutions to a problem facing the community as a whole, but state government in particular. Where the earlier geothermal development was later parlayed into political capital, there was no need for that on this project as those in charge already had substantial political clout and control. Instead, geothermal development was essentially a bridge issue that could unite both sides of the aisle—Republicans and Democrats—but could still provide a viable path on which candidates could run. As the decision makers already possessed political power, the choice to explore alternative energy sources was more of an ideological conclusion.

As the savings at the Health Laboratory were so substantial and readily evident, the State acted to convert other state holdings to geothermal systems, as well. The Capitol Mall Complex Project began in 1979 and consisted of two wells—Capitol Mall #1 and Capitol Mall #2. Capitol Mall #1 had a depth of 2,150 feet. It was an injection well designed to put the spent water back into the aquifer. Capitol Mall #2 was the production well. It had a depth of 3,030 feet and a flow rate of 900 gallons a minute.[184] The two wells were completed in 1981 and the buildings in the Capitol Mall Complex were connected in 1982. The system supplies more than nine buildings with water of an

---

[183] Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985* (New York: Cambridge University Press, 1987): 435.

[184] Neely, 19.

average temperature of 162°.[185] The project to retrofit all of the buildings cost $1,925,000 and at the time of completion estimates were that the transition would pay for itself in less than a decade.[186] Recent estimates place the cost savings of the geothermal system at approximately $500,000 per year.[187] While a substantial amount, the yearly savings are dwarfed by the overall state budget of $6,455,257,400.[188] Overall, a 2010 assessment placed the savings in the neighborhood of $5-6 million dollars since 1982.[189]

The Capitol Mall Complex geothermal system is currently used to heat 1.1 million square feet of state office space each day from October through April.[190] The Idaho State Capitol Building is the only one in the entire country heated with geothermal energy. All water used in the system is returned to the aquifer through the injection well, so in a sense, the geothermal system in the Capitol Mall is merely borrowing the water before returning it to the earth. Adjustments had to be made as the geothermal heat kept portions of the Capitol without exterior walls too warm. The system is largely shut down during warmer months, with only a small portion utilized for hot water service.

While the key figures of the original geothermal movement of the late nineteenth and early twentieth centuries were able to parlay their experiences and financial benefits into politics and other arenas, the second surge of geothermal energy in Boise during the

---

[185] Neely, 19.

[186] Worbois, 9

[187] Larry Burke, "Going Geothermal: Idaho's Capitol Turns Green with Energy." *Idaho Landscapes* (Vol. 3, No. 1, Summer 2010): 54.

[188] *Idaho Fiscal Facts: A Legislator's Handbook of Facts, Figures, and Trends*. (Boise, Idaho: Idaho Legislative Services Office, 2013): 10.

[189] Burke, 56.

[190] Burke, 55.

1970s and 1980s took a remarkably different trajectory. In this instance, both the players and the reasons were different: governmental entities looked to geothermal energy to achieve environmental and fiscal responsibility. Where private industry constantly sought new projects in which to invest its time and energy, public entities focused on a singular problem—responsible and cost effective energy production for the state buildings—and worked to find the best possible solution for that problem. Where the private water companies generated new capital for additional projects, the public agencies worked toward cost savings to apply to other areas of the public budget.

At the same time that the Capitol Mall Complex Project was getting off the ground, the City of Boise explored new sites for geothermal wells to supply the downtown area. According to a 1979 report from the City of Boise's Energy Office, the interest in Boise pursuing geothermal development of their own came from a variety of sources, to include the federal and state governments, local geothermal business interests, and even other utility companies such as Idaho Power.[191] The two main areas under consideration were Camel's Back Park (Hulls Gulch area) and Military Reserve Park. The city did not want to disrupt Camel's Back Park and instead purchased portions of the federal Military Reserve Park with the assistance of Senators Frank Church and James McClure.[192] A private company was responsible for the implementation of the system, which the City of Boise then purchased in 1988.

Boise's system utilizes three wells for water service with a fourth for monitoring purposes. At any given time, one of the three wells is normally enough to meet the needs

---

[191] City of Boise Energy Office, *Geothermal Energy Systems Plan for Boise City* (Boise, Idaho: Energy Office Boise City, January 1979): 5-6.

[192] Worbois, 10.

of the system with the others being used when demand is exceptionally high.[193] An injection well located in Julia Davis Park has been returning most of the water from this system back into the aquifer since 1999. Among the buildings in Boise that utilize geothermal heating are Boise City Hall, the Ada County Courthouse, the Federal Building, Boise High School, the Basque Museum, and the YMCA (which also utilizes geothermal energy to heat its pool). Each of these buildings came online at a different point in Boise's history. Some were more recent additions, coming online during the Capitol Mall expansion, while others dated back to original geothermal system. That is secondary, however, to the larger point that they underscore—the geothermal system, despite some slow downs in its usage, remained an integral part of Boise's history and community.

The Veterans Administration (VA) campus in Boise also operates its own, separate geothermal system. They have just two wells, one for production and one for reinjection into the aquifer. It was the last of the four systems in the Boise area to begin operations, starting in 1988. The system serves 22 separate buildings comprising 400,000 square feet on the VA Boise Campus.[194] Although a localized endeavor, the transition of the VA campus to geothermal represents an additional level of government—Federal—beyond the city and the state, becoming involved in Boise's geothermal development.

---

[193] GeoEngineers, *Report: Downtown Boise Geothermal Feasibility Study, Boise, Idaho – Prepared for Capital City Development Corporation* (Boise, Idaho: May 14, 2004): 4.

[194] Governor's Office of Energy Resources, "Idaho Geothermal History: A Detailed History." *State of Idaho*: 6.

As with the earlier geothermal developers, the public entities did not immediately recognize the impact of their development on the resource. In 1985, there were concerns expressed as the drawdown in the aquifer caused the pumps to lose suction.[195] At the same time that the VA system came online in 1988, a moratorium restricted further geothermal drilling. This was due to a great deal of concern over declining water levels. Research into the impacts of new geothermal draws on the aquifer noted that the demands were outpacing the ability to study and monitor the resources.[196] As a result, the State of Idaho implemented three Ground Water Management Areas or GMAs. One GMA was located over Boise along with a Ground Water District that covered Ada County.[197] Of primary concern was the loss of approximately two-thirds of the geothermal water pumped out of the aquifer to the Boise River. Some areas were even experiencing low water levels of "up to 25 feet."[198]

Boise's moratorium re-extended several times—each for a period of five years—in 1993, 1998, 2003, and 2008. The last moratorium expired on May 5, 2014. The City of Boise's injection well located in Julia Davis Park was a direct result of the concerns over water loss. Under the moratorium, Boise had a cap on how much water its system could remove from the aquifer each year—200 million gallons. The city requested an

---

[195] C.J. Waag and S.H. Wood. *Base Line Data Analysis of a Developing Geothermal System, Boise, Idaho* (Moscow, Idaho: Idaho Water Resources Research Institute, September 1985): 10.

[196] C.J. Waag and S.H. Wood. *Anaylsis of Historical and Current Drawdown and Production Data from the Boise Geothermal System* (Moscow, Idaho: Idaho Water Resources Research Institute, August 1987): 44.

[197] Governor's Office of Energy Resources, "History," *State of Idaho,* February 9, 2010 (via: http://www.energy.idaho.gov/renewableenergy/history.htm)

[198] Joe Kolman, "Geothermal Aquifer Moratorium Continues," *Idaho Statesman,* December 2, 2003.

increase in 2001 and the state granted a 15% increase (230 million gallons) in 2002.[199] That same year, statistics indicate that 687 million gallons were taken from the aquifer and 426 million gallons were returned.[200] The public supported the moratorium, with minimal issue, as any new or extended draws on the aquifer would have negatively impacted all users.

Geothermal development during this time period was neither as active nor as prolific as it had been at the turn of the twentieth century. While there were small advances and individual wells coming online, there was little to no movement in furthering the resource until the State of Idaho began exploring the possibilities of geothermal conversion. The energy crises of the 1970s were the impetus that necessitated additional scrutiny of state expenditures, which, in turn, led to the development of the state's geothermal system. Without the wholesale investment of the State of Idaho into geothermal, it is quite possible that the resource would have faded increasingly from use and become a historical anecdote centered around what humorist Will Rogers referred to as "hot water bottle boulevard."[201] Instead, the energy crises propelled the state into action, which in turn, led to a re-discovery of the geothermal resources allowing Boiseans, and Idahoans, to again define themselves in concert with the natural world rather than in opposition to it. It has not always been a smooth relationship and there have been periods of crisis, but it remains an important partnership.

---

[199] Governor's Office of Energy Resources, "Idaho Geothermal History: A Detailed History." *State of Idaho*: 7-8.

[200] Kolman, "Geothermal," *Idaho Statesman*, December 2, 2003.

[201] Anna Webb, "Top 50 Stories: 1890-Geothermal Boise," *Idaho Statesman*, May 26, 2014.

The geothermal systems of Boise are finding themselves back in the news again as another environmental movement—this time the push for green or sustainable energy—has businesses and industries looking outside the traditional modes and methods. Where earlier models were implemented by private industries and public agencies, the new application is being undertaken by a public university as a means of cost savings within its own funding structure.

Leading the way in this new system of geothermal development is Boise State University. The school's inclusion is the result of an expansion of the City of Boise's existing geothermal network, made possible by a series of federal grants. The U.S. DOE awarded one $2.4 million dollar grant, "Boise City Geothermal System Expansion, Carbon Disclosure Project 31.09."[202] U.S. DHUD funded the other grant, in the amount of $665,000, in order to "bring geothermal energy to an economically depressed area of the City."[203] The selection of Boise State University, in order to further promote the development and conversion to renewable energy sources, allowed the school to become home to the first buildings south of the Boise River to connect to the geothermal system.[204] The water is piped onto campus under the Capitol Bridge Boise River Crossing.

The conversion of Boise State University to geothermal energy represents a remarkable point in the political discussion of resource development. Much like the

---

[202] U.S. Department of Energy, "Environmental Assessment: Geothermal Expansion to Boise State University – DOE/EA-1763," Golden, Colorado: U.S. Department of Energy – Golden Field Office, December 2010. (via: http://energy.gov/nepa/ea-1763-geothermal-expansion-boise-state-university-city-boise-boise-idaho): 1.

[203] U.S. Department of Energy, "Environmental Assessment," 1.

[204] Bethann Stewart, "Meet the Future of Business at Boise State – A two-year construction project will redefine the entrance to the university," *Idaho Statesman*, January 18, 2010.

earliest period, which coincided with the beginning of geothermal exploration, the development at Boise State was a means of reducing costs and freeing up capital for other projects and expenses—in much the same manner as private enterprise. It bears similarity to the second period—the one that coincides with the re-discovery period of geothermal—in that it is being undertaken by a public entity using public funding. Additional draws on the geothermal resources present challenges, however, the experiences with both the State and City systems as well as the moratoriums, has provided a better understanding of the aquifer and its limitations.

Boise State's Micron Business and Economics Building was the first building on campus built with the express intent of connecting to the geothermal system. A ceremony held in front of the new building on November 16, 2012, featured Boise State University President Bob Kustra and Boise Mayor David Bieter turning on the system. Interestingly, geothermal water had to be cooled from its actual temperature of approximately 170° to roughly 110° in order to be run through the fountain in front of the building.[205]

Also included in the first phase with the Micron Building were the Multipurpose Classroom Building, the Morrison Center, the Interactive Learning Center, the Education Building, the Norco Nursing Building, and the Math/Geosciences Building. The Environmental Research Building, built with geothermal in mind, connected to the system in the summer of 2012. The Administration Building and the Student Union

---

[205] Kathleen Tuck, "Geothermal Now Heating Up Campus," *UPDATE*, November 16, 2012 (via: http://news.boisestate.edu/update/2012/11/16/geothermal-now-heating-up-campus/)

Building also connected at that time.[206] The project is scheduled for completion in 2015 with the final connection in the closed loop system being made back across the Boise River along Broadway Avenue. The geothermal system currently serves one million square feet of university property.

A 2013 article in the university's student newspaper, *The Arbiter*, examined the cost savings experienced by Boise State University following the conversion to geothermal heating. In much the same manner as the state conversions in the 1970s and 1980s, there were immediate and significant reductions. In 2012, the costs associated with geothermal were $11,000. Natural gas bills for heating were running just under one million dollars a year.[207] Beyond this initial financial savings, it remains too early to determine the lasting impact of the Boise State University system or whether this latest foray into geothermal development will inspire other locations to connect to the system.

---

[206] Cynthia Sewell, "Boise State Opens New Environmental Research Building," *Idaho Statesman*, August 22, 2011.; Statesman staff, "BSU Geothermal Project Closes Greenbelt Tunnel Near Julia Davis Park," *Idaho Statesman*, December 7, 2011.

[207] "Funding for Utilities is Questioned," *The Arbiter*, December 2, 2013 (via: http://arbiteronline.com/2013/12/02/utilities/).

CHAPTER FOUR - CONCLUSION

In utilizing geothermal energy, Boise has earned worldwide recognition from a variety of sources. The Top 10 List of Geothermal Locations from the Geothermal Energy Association lists Boise alongside Perth, Australia, Reykjavik, Iceland, Madrid, Spain, and Xianyang, China.[208] The Geothermal Energy Association reported that Idaho had perhaps the "largest untapped potential for geothermal development" in the entire United States.[209] This makes the capability for further development of the geothermal system an interesting proposition.

Reykjavik began utilizing geothermal heating in 1928, several decades after Boise's first system was implemented. Prior to Iceland's system overhaul in 1942, numerous engineers from that country visited Boise to study the geothermal system in order to make adjustments and adaptations to their own plans.[210] In this manner, Boise's artesian and geothermal water systems have been models to the world in the best ways to utilize natural resources for the community advantage.

When examining the trajectory of the geothermal usage in Boise, a pattern of start and stop development becomes apparent. These periods correspond to larger trends in environmental history. The first period of development aligns with the conservationist movement where individuals sought the best way to use the natural resources in order to

---

[208] "Boise is One of the World's Top Geothermal Cities," *Idaho Statesman*, December 10, 2009.

[209] "Report Touts Idaho's Geothermal Supply," *Idaho Statesman*, November 28, 2006.

[210] Wells, "Heat from the Earth's Surface," 71.

serve the larger community. In this manner, the manifestation of conservationism in Boise looked to the artesian and geothermal wells as a way of solidifying the community and tapping in to assets that would remain viable for future generations. In many ways, the Eastman brothers and their contemporaries saw their artesian and geothermal development as a benefit for the entire community to reap. They also used it as a means to increase influence and impact for themselves but there is nothing to suggest that their goals ran counter to the best interest of the community at large.

The second period of geothermal development in Boise coincides with the environmental movement. Under environmentalism, it was no longer enough to merely find ways to utilize the resources. Instead, there needed to be commitment to use that resource in ways that were in the best possible interest of both the community and the resource. During this second period, governmental agencies rather than private enterprises led the way. Given the multiple agencies involved, it would stand to reason that there should have been more checks and balances on the usage. Unfortunately, that was not the case and despite the environmental roots of this period of development, the resource was pushed too far—not quite to the point of becoming obsolete but certainly to a level of inefficiency.

The third and final period of development closely aligns with the green energy movement of the early twenty-first century. This drive to find sustainable and renewable energy sources is ideally suited to geothermal exploration. The Boise State University system seems to be learning from the mistakes of past geothermal usage and includes a recharge injection well as part of its closed loop system. It remains too early in this

movement to determine how effective the structure will be but the possibilities for future advances remain promising.

The geothermal water systems of Boise further highlight how these historical cycles repeat and define themselves through natural resource development. As Donald Worster noted, developments and experiments are frequently tried again and again in order to repeat previous cycles.[211] The outcome is never the same, as the players and environment bear the lessons and losses of the previous phases. The trajectory that these cycles take is never the same, and as a result, new power structures come to the fore in order to replace the previous ones.

Despite the advent of new and easier to use technologies, the geothermal system of Boise remains intrinsically connected to the city and people. The competition between the various iterations of the water companies helped to form the character of the city, region, and state by providing the economic means to influence and shape political realities. Following the initial heyday of the geothermal development, the resource faded into the background as more modern utilities took its place. When there was a substantial need during the energy crises of the 1970s, geothermal offered a quick and ready natural solution to the issues that were plaguing much of the country. So much did the region come to depend on the resource that it was almost used too much. The citizens recognized the problem and did their best to help ensure that this unique facet of life in the Boise Valley would remain viable for future generations. While the geothermal aquifer is enormous, covering more than 125 square miles and extending from Lucky Peak to Eagle, it impacts life today in almost the same manner it did for the early settlers,

---

[211] Worster, *Rivers*, 261.

although not to the same level or degree. The presence or absence of water continues to shape our daily lives.

BIBLIOGRAPHY

Primary Sources

Archival Materials

Boise City Records:

Boise City Council Records, Boise City Hall. Boise, Idaho.

Boise State University Special Collections and Archives:

"Cecil D. Andrus Papers." Boise State University Special Collections and Archives.

"Governor Cecil D. Andrus Papers." Boise State University Special Collections and Archives.

"Moore, Cunningham, and Bettis Family Papers." Boise State University Special Collections and Archives.

Idaho State Archives:

"Annual Report of General Manager and Secretary: Boise Artesian Hot and Cold Water Company." December 31, 1914. Idaho State Archives. Boise, Idaho.

"Annual Statement: Boise Artesian Water Company and Natatorium Company." December 31, 1922. Idaho State Archives. Boise, Idaho.

"Articles of Incorporation and By-Laws: Artesian Hot and Cold Water Company." March 29, 1891. Idaho State Archives. Boise, Idaho.

"Articles of Incorporation and By-Laws: Boise Artesian Hot and Cold Water Company." December 12, 1915. Idaho State Archives. Boise, Idaho.

"Articles of Incorporation and By-Laws." November 26, 1920. Idaho State Archives. Boise, Idaho.

Boise Water Corporation Collection (MS 395). Idaho State Archives. Boise, Idaho.

Harris, C.N. “Report of Investigation of the Boise City Water Supply.” March 1921. Idaho State Archives. Boise, Idaho.

“History of Litigation Relating to the Franchises of the Boise Artesian Hot and Cold Water Company.” Boise Water Corporation Collection (MS 395) Box 55. Idaho State Archives. Boise, Idaho.

“Historical Valuation.” May 31, 1921. Idaho State Archives. Boise, Idaho.

“Original Pencil Copies of Supporting Data.” Boise Artesian Cold Water Company. May 31, 1921. Idaho State Archives. Boise, Idaho.

Published Sources

Agnew, Mrs. James D. “Idaho Pioneer of 1864.” *The Washington Historical Quarterly* Vol. 15, No. 1 (January 1924): 44-48.

Andrus, Cecil D. and Joel Connelly. *Cecil Andrus: Politics Western Style*. Seattle, Washington: Sasquatch Books, 1998.

Boise, Idaho. Boise, Idaho: Syms-York Co., 1913.

Boise State University. “Geothermal Project.” (via: http://operations.boisestate.edu/architecture-engineering/geothermal-project/)

Bristol, Sherlock. *Idaho Nomenclature.* Berkeley, California: Bancroft Library, 1883.

Bristol, Sherlock. The Pioneer Preacher; Incidents of Interest, and Experiences in the Author’s Life, Revival Labors in the Frontier Settlement: A Perilous Trip Across the Plains in the Time of Indian Wars and Before the Railroad – Three Years in the Mining Camps of California and Idaho. Chicago, Illinois: Fleming H. Revell Company, 1898.

Carlson, Chris. *Cecil Andrus: The Early Years*.

W.E. Pierce & Co. *Boise: The City Beautiful*. Tacoma, Washington: Pioneer Bindery & Printing Co., 1905. Boise State University Special Collections and Archives.

Government Documents

Boise Artesian Water Co. v. Boise City, 230 U.S. 84 (1913).

Boise City Council. “Ordinance No. 94.” October 3, 1889.

Boise City Council. “Ordinance No. 100.” July 10, 1890.

Boise City Council. “Ordinance No. 678.” June 7, 1906.

City of Boise Energy Office. *Geothermal Energy Systems Plan for Boise City*. Boise, Idaho: Energy Office Boise City, January 1979.

Constitution of the State of Idaho.

General Laws of the State of Idaho Passed at the Eighth Session of the State Legislature. Boise, Idaho: Statesman Printing Co., 1905.

General Laws of the State of Idaho Passed at the Ninth Session of the State Legislature. Boise, Idaho: Syms-York Company, 1907.

General Laws of the Territory of Idaho Including the Code of Civil Procedure, Passed at the Eleventh Session of the Territorial Legislature. Boise, Idaho, 1881.

Governor’s Office of Energy Resources. “History.” *State of Idaho*.

Governor’s Office of Energy Resources. “Idaho Geothermal History: A Detailed History.” *State of Idaho*.

IDWR: Idaho Department of Water Resources. “Moratorium.” (http://www.idwr.idaho.gov/watermanagement/orders/Moratorium/orders_moratorium.htm) 2014.

IDWR: Idaho Department of Water Resources. “Water Measurement.” (http://www.idwr.idaho.gov/WaterManagement/WaterMeasurement/water_measurement.htm) 2014.

Idaho Fiscal Facts: A Legislator’s Handbook of Facts, Figures, and Trends. Boise, Idaho: Idaho Legislative Services Office, 2013.

Idaho State Legislature. “House Bill 168: An Act Relating to Water Corporations Supplying Towns and Cities with Water for Public and Private Uses, and Amending Sections 2711 and 2712, Revised Statutes of the State of Idaho, March

9, 1905" *General Laws of the State of Idaho Passed at the Eighth Session of the State Legislature*. Boise, Idaho: Statesman Printing Co.1905.

Integrated Energy Systems, Inc./Idaho State Office of Energy. *Idaho Geothermal Handbook*. Boise, Idaho: Idaho Office of Energy, Geothermal Programs, 1979.

Letter from Merle Wells to Governor Cecil D. Andrus re: Castle Rock. July 6, 1990.

Mitchell, John C., Linda L. Johnson, and John E. Anderson. *Geothermal Investigations in Idaho, Part 9: Potential for Direct Heat Application of Geothermal Resources*. Boise, Idaho: IDWR – Idaho Department of Water Resources, June 1980.

Neely, Kenneth Wray. *Production History for the State of Idaho Capitol Mall Geothermal System: 1983-1994*. Boise, Idaho: Idaho Department of Water Resources, 1995.

Renk, Russell R. *Impacts of Geothermal Waters on Selected Streams in Southern Idaho*. Boise, Idaho: Idaho Department of Health and Welfare, Division of Environment, 1986.

Resolution of the Business Council of the Duck Valley Shoshone Paiute Tribes. "Resolution No. 90-SPR-111." August 8, 1990.

The Revised Statutes of Idaho Territory. Chapter V, §2711. Boise, Idaho.

U.S. Department of Energy. "Environmental Assessment: Geothermal Expansion to Boise State University – DOE/EA-1763." Golden, Colorado: U.S. Department of Energy – Golden Field Office, December 2010. (via: http://energy.gov/nepa/ea-1763-geothermal-expansion-boise-state-university-city-boise-boise-idaho)

U.S. Department of Energy. "Finding of No Significant Impact and Floodplain Statement of Finding: Geothermal Expansion to Boise State University – DOE/EA-1763." Golden, Colorado: U.S. Department of Energy – Golden Field Office, December 2010. (via: http://energy.gov/nepa/ea-1763-geothermal-expansion-boise-state-university-city-boise-boise-idaho)

Studies and Scientific Reports

Behling, Robert. *Domestic Water Delivery in Boise, Idaho*. Boise, Idaho: Boise Center for Urban Research, Boise State University, 1977.

Boise Center for Urban Research. *Boise Citizens Survey 1976 Final Report*. Boise, Idaho: Boise State University, 1976.

Boise Center for Urban Research. *Domestic Water Delivery in Boise, Idaho*. Boise, Idaho: Boise State University, 1977.

Buckendorf, Madeline Kelly. "National Register of Historic Places – Historic Rural Properties of Ada County, Idaho." 2001.

Burnham, Will and Spencer Wood. *12th Annual Rocky Mountain Groundwater Conference, Boise, Idaho – Field Trip, Boise Front Geothermal*. 1983.

GeoEngineers. *Report: Downtown Boise Geothermal Feasibility Study, Boise, Idaho – Prepared for Capital City Development Corporation*. Boise, Idaho. May 14, 2004. (via: http://www.ccdcboise.com/Documents/GeoEngineersreport2.pdf)

Holenbaugh, Kenneth M. *The Evaluation of Geologic Processes in the Boise Foothills That May Be Hazardous To Urban Development: A Report Prepared for The Ada Council of Governments*. May 1973. Boise State University Special Collections and Archives.

Mabbutt, Richard and Douglas Burr. "Greater Boise's Carrying Capacity: Water Resources." A Summary Report from the Technical Assessment Committee to the Boise Future Foundation, Boise, Idaho, 1982.

Mink, Leland L. and Michael LeBaron, *Hydrology and Groundwater Supply of the Boise Area*. Boise, Idaho: Boise Center for Urban Research, 1976.

Nichols, C.R., C.E. Brockway, and C.C. Warnick. *Geothermal Water and Power Resources Exploration and Development for Idaho*. Moscow, Idaho: University of Idaho Water Resource Research Institute, December 1972.

Powell, John Wesley. *Report on the Lands of the Arid Region of the United States. With a More Detailed Account of the Lands of Utah*. Washington, D.C.: Government Printing Office, 1879.

Ross, Sylvia H. *Geothermal Potential of Idaho: Preprint of a paper prepared for the United Nations symposium on the development and utilization of geothermal resources, Pisa, Italy, 22 September – 1 October 1970*. Moscow, Idaho: Idaho Bureau of Mines and Geology, January 1970.

Waag, C.J. and S.H. Wood. *Anaylsis of Historical and Current Drawdown and Production Data from the Boise Geothermal System*. Moscow, Idaho: Idaho Water Resources Research Institute, August 1987.

Waag, C.J. and S.H. Wood. *Base Line Data Analysis of a Developing Geothermal System, Boise, Idaho.* Moscow, Idaho: Idaho Water Resources Research Institute, September 1985.

Waag, C.J. and S.H. Wood. *Evaluation of the Boise Geothermal System: Final Report to Idaho Department of Water Resources, Boise, Idaho*. Boise, Idaho: Idaho Department of Water Resources, December 1987.

Waag, C.J. and S.H. Wood. *Geothermal Investigations in Idaho: Evaluation of the Boise Geothermal System: Final Report to Idaho Department of Water Resources, Boise, Idaho*. Boise, Idaho: Idaho Department of Water Resources, December 1987.

Wood, Spencer H. and Willis L. Burnham. "Chapter 26: Geologic framework of the Boise Warm Springs geothermal area, Idaho." *Geological Society of America Centennial Field Guide – Rocky Mountain Section*. Boulder, Colorado: The Geological Society of America, Inc., 1987.

Interviews

Author's Interview with Mary May. May 21, 2011.

Newspapers and Online Publications

Boise Parks and Recreation. “The Natatorium.” (via: http://parks.cityofboise.org/parkslocations/parks/greenbelt/historical-maps/): 2014.

Boise Parks and Recreation. “Peace Valley.” (via: http://parks.cityofboise.org/parkslocations/parks/greenbelt/historical-maps/): 2014.

GHC (Geo Heat Center) Bulletin. Klamath Falls, OR. (http://geoheat.oit.edu/)

Idaho Statesman. Boise, ID.

Idaho Tri-Weekly Statesman. Boise, ID.

Shugart, Sharon. “Hot Springs National Park: A Brief History of the Park,” *National Park Service* (via: http://www.nps.gov/hosp/historyculture/index.htm), November 2003.

The Arbiter. Boise State University. Boise, ID.

The Daily Evening Citizen. Idaho State Archives. Boise, ID.

UPDATE. Boise State University. Boise, ID

Secondary Sources

Bierman, Sheldon. *Geothermal Energy in the Western United States: Innovation versus Monopoly*. New York: Praeger, 1978.

Bird, Annie Laurie. “A Footnote on the Capital Dispute in Idaho.” *The Pacific Northwest Quarterly* Vol. 36, No. 4 (October 1945): 341-346.

Burke, Larry. “Going Geothermal: Idaho’s Capitol Turns Green with Energy.” *Idaho Landscapes* Vol. 3, No. 1 (Summer 2010): 54-59.

Cataldi, Raffaele, Susan F. Hodgson, and John W. Lund, editors. *Stories from a Heated Earth: Our Geothermal Heritage*. Sacramento, California: Geothermal Resources Council and the International Geothermal Association, 1999.

Fiege, Mark. *Irrigated Eden: The Making of an Agricultural Landscape in the American West.* Seattle: University of Washington Press, 1999.

French, M.S., Hiram T. *History of Idaho: A Narrative Account of Its Historical Progress, Its People and Its Principal Interests, Volume I*. Chicago, Illinois: The Lewis Publishing Company, 1914.

Glennon, Robert. *Water Follies: Groundwater Pumping and the Fate of America's Fresh Waters*. Washington, D.C.: Island Press, 2002.

Hart, Arthur A. *Historic Boise*. Boise, Idaho: Historic Boise, Incorporated, 1985.

Hart, Arthur A. *The Boiseans: At Home*. Boise, Idaho: Historic Boise, Incorporated, 1985.

Hartman, Hugh H. *The Founding Fathers of Boise*. Boise, Idaho: Private printing, 1989.

Hays, Samuel P. *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955-1985.* New York: Cambridge University Press, 1987.

Hays, Samuel P. *Conservation and the Gospel of Efficiency: The Progressive Conservation Movement 1890-1920.* Cambridge, Massachusetts: Harvard University Press, 1959.

Idaho State Historical Society Reference Series No. 62: "Fur Trade Posts in Idaho." October, 1970.

Idaho State Historical Society Reference Series No. 84: "Mason Brayman and The Boise Ring, 1876-1888." 1980.

Idaho State Historical Society Reference Series No. 356: "Fort Boise – (United States Army)." August 2, 1965.

Idaho State Historical Society Reference Series No. 500: "Boise Natural Hot Water Heating System." 1977.

Idaho State Historical Society Reference Series No. 545: "Milton Kelly: September 9, 1818 – April 9, 1892." 1971.

Idaho State Historical Society Reference Series No. 576: “Hosea B. Eastman: November 21, 1835-February 10 1920.” 1981.

Idaho State Historical Society Reference Series No. 718: “Boise Water Companies,” 1970.

Idaho State Historical Society Reference Series No. 756: “Fort Boise (Riverside) Ferry, T6N, R6W, Section 26.” 1982.

Ingram, B. Lynn and Frances Malamud-Roam, *The West Without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us About Tomorrow*. Berkely: University of California Press, 2013.

Johnson, Claudius O. *Borah of Idaho*. New York: Longmans, Green, 1936.

“Kelly Hot Springs.” *Boise Parks and Recreation* (via: http://parks.cityofboise.org/parkslocations/parks/greenbelt/historical-maps/): 2014.

Kent, Bob. “Boise’s Water Supply: A Growing City Strategizes Control of It’s Water.” *Boise City Office of the Historian.*

Kent, Bob. “Chronology of the City of Boise Water Supply.” Boise State University History Department, December 2004.

Kent, Robert T. *Boise’s Water: The Private Side of Public Works*. Boise, Idaho: Boise Public Works Department, 2007.

Limerick, Patricia Nelson. *The Legacy of Conquest: The Unbroken Past of the American West*. New York: W.W. Norton and Company, 1987.

MacGregor, Carol Lynn. “Founding Community in Boise, Idaho, 1882-1910.” PhD diss. University of New Mexico, 1999.

MacGregor, Carol Lynn. “Pioneer Geothermal Development in Boise, Idaho.” *Journal of the West* Vol. 38, No. 1 (January 1999): 35-39.

McKenna, Marian C. *The Early Career of William E. Borah: 1865-1917*. PhD diss. Columbia University, 1954.

Meinzer, Oscar E. “Origin of the Thermal Springs of Nevada, Utah, and Southern Idaho.” *The Journal of Geology* Vol. 32, No. 4 (May-June 1924): 295-303.

Murphy, Paul L. “Early Irrigation in the Boise Valley.” *The Pacific Northwest Quarterly* Vol. 44, No. 4 (October 1953): 177-184.

Neil, J.M. “Creating Boise’s Capitol Boulevard.” *The Pacific Northwest Quarterly* Vol. 92, No. 1 (Winter 2000/2001): 3-14.

Pisani, Donald J. *To Reclaim A Divided West: Water, Law and Public Policy 1848-1902*. Albuquerque, New Mexico: University of New Mexico Press, 1992.

Pisani, Donald J. *Water and American Government: The Reclamation Bureau, National Water Policy, and the West, 1902-1935*. Berkely, California: University of California Press, 2002.

Pisani, Donald J. *Water, Land, and Law in the West: The Limits of Public Policy, 1850-1920*. Lawrence, Kansas: University Press of Kansas, 1996.

Reisner, Marc. *Cadillac Desert: The American West and Its Disappearing Water*. New York: Penguin Books, 1986.

Rothman, Hal K. *The Greening of a Nation? Environmentalism in the United States Since 1945*. Ft. Worth, Texas: Harcourt Brace College Publishers, 1998.

Schwantes, Carlos Arnaldo. *The Pacific Northwest: An Interpretive History*. Lincoln, Nebraska: University of Nebraska Press, 1996.

Thomason, Frank. *Boise*. Mount Pleasant, South Carolina: Arcadia Publishing, 2009.

Turner, Frederick Jackson. *The Frontier in American History*. New York: Henry Holt and Company, 1921.

Ward, Diane Raines. *Water Wars: Drought, Flood, Folly and the Politics of Thirst*. New York: Riverhead Books, 2002.

Wells, Merle. *Boise: An Illustrated History*. Woodland Hills, California: Windsor Publications, Inc., 1982.

Wells, Merle W. “Heat from the Earth’s Surface: Early Development of Western Geothermal Resources.” *Journal of the West* Vol. X, No. 1 (January 1971): 53-71.

Wells, Merle W. “Territorial Government in the Inland Empire: The Movement To Create Columbia Territory.” *The Pacific Northwest Quarterly* Vol. 44, No. 2 (April 1953): 80-87.

Wells, Merle W. “The Creation of the Territory of Idaho.” *The Pacific Northwest Quarterly* Vol. 40, No. 2 (April 1949): 106-123.

White, Richard. *Land Use, Environment and Social Change: The Shaping of Island County, Washington*. Seattle, Washington: University of Washington Press, 1992.

Wilkinson, Charles F. *Crossing the Next Meridian: Land, Water, and the Future of the West.* Washington, D.C.: Island Press, 1992.

Witherell, Jim. *History Along The Greenbelt: An Idaho Centennial Project of the Ada County Centennial Committee*. Boise, Idaho: Ada County Centennial Committee, 1990.

Worbois, Dean. *Glad to Be in Hot Water: Geothermal Development in Boise, Idaho, 1890-1983*. Boise, Idaho: Parker Printing Company, 1982.

Worster, Donald. *An Unsettled Country: Changing Landscapes of the American West.* Albuquerque, New Mexico: University of New Mexico Press, 1992.

Worster, Donald. *Rivers of Empire: Water, Aridity, and the Growth of the American West*. New York: Pantheon Books, 1985.

Zhu, Liping. “‘A Chinaman’s Chance’ on the Rocky Mountain Mining Frontier.” *Montana: The Magazine of Western History* Vol. 45, No. 4 (Autumn – Winter 1995): 36-51.

Zhu, Liping. *A Chinaman’s Chance: The Chinese on the Rocky Mountain Mining Frontier*. Boulder: University Press of Colorado, 1997.