

**Thicker Than Blood: The Politics of Water
in the Israeli-Palestinian Conflict**

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Whiskey's for drinking, water's for fighting about.

-Mark Twain

But when Isaac's servants dug in the wadi and reached spring water in their well, the shepherds of Gerar quarreled with Isaac's servants, saying, "The water belongs to us!" So the well was called Esek, because they had challenged him there. Then they dug another well, and they quarreled over that one too; so it was called Sitnah [opposition]. When he had moved on from there, he dug still another well; but over this one they did not quarrel. It was called Rehoboth, because he said, "The Lord has now given us ample room, and we shall flourish in the land."

-Genesis 26:19-22

Introduction; or, the View from Upstream

“The Israelis built the wall to get more water. Palestine is like a giant valley collecting water. But the wall cuts Palestinian wells off from farmers and families. It’s not political, and it’s not about geography. The wall is strategic – the Israelis built it to get our water.” Jamal turned to give me a rough translation of his brother-in-law Mohammed’s words, but he paused and smiled: “you understood all of *that*, didn’t you?” I had. The people of Homesh spoke Arabic fast and loose, and my ethnographic fieldtrip to the West Bank town had been agonizingly frustrating. But for whatever reason, Mohammed’s brief tirade had been clear to me. It was a story I had heard before, that I had seen in the anxious hoarding of water in rooftop tanks ubiquitous throughout the West Bank. Where once oil was the reduction of choice, the mythicized germ of international conflict, water is becoming a metonymic expression for the source of global instabilities; in 1995, then World Bank VP Ismail Serageldin declared that “many of the wars of this century were about oil, but wars in the next century will be over water” (quoted in Selby 2003).

Yet, unlike crude oil, water possesses qualities that complicate the movement from nature to politics. It is vital to human metabolism, and its scarcity or abundance consequently seems to cut to the core of brute, visceral, biological existence. Water is a crucial element in global ecological process; it is bound to global meteorological and environmental flows to such a degree that small scale movements of water have repercussions on life far beyond its initial watershed. The material

mobility of water – both in fleeting aboveground channels and slow, inexorable subterranean masses – patently disregards national and local boundaries, resulting in a spatiality and temporality that confound and complicate notions of possession, ownership, and right.¹ In all of these instances, water assumes the guise of a natural substrate upon which human cultures and polities lie uneasily and peremptorily.

What sense can we make of a discourse about a resource that seems to paradoxically accumulate political relevance from the very fact that it is considered apolitical? How can something like water become a central element of a region's politics when its crucial importance for biological metabolism – its existential significance – renders it *a priori* to politics? How can ecology be a biological substrate upon which politics and culture are ostensibly epiphenomena, and yet also steadfastly adhere to the fraught and often violent debates over authority, sovereignty, and international politics? Former UN Secretary General Boutros Boutros Ghali famously proclaimed that the wars of the future would be fought over water instead of oil, while a number of analysts believe that “environmental cooperation offers one of the best vehicles for building bridges [...] The notion is that if environment truly drives the discussion, agreement can be reached” (Tal 362).

This paper, put simply, is an attempt to trace these curious imbrications of water and politics in the Israeli-Palestinian conflict. This is not particularly new ground; the question of rights to water resources in the Middle East in general, and in the Levant in particular, has prompted a tremendous collection of policy papers, scientific studies, international resolutions, historical excavations, and theoretical treatises. But, from what I have read, this enormous battery of literature consistently reifies the hydrological and political in such a way as to elide the crucial processes of mutual

¹ Indeed, this slippery materiality of water does not interface neatly with traditional geographies. In the Israeli-Palestinian conflict, the geopolitical entities of Palestine and Israel (unsteady enough even by traditional geographic standards) share hydrological entities such as the Jordan River Valley, the Dead Sea Basin, and the Eastern Aquifer to name but a few. In what follows, I have attempted to go with the current, so to speak, and not rely on exclusive and rigid geographical descriptors, but rather use terms such as Palestine or Israel alongside differently scaled entities such as the Levant, or the Dead Sea Basin.

definition and construction that constitute the relationship between the two. Martin Sherman's cautionary report on the importance of water for Israeli national security fails to interrogate the uses for which this water ought to be so fiercely defended (Sherman 1999). Sharif Elmusa situates the conflict over water as a symptom of Israeli colonial and annexationist ambitions, thereby instrumentalizing water as a proxy for ideological and demographic battles and missing much of the substance of the debates (Elmusa 1996).

Several analyses have sought to historicize the role of water in the conflict, and while such a study has the potential to explore transformation and change in the relationship between water and politics, the persistent reification of water precludes such a conclusion. Adam Garfinkle, for example, provides an illuminating and carefully researched portrait of water as a crucial element of Mandate era negotiations over territory (Garfinkle 1994). But in his eagerness to demonstrate the importance of such practical minutiae as water resources in those early negotiations as opposed to Zionist ideology, Garfinkle focuses unduly on the utilitarian dynamics at play, and fails to question the notions of use implied in this utilitarianism. Even studies authored by those claiming to focus on the "social" dynamics of water (Selby 2003, Swngedouw 2004) generally employ a historical materialist framework which situates water conflict as "a political economic problem which has its roots in patterns of capitalist development" (Selby 8). Though these studies make an effort to reincorporate "the material" into the analysis, water inevitably becomes a proxy for broadly defined power relationships, and is stripped of its symbolic or cultural valences.

There is reason to believe, however, that the spatial materiality of water is far from ancillary to the social significance of water. Henri Lefebvre offers a provocative corrective to the reduction of the spatial in his theorization of space as the product of social experience, perception, and imagination (Lefebvre 1991). As he succinctly states, "(Social) space is a (social) product" (26). Any comprehension of space is in fact the product of the tripartite interactions of visceral, material

experience, cognitive and discursive perception, and symbolic imagination. Thus, crucially, social space (more succinctly termed landscape) is intelligible insofar as the experience of space – the material spatial practices, or even a kinesthetic familiarity with space – is an important part of the production of that space. With this schema in mind, frustratingly abstract as it is, we may be able to read the experienced spatiality of water, along with the perception and imagination of the associated waterscapes, as fundamentally and dynamically constitutive of the political and social order.

I do not claim water as the ultimate cause of the Israeli-Palestinian conflict. Furthermore, while we shall indeed see that these clashes over water owe much of their character and discourse to the singular phenomena of Zionism and Israeli occupation, analogous debates over management, use, and ownership of water have been and continue to be played out in a variety of places and arenas, and are by no means unique to Palestine. Indeed, many hydrological conflicts, be they in Palestine or even the Western United States, have been profoundly informed by broad debates over the viability of high-modernism as a paradigm of governance, humanitarian concerns, and even the commodification and profitability of resources. As Adam T. Smith makes clear, “landscape does not reside comfortably as the central conceptual element of a relational sensibility. Instead, landscape emerges as a critical dimension of social practices that are themselves the proper foci of analysis” (Smith 77). Cognizant of this, I propose that water is to be seen as an element of a broader, conceptual landscape, the terms of which have been and continue to be established, contested, and deconstructed over the duration of the conflict. I further propose that this hydrological landscape is predominantly interpreted within tropes of environmentalism; that is, the social waterscape of the Levant is debated on the grounds of the sustainability and ecological sensitivity of particular uses of water. As we shall see, the “social practices” to which Smith refers arise from these environmental tropes, which are built upon the social production of the Levantine waterscape. Politics and “nature” converge in environmentalism, resulting in an “ecology of nationhood” (Comaroff 2001, 627), in

which environmental debate becomes “the vehicle for a public debate, as yet unfinished, over the proper constitution of the polity, over the limits of belonging, over the terms in which the nation, the commonweal, and the stakeholding subject are to be constituted” (651). The first part of what follows (“The Eleventh Commandment”) will examine in depth the writings of the man behind the earliest proposals for water management in Mandate Palestine, while the second half (“A Water Revolution”) will explore a current debate over water management in the Dead Sea Basin. With these examples, I hope to demonstrate that environmentalism is the rubric through which the spatial landscape of Israel-Palestine (as exemplified by water) figures into the Israeli-Palestinian conflict, and that the ecological becomes the arena within which statehood is defined and contested.

“The Eleventh Commandment”

Inland Empire

Walter Clay Lowdermilk almost certainly would have felt a certain ambivalence towards the notion that a terrain could determine the character of a man. For while civilizations had risen and fallen, so he surmised, on the vigor of local ecologies, at the same time he was profoundly dedicated to the idea that a people of sufficient ecological imagination could make any landscape bloom. Yet, despite his profound conviction of this human agency, he always maintained that the arid topography of his birth place profoundly informed the man he had become. Indeed, as W. C. Lowdermilk came of age in the early years of the 20th century, Arizona (until 1912 merely a territory) was still very much part of the American westward frontier. Its resources, considered to have been essentially untapped and unrealized by the native inhabitants, were only beginning to be catalogued and plumbed. And though Manifest Destiny had exhausted itself along the shores of the Pacific, the fruits of the virgin West seemed quite limitless.

Whether Lowdermilk took this assumption at face value or not, his youthful ecological

perspective was injected with an international cosmopolitanism quite uncommon for the son of a devout farmer. For, in 1912, Lowdermilk won a prestigious Rhodes scholarship, and embarked upon a three year course of forestry and geology study at Oxford. And although he writes in his memoirs (Lowdermilk 1969) that the distinct character of Oxford had a profound effect on his insight and intellectual drive, it was the sabbaticals spent in the German forests of the continent that were to be decisive in his later pursuits. For it was amid those sylvan boughs that Lowdermilk listened attentively to the words of the German *forstmeistere*, and experienced first hand the mechanics of rigorous German forest management.

Upon his return to the U.S., Lowdermilk was assigned to the Forest Service, first in the Tonto National Forest in Arizona, and later to the Santa Fe National Forest. Opportunities for forest research emerged, and soon Lowdermilk situated himself as a major proponent of the nascent American conservation movement. The myth of an inexhaustible American resource base had begun to fade, and the large scale harvesting of timber in the American West began to induce anxiety over the sustainability of the great American “inland empire,” as Lowdermilk was wont to call it (Lowdermilk 1969, 52). As the delirious westward expansion reached its geographical limits, the natural bounty had already begun to make itself felt not only in the structure and substance of the market, but also in the juridical system of the United States. The existence of this new supple American geography was intertwined with the emergence of new regimes of juridical and technical knowledge - knowledge which took its shape from the unique characteristics of the American West, but which also structured and set the terms for the American perception and understanding of that geography².

For example, there was no federally mandated water rights scheme for the Old-New West.

² For more insights into the confluence of technology, resources, and governance in the history of the American West, consult Worster 1985.

Whereas the East Coast established water rights through a geographically based riparian system,³ the Western territories had adopted a prior appropriation system often described by the adage “first-in-time, first-in-right” (Shurts 37), in which the spatial distribution of rights was determined through the temporal narrative of the resource use.⁴ As such, the geographical had to avail itself upon the historical – an entire genre of ethnographic materials and Native histories became an indelible part of the social landscape of the West, no less real (or, in a nod to Lefebvre, *spatial*) than the very waters upon which the literature was called to arbitrate. Likewise, as it became clear that sustainable logging entailed comprehensive arboreal restocking, forestry began to require a complex technical knowledge base to maximize yields, minimize fires and die-outs, and protect soils. Lowdermilk himself was instrumental in establishing many of the slash disposal techniques used in early American forestry. These techniques too required a certain sense of geographical imagination, in which the forest must be made an entity capable of being measured. Lowdermilk’s methods of measuring biodiversity and proper woodland densities were novel not merely in their methodology or precision, but in their profound applicability. Any forest could be evaluated and assigned a broad regional code, corresponding to a set of standards, with predictable yields.

In 1922, at the behest of his young wife – an ardent religious-activist – Lowdermilk set off for China to serve as professor of Forestry at Nanking University, and to bring his ecological skills to bear on those regions of China ravaged by famine. It was during this five-year period that Lowdermilk had what he would later regard as a “revelation.” While surveying the Yellow River, and pondering the ever increasing necessity for dikes to contain the river’s periodic lethal floods, “Then suddenly it dawned upon me that silt was the villain! Silt was the great enemy causing this endless,

³ In this arrangement, the yield of a water source is to be divided equally among those owning the land through which it runs; that is, the water rights adhere to the land regardless of use.

⁴ Interestingly, this temporal system of water rights quite unintentionally allowed questions to be raised about Native American autochthony, and the rights that such prior use would entail for indigenous peoples. This is but one instance in which juridical debate revealed the interlinking of geography, history, and belonging.

hopeless struggle! Silt had defeated the courageous toiling farmers, valiant as they were” (Lowdermilk 1969, 62)! He began a rigorous program of study on water runoff, and discovered that the abysmal Chinese agricultural yields resulted from agricultural methods which promoted massive water runoff and tremendous soil erosion. The fertile soils of northwest China were being carried off by the fast moving watershed, and deposited in the Yellow River, where they collected as sediment and rendered the waterway prone to floods and path deviation. But the significance of this study for Lowdermilk far exceeded the mere potential benefits for agriculture or flood control:

Heretofore I had worked hard at whatever work I undertook, but I never felt fully satisfied. On each birthday I would say, “Here I am, X years old and have not accomplished a darn thing yet.” But these revealing studies proved to me the importance of the relation of peoples to their lands in the rise and fall of civilizations. It was here that I coined the now much used expression “Man-made Deserts.” I knew what had happened to China. Now I wondered if this same enemy, erosion, had been responsible for creating man-made deserts in North Africa and the Middle East, in old Roman lands that were flourishing but were now sterile and rocky, for I had seen pictures and read about the desert conditions of formerly prosperous and populous lands there. Now there was no question as to my life work. I knew I was on the right track for me (1969, 65).

Erosion, according to Lowdermilk, was nothing less than a “civilization killer.” And this was no mere theorem or maxim. Fundamentally, Lowdermilk’s revelation was a narrative. World-historical in scope, the narrative was one that professed to lie at the very core of historical progress, to be the very essence of the motive force driving the rise and fall of civilizations.

It should come as little surprise that the Roman Empire should figure so prominently in this narrative. Like any studious Oxford graduate, well versed in the languages and notions of classical Latin and Greek civilizations, Lowdermilk had been schooled in the technical and intellectual grandeur that was Rome, and the subsequent decline that plunged Europe (read: the civilized world) into a long, languid period of darkness. But if the intellectual spirit of the classical ages could tenaciously survive this cultural corrosion, its tomes assembled by ascetics and hidden in hermitages, then perhaps the same truth once inscribed in the lush fields of the Great Imperium were likewise

hidden under centuries of ignorance and neglect. Perhaps the ancient provincial hinterlands of Rome would prove to be a palimpsest through which a millennium of agricultural change could be studied.

This was not entirely untrodden ground for a scientist. Around this time, men like Ellsworth Huntington and Ferdinand von Richthofen had posed large-scale climactic change as the primary engine of agricultural atrophy in history. According to this climactic determinism, the terrestrial environment functioned largely as an enclosed system, the vagaries of which countless generations had faced, for better or for worse. Yet Lowdermilk expressed skepticism at this hypothesis – there was something tremendously reductive about the essential irrelevance of mankind to his environment. The image of the enormous earthen dikes of the Yellow River remained with him; certainly, the footprint of man upon his land was not (and had not been) insignificant. The history of civilization could not be mapped on endless meteorological data; rather, what was needed was an agricultural archaeology. A scientific survey of the land ought not to pursue some essential character of geography; rather, the land could be made to reveal the myriad techniques, devices, and practices of agriculture that were developed, used, and forgotten by civilizations past. Therein, Lowdermilk believed, was the true measure of history.

Palestine, Land of Promise

W.C. Lowdermilk and his wife barely escaped the 1927 communist capture of Nanking with their lives. His work in China decisively cut short, Lowdermilk returned to the United States to complete a doctoral thesis in forestry, wherein he coined the phrase “accelerated erosion” (Lowdermilk 1969, 116). His early work with slash disposal was taken in a new direction as it became clear that sustainable forestry practices had repercussions far outside of the specific bounds of the forest. In 1935, the American Department of the Interior, reeling from the ecological catastrophe of the Dust Bowl, founded the Soil Conservation Service, of which Lowdermilk was

appointed assistant chief. Though answerable to his bosses in Washington D.C., Lowdermilk continued his field research, this time directly involving himself with American farmers. As per the mandate of the SCS, his job entailed the training of conservation and outreach experts, and his quasi-ethnographic excursions into the amber waves of grain were a source of profound realizations:

You see, when one begins to deal with God's good earth in this way, one is dealing with holy processes that have determined the earth; and our survival depends on how well we understand and interpret and apply them. I always tried to get our men to think of this interpretation. I said, "You have two responsibilities: you have a responsibility to the farmer to be practical so that what he does is beneficial and profitable to him; but you also have another obligation, and that's to your country, to safeguard the soil and water resources so succeeding generations may have productive lands, instead of sterile fields, gullied by soil erosion" (1969, 539).

But surely any truly "holy process" would not be limited to the American breadbasket. In 1938, the Senate Appropriations Committee began to take Lowdermilk's ideas seriously, and proposed a comparative survey of erosion in Europe and the Near East – "old lands that had been occupied for two thousand years or more" – in an effort to learn from the mistakes of the past "much that would benefit our own farmers and stockmen" (1969, 467). Lowdermilk's experience in China rendered him the natural candidate for the survey, and he abruptly departed on a voyage that would lead him through the old lands of the Roman Empire, and ultimately, to Palestine.

The Middle Eastern part of the trip would eventually be summarized (with an explicit disavowal of official U.S. Government opinion) in Lowdermilk's popular 1944 book *Palestine, Land of Promise*. It is a fascinating text; combining elements of scientific evaluation, statistics, history, amateur archaeology, public policy, and a substantial number of Old Testament verses, it purports to tell the grand narrative of the historical ecology of Palestine, of the indissoluble bond between the fate of a people and the fate of its land. As Lowdermilk expounds on the very first page of the book, "There are [...] records written by farmers and shepherds, empires and civilizations into their lands. Some tillers of the soil were 'good stewards' of the earth loaned to them by their creator, while others let this primary source of all wealth fall into utter neglect" (Lowdermilk 1944, 1). Though the book

weaves in and out of time periods as well as literary registers, it never fails to ground its perspective on the presumption of a fundamental link between a social body and its land. And though Lowdermilk was a scientist by trade, the scientific claims and the metaphysical claims made in the book are impossible to parse. Nature has a mathematical logic unto itself – a logic of watersheds, of maximum saturation, of optimal density; and yet, nature without mankind is unintelligible. The desert must be *made* to bloom into the verdant perfection of God’s creation. The physical and spiritual survival of the community depends not *on* the land, but rather dwells *within* it.

Outwardly, this is an innocuous sentiment. But, as painfully learned in the Garden of Eden, with agency comes responsibility, and with responsibility comes culpability. With every washed-out gully and fallow field, Lowdermilk’s dramatic portraits of blasted, desolate landscapes damningly indict those responsible. And Lowdermilk makes it perfectly clear that those responsible were the Arabs: “The decline of Palestine’s land and of the people began with the first Arab invasion during the seventh century [...] It was not until the wars of the Crusaders during the twelfth and thirteenth centuries, and the second Arab invasion which drove them out, that Palestine was plunged into its age of darkness” (1944, 70). Lowdermilk observed that the Arabs, adding insult to ecological injury, regarded their plight with a simplistic fatalism, as if the entire race had somehow forgotten their primordial connection to the land:

An Arab legend tells us that once upon a time an angel, carrying a sack of stones, flew over Palestine; suddenly, the sack burst open and all the stones were strewn about upon the hills. The true story reads very differently. Once upon a time, the hills of Palestine were covered with rich red earth and protected by forests, smaller vegetation and terraces. Then the trees were cut down, the terraces were neglected, the fertile soils were washed away by rain and finally only the stones were left on the fields (1944, p133).

How does a people go astray? Lowdermilk established that the primary vector of soil erosion in Palestine was over-grazing. Once the soils were denuded by the ruminations of the endless herds of “black, four-footed, cloven-hoofed, flop-eared ‘locust’” (1969, 425), periodic bouts of robust

precipitation would scour the fertile topsoil and dump it in the watershed, where it would be carried to unutilized, aquatic oblivion. When the Arabs – the paragon of rootless pastoralism, according to Lowdermilk – inundated Palestine, they brought ecocide⁵ on the backs of their ravenous ruminants: “If Mohammed had forbidden his followers to eat mutton instead of pork, soil erosion would not have created man-made deserts as it has done” (1969, 425). For generations, Palestine had been the abode of Cain, and it was as if his curse had been visited upon the land.

But if in this “age-old antagonism between the tent dweller and house dweller” (1944, 195) the Arabs were the pastoralist side of the equation, who were the agriculturalists?

Outside Hadera, one of the older Jewish settlements, we saw a group of black and brown goathair tents belonging to semi-nomads[...] This was the most primitive sort of life, without a settled abode, without sanitation, without education, or any of the cultural advantages of modern civilization. Just across the road was a modern Jewish dwelling, surrounded by a well-tilled orange orchard, its waxy deep-green leaves dotted with white fragrant blossoms and illumined with ripening fruit. A farmer was cultivating the land between the trees with a tractor drawing a many-shoveled cultivator. Here in sharp contrast, were the two types of agriculture and modes of living that have separated grazing from farming since the time of Cain and Abel (1944, 79-80)

Jewish settlement seemed, in terms of soil conservation, a godsend. The beginnings of modern Jewish immigration (or “resettlement,” as Lowdermilk insisted on calling it) into Palestine are generally divided into two time periods.⁶ The first *Aliya* (or wave of immigration) dated from 1882-1903, and largely took the form of “an inhabited pure settlement drive that reconciled itself to a plantation type colony” (Shafir 17), and the second *Aliya* dated from 1903-1914, and was

⁵ This is a contentious issue. Arab historians claim that descriptions of Palestine in Ottoman times grossly exaggerate the barrenness of the landscape, and overlook the technology and capital differentials between the indigenous Arabs and the Jewish Immigrants. But as Shaul Cohen in his study of afforestation in Palestine points out, “It is not within the focus of this research to decide the question of whether one side or the other put the land to better use, and if so, why. Suffice it to note that the dispute exists, and that an exact picture of the situation at the turn of the century cannot be attained” (Cohen 44). I do think, however, it may be safely said that Lowdermilk’s embarrassingly broad characterization of some 1300 years of Levantine agricultural history as “desolate” is a dangerous exaggeration.

⁶ For a comprehensive study of the socio-economic situation of Palestine in this time period (especially as pertains to the constitution of an agricultural labor force), refer to Shafir 1989. Shafir’s analysis is incisive and tremendously detailed; suffice it to say for the purposes of this essay that the “Cain and Abel” dichotomization of the Palestinian economic base is misleading, at best.

characterized by a “new pure settlement drive of [...] agricultural workers” (17). Following the declaration of the British Mandate over Transjordan in 1920, the colonial government invested heavily in the development and diversification of the Palestinian economic base, as well as in the systematic conservation and management of hydrological resources: “The High Commissioner was granted rights to surface waters, ‘holding them in trust’ for all of Palestine...The commissioner was also empowered to enact ordinances stipulating the beneficial use of all water sources, including groundwater” (Tal 44). Palestinian Arabs, distrustful of British ambitions and wary of collusion with the growing Jewish presence, seldom participated in colonial programs, and though the occasional Lebanese or Syrian entrepreneur might try to bankroll Arab land improvement projects, these endeavors failed, leaving the Arab locals dependent on rain-fed subsistence farming and financially unable to institute any substantive engineering or improvement projects (Tal 49). The Jewish settlers, however, proved much more willing to be involved in Mandate development plans, and they were eventually to inherit and build upon these civic and resource infrastructures. While the magnanimity of the Mandate reforms certainly belied the colonial acquisitiveness which underlined them, I think that we see here the portentous intersection of material resources with then-nascent notions of national development.

By the time of Lowdermilk’s visit in 1938, Jewish agricultural settlements were relatively well-established, and numerous Jewish engineering projects, such as the draining of wetlands and the digging of wells, had been launched on a small scale. Under Jewish administration, hillside terraces (an ancient technique to increase cultivable area and minimize runoff) were expanded, and the mechanization of agriculture began in earnest. In Lowdermilk’s account, however, the technical specifics of this process are incidental; what is of fundamental significance are the attitudes and mentalities behind this activity. For as impressed as Lowdermilk purports to be at the technical prowess of the Jewish settlers, it is their ‘indomitable spirit’ which most of the book is spent

eulogizing:

Accomplishments such as I have seen in Palestine can be attained only when the human spirit is fired by an ideal which reaches beyond the individual to the group and on into the future. Since the destruction of the Temple nearly two thousand years ago, the longing for Palestine has been ever present with the Jew. It was this undying hope to return to the land of his fathers that buoyed him up during centuries of persecution (1944, 122).

Unfortunately, Lowdermilk's florid, quasi-scriptural verbiage belies the potential for an incisive analysis of the economic basis upon which Palestine was functioning. Indeed, the substantial capital and technology necessary for this dreamed-of edaphic renaissance laid largely with the immigrant Jewish community. And if the Arabs were unwilling to adopt the techniques and projects later offered (often ineptly and with little sensitivity to local conditions) by the British Mandate officials, perhaps it had less to do with some indifferent, Arab rootlessness, and more to do with the geographical and cultural displacements to which these projects were often the precursor – or even the fact that under Ottoman land law, the most sustainable agricultural practices were not necessarily the most lucrative for the *fellaheen* (Arab small farmers or peasants) (Cohen 54).

In any case, for Lowdermilk, love of the land went hand in hand with a prerogative to *use* it in the most efficient, productive, and sustainable way possible. And he had just such a use in mind. *Palestine, Land of Promise* culminated in a comprehensive plan to maximize the usefulness of the waters of the Jordan Valley, a plan which he significantly dubbed “The Jordan Valley Authority” or JVA, an explicit reference to President Roosevelt's New Deal works project, the Tennessee Valley Authority. This project outlined a series of diversions whereby the waters of the Jordan would be utilized to their fullest extent, rather than flowing, uselessly, into the Dead Sea: “The main aims of the JVA are thus the diversion of the sweet waters of the Jordan and its tributaries for the purpose of irrigating [...] and the utilization of the deep incline of the Jordan River channel for purposes of power development” (1944, 170). Essentially, the waters of the Jordan (and, significantly, her tributaries) would be conducted westward, where 2/3 of the supply would be used to irrigate the

slopes and floor of the Jordan Valley, while the other 1/3 would be channeled to the plains west of the valley. The Dead Sea, deprived of its fluvial patron, would be compensated by means of a canal funneling the saline waters of the Mediterranean into the Dead Sea basin. And the geographical elevation difference between the seas (some 1300 feet) would provide substantial opportunity for hydroelectric exploitation via this saline canal.⁷ Furthermore, “also included within the scope of the JVA would be the reclamation of the Negeb, or South Country [...] The cheap power available under the JVA would enable the decentralization of thriving industries into this region. Furthermore, the extensive areas around Beersheba should be developed by irrigation” (1944, 175).

Though smaller in scale than the Tennessee Valley Authority, and perhaps less extensive than Dutch reclamation projects, it was nevertheless an ambitious plan – especially for a region considered the neglected hinterland of the defunct “sick man of Europe.” Indeed, in his book, Lowdermilk proposed an absorptive capacity of “at least four million Jewish refugees from Europe, in addition to the 1,800,000 Arabs and Jews already in Palestine and Transjordan” (1944, 227). On the next page, he even went so far as to suggest an absorptive ceiling of some twelve million souls (228). Lowdermilk was nothing if not confident in the power of a people’s affective bond to its land:

It is practically impossible to estimate what the final absorptive capacity of Greater Palestine [including Transjordan] could be if all its unoccupied or under-populated areas were rejuvenated by the same vigor and understanding love of the land as have characterized Jewish efforts on a tiny fraction of the land, and if such an all-inclusive reclamation program as that of the JVA were put into effect. [...] The [...] factor determining the absorptive capacity of a country is the genius of the people inhabiting it. Only a people with a true love of the land and a goal toward the achievement of which it consecrates all its efforts, can bring a country to a maximum state of development. (1944, 220-221)

As for the Arabs, what a tremendous opportunity this was for them to ride on the swell of Jewish immigrants’ capital and industry, and finally emerge from the pallor of ecological and social backwardness:

⁷ Though the Jordan River itself is a natural causeway, with nearly 2000 feet of total utilizable elevation change, its banks are unsuitable for the damming that a hydroelectric project would entail.

[The Arabs] would benefit greatly from the JVA. The increased Jewish immigration it would make possible would enlarge the market for their produce and provide them with new opportunities for investment and labor. If individual Arabs found that they disliked living in an industrialized land, they could easily settle⁸ in the great alluvial plain of the Tigris and Euphrates Valley where there is land enough for vast numbers of immigrants. (1944, 178)

It was in water, then, that salvation was to be found. And if water could be made to sustain a nation, perhaps it could also humble that nation's enemies.

A Biography Written on the Lands of Israel

Shortly before Lowdermilk left Mandate Palestine in 1939, he composed and broadcast in Jerusalem an epigram dedicated to the Jewish villages which had so impressed him with their determination and spirit. He called it "The Eleventh Commandment:"

Thou shalt inherit the holy earth as a faithful steward conserving its resources and productivity from generation to generation. Thou shalt safeguard thy fields from soil erosion, thy living waters from drying up, thy forests from desolation, and protect thy hills from overgrazing by the herds, that thy descendants may have abundance forever. If any shall fail in this stewardship of the land, thy fruitful fields shall become sterile stony ground or wasting gullies, and thy descendents shall decrease and live in poverty or perish from off the face of the earth (1944, 22).

At this point in history, however, there were other, more pressing harbingers of ruin for the Jewish people. Though the Nazi accoutrements of genocide were not yet entirely operational, Jewish unease both within and outside of Europe had lent the Zionist Movement a sense of urgency, and began to figure prominently in Zionist discourse. Yet, in February of 1939, the British Government issued the White Paper, in which the objectives of the Balfour Declaration (stating the British endorsement of a Jewish "national home") were declared as met; consequently, the paper called for

⁸ This is a startling statement; not so much for its paternalism (indeed, the entirety of Lowdermilk's writings on the Middle East are rife with it), but rather because it consigns the obstinately backward Arab farmers and herdsmen to wreak their havoc elsewhere. I am not sure what this means for Lowdermilk's thoughts about a people's ability to *acquire* a love of land. Certainly, Lowdermilk hypothesized that the Jews had seemed to tenaciously maintain an already existing love through centuries of exile. Could the Arabs not learn to love the land they had inhabited for so (relatively) long? Lowdermilk never explicitly addresses this. I think, however, it is disingenuous to write him off as a racist; and though it is tempting to accuse him of a modernist slavishness to progress and technology, he elsewhere maintains his respect for "native ways of doing things," and raves about the ingenious techniques of the ancients. I am prepared to accept Lowdermilk's ambiguity: as we shall see, landscapes are never without symbolic ambiguity.

a severe curtailment of Jewish immigration into Palestine and abandoned the idea of partition, rather favoring a nation governed jointly by Arabs and Jews. Though the immigration restrictions were explicitly intended to minimize strife and address Arab concerns, the language of the document frames the issue as one of Palestinian “carrying capacity”.⁹ Upon Lowdermilk’s return to the United States several months later, this issue was foremost on the mind of the American Zionist Movement. Supreme Court Justice and prominent Zionist supporter Louis Brandeis anxiously awaited Lowdermilk’s preliminary report. The stakes were high: “[Brandeis] told some friends [...] that ‘if Lowdermilk also said there was no further absorptive capacity for Jews in Palestine, he would have to give up his dream for which he had been working and planning’” (Lowdermilk 1969, 183). He was not disappointed however, for Lowdermilk’s capacity projections spoke firmly against the White Paper assertions. Moreover, Lowdermilk was a gentile, a fact which rendered him immune from accusations of bias. The report was a valuable asset to the Zionists – not only did it call for realization of the Zionist dream, but it did so in a scientific, objective register: “[Secretary of Agriculture Wallace] took the report over in person to Brandeis and as he handed it to him, said, ‘This is the best argument for Zionism that I have ever read.’ He was pleased because they were reclaiming lands long *unused* and bringing them back into productivity” [emphasis added] (Lowdermilk 1969, 183). Wallace, in particular, was moved by the report and referred to it glowingly in a speech made shortly after attaining the vice-presidency in 1940:

Dr. Lowdermilk is not of Jewish descent but he had become the most complete Zionist convert anyone could ask for. In reading Dr. Lowdermilk’s report I was convinced that the material foundations of Zion were very real and deep indeed. Some of us...have sometimes wondered how deep in the soil Zionist enthusiasms were. Dr. Lowdermilk set this question at rest. As an agriculturalist and soil expert, he was profoundly impressed with the scientific character of the work, and as a human being he was infinitely inspired by the human beings whom he met there on the land (Reproduced in Lowdermilk 1969, 183a).

⁹ “[Jewish] immigration cannot be so great in volume as to exceed whatever may be the economic capacity of the country at the time to absorb new arrivals. It is essential to ensure that the immigrants should not be a burden upon the people of Palestine as a whole” (Great Britain 1939, Section II Para. 2).

Over the next four years Lowdermilk wrote and had published an expanded version of the report – *Palestine, Land of Promise*. Accessible, direct, and with a 16 page photo insert, the book sold tremendously well and became something of a rallying cry for the Zionists.¹⁰

Lowdermilk would spend the next twenty years engaged in numerous soil-conservation consultancy positions that took him all over the globe. However, he and his wife always maintained an intense love of Israel, and made every attempt to spend time there; indeed, Dr. Lowdermilk served for several years as a soil and water consultant to the fledgling Israeli government on an entirely *pro bono* basis. Throughout his later years, he made intermittent trips to Israel to survey soil and water projects: “My boys’ [...] were proud of their rock wall terraces, [...] and of the many reservoirs to impound flood waters which allow Israel to receive and to make the most of blessings in heaven in the rain that falls. As I traveled about to see the many soil and water works, I felt that I had written my biography on the lands of Israel” (1969, 638). Nothing, however, brought him quite as much pride as seeing, in his final visit in 1964, the realization of the Israeli Master Water Plan, which had as its central feature the Israeli Water Carrier – a 108-inch pipeline siphoning the fresh waters of the upper Jordan into the arid Negev. The Israeli officials called him “the Father of this water plan for Israel” (1969, 639), and the sobriquet was indeed apt, for the fundamental elements of the plan Lowdermilk outlined in *Palestine, Land of Promise* were employed (with a few significant differences, as we shall see) in Israel’s “Ten Year Plan” of 1956.

Ultimately, though, Walter Clay Lowdermilk’s legacy for the state of Israel is much more profound than the mere collection of pipes and terraces crisscrossing the Holy Land. Though the comprehensive harnessing of a hydrological network is couched in discourses of scientific precision and rational maximization, this occludes the fact that the course of these managed flows is far more

¹⁰ Interestingly, the copy I consulted for this essay contains inside its front cover a handwritten epigraph (presumably written by the original owner) attesting to the Jewish connection to the soil of Palestine. It is dated 1945.

contingent upon the contours of social experience than of topography. Crucially, Lowdermilk's plan entailed the transfer of water from the hydrological entity of the Jordan River Basin¹¹ to the geographically distant and ecologically quite distinct region of the Negev. This is not a trivial point – the dissociation of water resources from their geographical origin entails the primacy of *use* over *geography*. Lowdermilk was quite candid on this point:

I said in Israel, after I had been over so much land that had been misused and destroyed, “Why shouldn't we have another principle – that the right to land is based upon beneficial use?” Actually, the only real argument we had to take the land away from the [American] Indian was that he was not using the land beneficially, to its maximum use (1969, 254).

From the above statement, we can even go so far as to propose the primacy of *use* over *history*. Autochthony, regardless of the multiform customs, myths, memories, and histories that constitute its cultural substance, is overshadowed by a particular environmental logic that is profoundly rooted in estimations, projections, predictions, and all manners of scientific divination. It is a logic that is (acceptably) Malthusian in its connotations, and more importantly, in its object, which is taken in this instance to be a particular ethno-racial group. But as Bourdieu (1991) persuasively argues, the conventional assumption that a description or categorization of an entity proceeds from that entity is in fact a profound act of metalepsis. In other words, perception of a category is in fact the projection of that category; classification constitutes reality, not the other way around. In this instance, the itinerant soil expert observes what he considers to be a singular ecological ethic in a particular people, and in doing so, constitutes that people as a meaningful social entity. The individuals therein, and even the larger group itself, is made a subject that can be (in the Foucauldian [1995] sense) evaluated, judged, and acted upon. My point is that the transition from geographical and/or historical primacy to the primacy of beneficial use signals a concomitant shift in the position

¹¹ This includes all of the waters that share this common drainage network; that is, the headwaters of the Jordan in Syria, Jordan, the Golan Heights, and southern Lebanon; Lake Tiberias (the Sea of Galilee); the River Jordan itself; the myriad wadis, ravines, and aquifers that pepper the valley around the river, and the Dead Sea into which they all drain.

of the individual vis-à-vis the state, by which the citizen's bodily well being – here ensured by a steady supply of water – becomes the priority of the state.

I have borrowed heavily from Foucault's (1991) notion of "governmentality" to explore this thread, and while it is a provocative hermeneutic, I contend that it by no means exhausts what is being created and what is being built upon by the construction and imposition of ecological logics. *Beneficial use* is not the inevitable term of mediation between the metaphysical world of rights, entitlements, and citizenship, and the geo-physical world of trans-border water flows and edaphic integrity. I argue that Lowdermilk's environmental metaphysics, in which the viability of statehood inheres in agricultural production, is a premier example of a landscape; that is, an intricate and shifting production, forged in the perception, imagination, and experience of a physical geography. As such, this ecology of statehood is formed out of a constellation of historical and cultural contingencies. This does not make it any less significant – we have not abolished the real, but tried to map its workings.

If Lowdermilk saw sustainable and lucrative management of natural resources as the ultimate aspiration of the state, we ought to consider the American West into which he was born – a land faced with the ambivalence of exhausted manifest destiny; a nation proud of its enormous hinterland, but rocked by the unspent momentum of a spent westward expansion. Moreover, Lowdermilk's seminal experiences abroad, the worldly cosmopolitanism he cultivated at Oxford, gave him a glimpse of the world in its staggering immensity and diversity, but which was paradoxically facing the depletion of its wild, unknown places; a sudden crisis of frontiers in which the geographical lines of alterity were forced to reconfigure themselves. As Lowdermilk warns, "There are no more new continents to explore and exploit. The only new frontiers are those under our feet. [...] Out of Palestine is again emerging a better way of life for tillers of the soil and a new realization of man's moral obligation to the good earth which nourishes those who give it loving

care” (1944, 147). Lowdermilk’s sense of landscape tells us a great deal about the social experience (and production) of space in the first half of the last century. And as I have perhaps alluded thus far, it is a landscape that even today weighs heavily upon Palestine.

A Water Revolution

“Better Dead than Red or Med”

In June of 2006, the Israeli newspaper *Ha’aretz* published an article reporting on the state of the Dead Sea. Though it had perhaps been no secret in Israel that the water level of the Dead Sea was dropping, the article made sobering declarations on the scale and consequence of this fact, and the potential powerlessness of large-scale engineering efforts to address the issue:

Bein [an Israeli geologist] believes bringing water from Eilat would be more effective [in raising the water level], but he notes that feasibility studies for such a project could take close to 20 years, during which time the water level would continue dropping – and then it would take another 20 years before the project could restore the sea to its current level, which in and of itself is problematically low. “It is hard for people to understand that there is no immediate solution to the Dead Sea’s problem,” says Galit Cohen, of the Environmental Ministry. “It has to be clear, no matter what we do, that we will be living with this situation for another 20 years” (*Ha’aretz*, 28 June 2006).

Lowdermilk’s legacy of calculated, large-scale water transfer had proved to be an ambiguous one. The Israeli Water Carrier, apart from being an impressive technological feat in its own right, had been undeniably successful in achieving its goal of efficient water supply management. The arrangement had allowed for the rather unpredictable seasonal surges of water from the mountainous sources of the Jordan River (including the Golan Heights) to be contained in Lake Kinneret¹² and distributed evenly where it was most needed – notably, in the parched Negev. Yet as the Israeli water network siphoned off the recharge waters of Lake Tiberius (now rendered a large,

¹² As might be expected in a land so contested as Israel, the lake bears a number of names. The Israelis call it Lake Kinneret, the Arabs call it the Lake Tiberius, and (usually foreign) Christians call it the Sea of Galilee. I will attempt to invoke whichever name is most fitting with my particular object of inquiry.

natural, freshwater reservoir), the Lower Jordan River ceased to be the outlet of these waters, and the river's flow dropped precipitously.¹³ The Dead Sea, consequently deprived of its primary water source, began to shrink as its saline water surrendered itself to inevitable evaporation, and as more and more of its waters were utilized by the growing industrial sector based in the southern shore of the sea.

Meanwhile, in the decades following World War II, the developed world witnessed a refinement in groundwater extraction techniques; Israel began pumping in earnest from the coastal aquifer, and the small wells dug in Ottoman and Mandate times were replaced (at least in post-1948 Israel) with large-scale, government constructed extraction wells. Here, though, the physicality of water complicates issues of use. Unlike petroleum reserves or stone, underground water exhibits the same mobility that complicates the consumption of surface waters. These underground reserves are supplied by rainwater, seeping over the course of centuries into permeable geological strata and forming large masses of water-saturated subsoil called aquifers. The waters of these masses, however, are subject to movement over time, and are drawn by gravity down towards sea level where the sweet-water masses emerge from underwater springs and mix with saline coastal seawater. Of course, at this point, the freshwater effectively becomes mere seawater; useless for agriculture and nonpotable (unless subjected to expensive and power-intensive desalinization processes).

This runoff quantity can be extracted from the aquifer via wells, offering considerable amounts of freshwater that has been naturally filtered by the permeable strata in which it was suspended. However, if more water is drawn from the aquifers than can be replaced by rainfall (a process called recharge), the aquifers begin to shrink, making water more and more difficult to reach. The most dire consequence, however, of coastal aquifer overdraw is that the vacuum formed

¹³ “Many abstractions from the River Jordan’s tributaries have reduced the Jordan’s discharge into the Dead Sea to a third of the natural discharge, [...] from 1250 MCM/yr (1953) to 419-559 MCM/yr (1998-2004)” (Orthofer, et al. 2006). The Middle East branch of Friends of the Earth estimate the current amount of river water to reach the Dead Sea to be a mere 100 MCM/yr (*The Jerusalem Post*, 11 December 2006).

by the receding freshwater is filled with slowly encroaching saline seawater. Slowly, peripheral wells become unable to extract potable or irrigable water, and the saline infusions interact with the porous aquifer strata in such a way as to render the water stored therein *permanently* saline.

Though once considered independent water networks, the Dead Sea Basin and the aquifers underlying the whole of the Levant are connected by the same hydrological and economic processes and concerns (Selby 2003, Sherman 1999). Indeed, the eastern aquifer in the West Bank drains into the Dead Sea Basin, and as its waters are harvested, the springs which once supplemented the Jordan River flow into the Dead Sea have likewise desiccated. Furthermore,

The environmental problems resulting from these recent anthropogenic interventions do not end with a smaller quantity of water in the Dead Sea. The decreasing discharge of the Lower Jordan is becoming increasingly saline and polluted. The lowering of the Dead Sea level is accompanied by falling groundwater tables in adjacent aquifers, exacerbating the effect of over-abstraction. The future of freshwater springs supporting a unique biodiversity on its shores (e.g. Ain Fashkha, Ain Turiba) is now threatened (Orthofer, et al. 2006).

One wonders how such a state of affairs came to be; certainly, the cascade of hydrological consequences could hardly have been surprising to engineers and hydrologists. In 1953 American engineers planning the diversion of Jordan waters for irrigation voiced concern that the surface area of the sea might decrease by some 50%, and that “such a lowering of the Dead Sea level may not be desirable or permitted” (Main 57). Indeed, Lowdermilk had proposed in his plan a canal to replenish the Dead Sea with Mediterranean seawater, but at some point through the various instantiations of the plan which culminated decades later with the Israeli “Ten Year Plan” the canal was dropped, perhaps because of cost or because of the potentially catastrophic consequences of pipe or canal rupture. More recent negotiations among the Israeli and Jordanian governments and the World Bank seriously entertained the notion of a 180 kilometer pipeline joining the Red Sea at Aqaba with the Dead Sea, thereby arresting the latter sea’s decline, supplying opportunities for hydroelectric power, and supplying saline water for evaporation-intensive Jordanian and Israeli industries. Yet the

five billion dollar “Red-Dead” project has recently run into intense objections from environmental groups, and the initial feasibility studies (themselves costing tens of millions of dollars) are only beginning (*The Jerusalem Post*, 11 December 2006).

As the question of the Dead Sea has grown ever more technologically intractable, it has begun to reflect a growing disillusionment among ecologists and social activists with the international paradigm of environmental management, in which the nation-state serves as the “principal legitimate interlocutor in the international system” (Rich 258), and which addresses environmental issues through centralized and internationally administered large-scale projects. As Bruce Rich acerbically notes about the Rio Earth Summit in 1992,

The money that richer governments were committing to the World Bank was a reaction to growing popular and political pressures to do something. [The United Nations Conference on Environment and Development] was monstrously unwieldy, and illustrated the inadequacies of attempting to address the ecological crisis of what was now a global industrial civilization through a convocation of representatives of 172 nation-states. Worse, it marginalized representatives of thousands of citizens’ groups from around the world as a folkloric sideshow. But for those who criticized UNCED, what alternative could they propose? It was the only show on the planet, or so it seemed (Rich 272).

. There has been a concomitantly growing disaffection among Israeli and Palestinian ecological specialists alike with large-scale, “technocratic” solutions to issues of Levantine water scarcity. Essentially, large-scale, technologically intensive solutions have failed to address the water network in all of its hydrological complexity, geographical expansiveness, and social significance: “The Red Sea – Dead Sea Water Conveyance Project may produce renewable hydroelectric energy but its effects on the conjoined seas may not be wholly beneficial and the raising of the Dead Sea level will do nothing to improve the Lower Jordan valley¹⁴” (Orthofer, et al. 49). Alon Tal frames the

¹⁴ Simply reviving the original flow of the Jordan into the Dead Sea is quite out of the question. Even if Israel could be persuaded to release the waters into the sea (thereby severely reducing the water available to Israeli industry, agriculture, and people), the sudden inflow of freshwater into the Dead Sea would behave unpredictably: in all probability, the freshwater would not mix with the ever more saline waters of the sea; rather, it would form a lighter stratum of sweet-water on the surface of the lake, subject to accelerated evaporation in the heat of the Dead Sea Basin (Orthofer 53).

technological bias in water issues as a historical vestige of early Israeli statehood:

Like most frontier histories, Israel's water experience should have passed through two stages. During the first phase water was available, but not at the desired places or times or in the required quantities. During this developmental stage, engineering obstacles constituted the primary policy challenges. A second stage, characterized by resource constraints, might have followed immediately thereafter [...] The fundamentally ideological approach to water, however, prevented a successful transition to the more mature, sustainable stage. The unrealistic optimism and myopia of Israel's political leaders until the present was to some extent a function of the enormous success of the access stage (Tal 200-201).

This is a tremendous contrast to the rhetoric of *Palestine, Land of Promise*. It would seem that the linkages between a nation-state and the land it inhabits, lyrically extolled by Lowdermilk, have been fundamentally refigured. And while Alon Tal is certainly cognizant of this sea change, his suggestion that it is most intelligible in the frame of some developmental progression – that we are seeing a refinement of ecological knowledge at the expense of aging Zionist ideology – misses the depth and substance of this transition. Indeed, it is the aim of this paper to demonstrate that categories such as *use* and *resource* attain their fullness of meaning through the interaction between the slippery materiality of water and the prevailing social order that mediates between the individual, the nation-state, and global society – a meaning that is not exhausted in the refinement of scientific knowledge or demographic precision. And it is through the shifting logics of environmentalism that this social order converges with the ebb and flow of water. We must interrogate the cultural contexts which frame this hydrological phenomenon as environmental issue that demands a solution. The rhetoric of environmental crisis, which sets the decline of the Dead Sea in a discursive matrix fundamentally constituted through notions of human, biological water need, naturalizes and makes self-evident a problem that is in fact the product of intertwined perceptions, imaginations, and experiences of water. As we shall see, discussions and debates on the ecology of the Dead Sea Basin index a larger scale reorientation of the relationship between resources, development, and statehood.

The Everest Hotel sits atop the highest point in the Bethlehem Governorate, and the visitor can glimpse through the scraggly copses of coniferous trees tremendous views of surrounding Beit Jala, and further out, the southern hills of the Judean desert as they extend eastward and gradually dissolve in the midday heat into the Dead Sea Basin. The strategic value of such a commanding vantage was not lost on Israeli military forces, and concrete vestiges of military encampments from Operation Defensive Shield in 2002 still litter the wooded summit. Yet in June of 2006, this same spot became the site of a singular confluence of environmentalists from both sides of the Green Line, and beyond: the seventh and final project meeting for the ongoing project “A Future for the Dead Sea Basin: Options for a More Sustainable Water Management.” This interdisciplinary research effort, funded largely by the Research Directorate General of the European Union, brought together members of Palestinian, Jordanian,¹⁵ and Israeli environmental NGOs in addition to British social scientists and Austrian coordinators in order to “establish the scientific basis for ‘more sustainable than today’ water management and water-related land management in the Dead Sea basin, and from this, to develop practical recommendations that can be used for strategic decision-making” (Orthofer, et al. 7).

While one of the goals of the project was the augmentation of general public knowledge about the Dead Sea and its ecological, cultural, and economic significance, it was clear that the project was to have direct and substantial implications for national and regional policy, particularly for the Palestinians. For while the 1993 Oslo Accords led to the creation of the Palestinian Authority (PA), which had among its modest powers the authority to oversee (jointly with Israel)

¹⁵ Though members of the Jordanian team had been present at previous meetings and were involved in all of the major aspects and stages of the project, they declined at the eleventh hour to attend the final meeting, citing security anxieties (the kidnapping of an Israeli soldier by Palestinian militants in Gaza which led to the 2006 Israeli-Gaza conflict took place days before the conference and complicated entry into Israel). Consequently, the Jordanian perspective, though amply included in the written materials of the conference, is absent from my field notes of the discussions and debates that were to unfold. Though I regret this lacuna, I have no reason to believe that the particular regional perspective would call my thesis into radical question if it were included.

“the management of all of the West Bank’s water and sewage resources and systems” (Selby 103)¹⁶, the following decade witnessed a loss of credibility in the accord, culminating in the al-Aqsa Intifada of 2000. Though the PA still has nominal authority over Palestinian water management, financial difficulties as well as a recent Israeli boycott of the Hamas-led government have rendered them largely ineffective: “Much of the work of supply and demand management that in Israel is conducted by state institutions, in the West Bank has to be performed by individuals, households and local communities” (Selby 183). Furthermore, international donors, convinced that Oslo constituted a breakthrough in the peace process, were willing to “take over from Israel the burden of ameliorating the critical water situation in the territories” (Selby 118). But given the growing instability of the Palestinian Authority, donors increasingly rely on local NGOs for the effective utilization of funds. In the absence of a robust, centralized Palestinian government, NGOs become agents of environmental research, funding acquisition, policy recommendation, and project implementation.

At the core of this particular project was the construction and presentation of a series of intricate, computer-driven scenario maps in which were simulated “land use and water demand patterns resulting from interaction of the overall political situation, water supply targets, socio-demographic conditions and landscape characteristics” (Orthofer, et al. 36). The models were subject to no small amount of venom and vitriol from the social sciences contingent,¹⁷ but they were nothing if not complex, drawing on diverse data sets concerning surface hydrology, water

¹⁶ Jan Selby maintains that the Oslo Accords, particularly as pertained to water, reinforced rather than remedied inequalities in water management: “the distribution of powers and responsibilities between the Israeli and Palestinian water managers changed little between the pre-Oslo and Oslo periods. Much of what had previously been patron-client relations under occupation were suddenly discursively repackaged and re-presented as instances of Israeli-Palestinian ‘co-operation.’... The Oslo process did little more in this particular sphere than to dress up domination as ‘co-operation’ (Selby 96).

¹⁷ I maintain that this antipathy I witnessed – quite virulent at times – was wholly unfounded. Though it is certainly worthwhile to be cognizant of the inability of such quantitative simulations to encapsulate the intricacy of social relationships, values, and ethical considerations, it is also important to grasp the importance of such cartographic tools as active elements in the articulation and production of space.

importation and exportation, water pricing, wastewater generation, and biodiversity, as well as satellite generated data concerning land cover, land use, and biomass change. Given a set of dependent variables such as regional cooperation, the role of agriculture, and capital investment in water infrastructure, the scenarios were mapped out cartographically, showing the resultant hydrological developments in the Dead Sea basin over a twenty year period.

To critique the models as paramount examples of callous scientific determinism is rather disingenuous. As the programmers noted:

Scenario development is a form of active research which is at best participatory, stimulating potential users to think more deeply about their relationships with their environment and their own role in mitigating any unsustainable exploitation. The users are an integral part of the project using the data provided but, most importantly, contributing their own experience to development of deeper understanding. Scenarios are stories of possible futures, not an attempt to predict the future (Orthofer, et al. 19).

During the proceedings, Dr. Jad Issac, head of the environmental NGO Applied Research Institute – Jerusalem (ARIJ) and coordinator of the Palestinian project members, succinctly exclaimed “Remember, the model is above all a narrative!” This is a crucial point. The conjectural exercises which constituted the bulk of the demonstrable research of the project were very much literary entities, encompassing a dense substratum of meanings forged in a particular historical, cultural, and political milieu. It is important to *read* the creation of these models not as fact-finding ventures but as sites of debate over potential futures and the visions of social order that they presuppose.

In the discussion over the models that ensued, agriculture emerged as the preeminent interface between water resources and population needs. Indeed, it was particularly clear that in the Palestinian experience of the regional waterscape, agriculture loomed symbolically and materially. According to the delegates from ARIJ, in 2006 water use for irrigation of agriculture constituted 70% of water consumption from Palestinian controlled wells and springs in the West Bank, and 53% of the total Palestinian water use (including water purchased from Israeli sources). And though

irrigated agriculture accounted for a mere 6% of the total cultivated area in the West Bank, the production of that irrigated land constituted over *half* of the total agricultural production in the West Bank – which in turn contributed nearly 25% to the Palestinian GDP. On a smaller scale, it has been increasingly common to see subsistence agriculture undertaken by households, particularly after the widespread loss of employment as a result of the Second Intifada and the concomitant closures. Small plots of land between houses – the small, unlikely interstitial fragments that dot the hodge-podge urban agglomerations of the West Bank – are cultivated and tended with care, yielding a modest crop of vegetables to supplement a family’s consumption or even a spare mint leaf for tea.

The pastoral image of this agriculture is not incidental; among ARIJ’s many publications is a remarkable *History of Agriculture in Palestine (al-tarikh al-zira’i al-nabati fi filastin)* that makes a claim for a Palestinian traditional agricultural heritage. Part ethnography, part almanac, part horticultural field guide, the book attempts to draw together myriad sayings, songs, popular references, and scriptural verses that deal with individual elements of indigenous flora, as well as seasons and agricultural processes. “Palestinian climactic and geographical factors all together led,” the book explains,

to the presence of a rich natural environment within which grew many unique wild plants, and which made Palestine suitable for the cultivation of a variety of crops, plants, and agricultural trees. All of these enriched the Palestinian cornucopia with a diverse and bountiful horticultural production, *which in turn has colored Palestinian society as an agricultural society* [...] Additionally, this agricultural production has had effects on the composition and life of the Palestinian culture, and has become part of its nutritional [gustatory?] and cultural heritage.

The Palestinian, through his interaction and prolonged contact with the environment and flora encompassing him, developed practical and applied experience: knowledge of the appropriate times for preparing the land, cultivating, picking, and harvesting, as well as expectations of the fertility of the upcoming growing season, were bound to religious and cultural references, months of the year, the movement of stars and birds, [etc....] And insofar as this information distinguishes the character of man’s experience and his aptitude for interacting with the land and the flora, it must be recognized as of the utmost value [emphasis added, translation by author] (Isaac 2002, 9-10).

The work has a certain urgency, for the information recorded therein “has hitherto remained oral, preserved in the minds of elders for many years, and is threatened by the passing of these

individuals” (10). A project such as this does more than merely archive; it discursively creates an oral tradition which, above all, has arisen from a long-term, practical, and visceral experience of agriculture. A claim is being made here for some degree of Palestinian indigeneity in the old Roman breadbasket on the Eastern Mediterranean.

But the terms and conditions of indigeneity are constructed discursively and scientifically, and as such are subject to sometimes quite radical change. There is a sense in which indigeneity is increasingly of distinct political significance: “An impassioned rhetoric of autochthony, to which alienness is the negative counterpoint, has edged aside other images of belonging at the end of the twentieth century; [and] a fetishising of origins seems to be growing up the world over in opposition to the liberal credo of *laissez-faire*” (Comaroff 2001, 631). Autochthony is a concept within which place and time are bound to each other, and within which complex understandings of “the natural” contribute a moral valence to the historical geography of a given polity. As Nadia Abu El-Haj notes about the practice of archaeology in Israel, “Historical-archaeological landscapes, architectural forms, urban designs, and artifactual remains embody the very Jewishness of a place (of the national home, writ large, and of specific spaces within it), and they *naturalize* Jewish presence” [emphasis in original] (Abu El-Haj 2002, 18-19).

We find, however, that ecology complicates the ostensibly straightforward entitlements of indigeneity. Remember that Walter Clay Lowdermilk explicitly rejected any kind of territorial legitimacy based on indigeneity, favoring instead a legitimacy based upon an ahistorical environmental logic. His diletantism in amateur archaeology led him to ancient agricultural terraces and long-disused irrigation canals in an attempt not to naturalize any particular human presence on the land, but rather to make entitlement contingent on the technologically active mobilization – the beneficial use – of resources. The slippage between indigeneity and environmental stewardship is all the more prominent in the contemporary moment; post-colonial and settler-colonial governments

more and more frequently find themselves faced with demands for indigenous or aboriginal sovereignty, yet those concessions of sovereignty often are contested on environmental grounds (among others).¹⁸ For example: though granted an exemption on cultural grounds from the federal moratorium on whale hunting, the Makah of Washington State were unable to engage in a ritual hunt of endangered Pacific gray whales because of Greenpeace protest and physical interference (Erikson 1999). Aboriginal Maori tribes in New Zealand who were attempting to press territorial cessions of Crown land met with great hostility from local Europeans who argued for a profound “cultural and ecological adaptation [to the land,] that they claim enables them to maintain the balance between agricultural production and environmental conservation” (Domini 1995, 365). In these cases, environmental concerns complicate indigenous entitlements, and notions of aboriginality painfully fail to coincide with notions of ecological stewardship.¹⁹

Given this context, the *History of Agriculture in Palestine* becomes much more intelligible. The work eschews a rigidly historical or archival project of establishing Palestinian indigeneity insofar as its narrative of proto-national Palestinian development lacks any mention of discrete time periods or excavated material culture (as opposed to Israeli archaeology, for example [Abu El-Haj 2001]). Instead, the book attempts to contrive a practical and organic adaptation of Palestinians to their land, through which the dominant trope of indigeneity grants to its bearer ecological legitimacy. The *fellabeen* manifest in their myriad songs, aphorisms, and sayings – passed down orally from generation

¹⁸ This tension between the liberal multicultural sanctioning of cultural diversity on the one hand, and an intractable repugnance towards “fundamental uncanny alterity” (be it environmental, medical, or sexual) on the other, is a provocative and important object of study – though beyond the scope of this essay. Povinelli (2002) offers an absorbing study of this tension, particularly in regards to aboriginal sexual mores and colonial moral panic.

¹⁹ Interestingly, a similar antagonism developed in the Negev in the late 70s between Israel’s Bedouin community and the Israeli Nature Reserves Authority (NRA). As Alon Tal explains, “the quest for nature preservation came into direct conflict with indigenous culture and claims to land ownership” (347). After 1948, large portions of the Negev had been designated Israeli state lands (and eventually nature reserves), and the decades that followed witnessed increasingly forceful attempts to evacuate the resident herdsman and settle them elsewhere. To this end, in 1977 the NRA established the “Green Patrol,” a cadre of rangers notorious for their brutality against the Bedouin. As an Israeli scientist sympathetic to the patrol revealingly remarked, “Now [the Bedouin] have ten or twenty children per family. There are those who cry about the loss of their culture. Well, that’s the price of having twenty children instead of two. With antibiotics we changed their world. And I understand that a Bedouin may want to live like his grandfather did and enjoy the nomad’s life. But the land simply can’t sustain that population level of nomads” (quoted in Tal 350).

to generation – a tactile, intimate, and almost kinesthetic knowledge of the local ecology. Of course, it is worth noting that the formulation of autochthony as a basis for claims is a rather recent phenomenon which owes much of its conceptualization to post-colonial and post-modernist (not to mention liberal multicultural) moments. And just as methodologies of archaeology work in Israel are “not driven by ideological positions writ large, but rather...by paradigmatic conceptions of history and methods of practice,” (Abu El-Haj 8), so too do the methodologies of ethnography proceed from subtle epistemological and evidentiary criteria, manufacturing and naturalizing tradition. The historical continuity of this narrative is of far less importance than the fact that it reinforces a perceived analogousness between local, indigenous lifeways and ecological sustainability.²⁰

Now we can enter back into the discussions at the Everest Hotel. From the Palestinian side of the table, it was argued that the large-scale, high-investment, predominantly Israeli schemes which have so ravaged the hydrological landscape of the Levant have proved unable to achieve an equitable and ecologically conscious sustainability – largely because they ignore the multitude of practical experiences and interests on the ground. As Dr. Jad decried, “Nobody cares about the farmer. It is fundamentally a matter of power interests here in this region. We can ask the question ‘who is driving the wagon?’ In the case of the Dead Sea, it’s power politics.” This was a view more or less shared by all of those at the table; indeed, the potential ecological, economic, and socio-cultural detriments of the Red-Dead Canal served as an anchoring point to which all parties could agree. The marshalling cry of the conference became one of demand-driven water management, versus the existing preference for supply-driven water management. It was roundly agreed that capital-intensive plans to generate more water would ultimately fail to provide sustainable solutions

²⁰ An interesting avenue for further study would be an inquiry into the geopolitical and environmental conditions that have made such an association thinkable. There seems to have been a reordering of the responsibility of the nation-state vis-à-vis the individual in regard to environmental concerns. While notions of environmental crisis have increasingly been seen as the terrain of international regulation, there has been a concomitant investiture of ecological authority in locally-based citizens’ groups, activists, and NGOs. The impetus for this, particularly as pertains to environmental issues, needs to be explored in-depth.

to water scarcity; rather, diffuse and decentralized efforts to recalibrate and lessen regional water demand would be the only viable solution. It was the terms of those efforts, however, that were to prove much more contentious.

How would one model demand-driven water management? It depends upon just what such a future might entail. As suggested above, sustainable water use for the Palestinians by no means precluded irrigated agriculture. Rather, the Palestinians argued consistently and unequivocally that the Israeli occupation, insofar as it appropriated resources and obstructed agriculture (both plant and animal), was a primary obstruction to sustainable water management in the Dead Sea Basin. Since the Six Day War of 1967 and the subsequent military occupation of the West Bank and Gaza, water management in the Palestinian territories has been almost entirely subject to Israeli administration,²¹ and though provisos in the 1993 Oslo Accords called for greater equity in water administration, many maintain that the reforms amount to little more than “dressing up domination as co-operation” (Selby 95).²² Consequently, the vast majority of large water installations (pipelines, large wells, etc.) are Israeli controlled, and the water collected therein becomes part of the trans-border Israeli water network. Thus, much of the water extracted from Palestinian territorial aquifers is then sold to the Palestinians by the Israeli water company, or used by Israeli settlers within the Occupied Territories. As Palestinian data showed, “To date, plans to expand irrigated agriculture have been prevented by Israeli military closures and land seizures, and also by confiscation of wells and springs,” especially in the northern West Bank (Orthofer, et al. 57). And though the Israeli

²¹ For instance, Israeli Military Order 158 (November 1967) declared that “No person is allowed to establish or own or administer a water institution without a new official permit. It is permissible to deny an applicant a permit, revoke or amend a license, without giving any explanation,” while Military Order 291 (December 1968) stated that “All prior settlements of disputes regarding water are no longer valid. The Military Commander has the jurisdiction to cancel any regulation in the law or any water and land transactions.” Note that the Oslo II accords do *not* permit Palestinians to independently abrogate or amend these regulations. (Texts of Israeli Military Orders can be found at www.israellawresourcecenter.org. Accessed April 2007.)

²² For a more detailed account of water management under occupation, see Selby 2003. For an Israeli perspective (which also highlights the potential security repercussions of the trans-boundary nature of Levantine aquifers) see Sherman 1999.

representatives at the conference discussed plans to desalinate Mediterranean water to add to the network, the Palestinian contingent expressed resistance to any arrangement that would entail dependency: “Desalinate for yourself! Give us the upland water sources that lie in our lands.”

But even with a more equitable administration and apportionment of water resources, it was argued that the spatial segregation policies of the occupation were precluding sustainable Palestinian development and water management: “240,000 head of livestock are confined to 270 km² of land in the northwest of the [Dead Sea Basin] because the southern and eastern parts are closed military zones and nature reserves” (Orthofer, et al. 57). By this data, each head of livestock forages about a quarter of an acre year-round. Palestinian claims suggest that the intense depletion of biomass that results from this segregation contributes substantially to rapid watershed runoff, which in turn precludes the effective recharge of aquifers.²³ But where Walter Clay Lowdermilk dramatically equated livestock with cloven-hoofed locusts, the Palestinians at the conference saw pastoral farming as not only economically necessary for the growing population, but as a potentially beneficial process *if not obstructed by the occupation*. Research suggests that grazing in reasonable quantities in fact aids in aquifer recharge (*New Scientist* 1995), and thus the negative impact of grazing is directly attributable to the occupation.

Though the finer hydrological and geological points may be debated *ad infinitum*, the essential point is that “Palestinians feel they have a right to both restore and expand irrigated and livestock agriculture” (Orthofer, et al. 57). It has not been my intention to portray agriculture in Palestine as a romanticized monoculture or as something of a “one-dimensional dinosaur” (Tal 228). My field experiences made it abundantly clear that Palestinian environmentalists, policy makers, and farmers alike are acutely aware of the need for greater efficiency in irrigated agriculture. For instance,

²³ This assertion was challenged by some of those present at the conference. One of the members of the Israeli team remarked that overgrazing had happened for centuries, and that it was hard to determine the hydrological significance of the past decades. Moreover, “In the Negev, even with open spaces and room to graze there is still overgrazing. We shouldn’t assume that more space will solve the problem. It’s a management issue.”

Palestinian farmers are quite receptive to the idea of using treated sewage and/or greywater for crop irrigation; their reservations are not against innovation, but rather the potential non-marketability of such produce to importers in Europe and the Persian Gulf States. The argument being made here is not simply for the right to expand agriculture, but to do so in an enlightened and thoughtful way. Essentially, “Palestinians feel disenfranchised from environmental management as they do not have full control over natural resources within Palestinian territory. All National Policy documents declare commitment to sustainable management of resources, yet there has been little chance to implement policy because of the Occupation, which has exacerbated and accelerated environmental degradation” (Orthofer, et al. 59). A fundamental part of the broader Palestinian agricultural project is environmentally conscious growth – they demand, however, the recognition of their sovereign right to do so.

The Israeli environmentalists were completely in agreement with their Palestinian counterparts in regard to the assertion that current water management configurations were far from equitable, and in the models simulating high cooperation (i.e., the achievement of peace) all parties agreed upon the restoration of hydrological sovereignty to the future Palestinian state. However, the Israeli contingent took issue with the place of agriculture in visions of the Palestinians’ future development.

It should not be assumed, however, that the Palestinians must devote a large percentage of their water to support agriculture. As a highly educated society with aspirations to quickly move from the stage of a developing country to a developed country, agriculture may not necessarily play an important role in the state of Palestine for an extended period of time. It may be possible for the Palestinians to move into an industrial or even post-industrial society at a quicker pace than did Israel and other Middle Eastern states. Of course, this scenario must be decided by the Palestinians themselves. There is a lot of rhetoric used in the water debate, which often hides other motivations – nationalism, religion, power and economics. We must make a clear delineation between the need for drinking water and hygiene, which are basic human rights for everyone on the planet, and the ‘need’ for water by farmers as an essential component in agricultural production (Orthofer, et al. 54).

The fidelity of the Palestinian claims of authentic agricultural heritage was not a matter of contention

(as it was for Lowdermilk); rather, the debate centered on the viability of agriculture in the contemporary economic, political, and environmental milieu. For instance, while some particularly lucrative crops (such as bananas, for example) have been farmed in the study area for generations, they are very water-intensive and constitute a substantial amount of the overall agricultural water demand. Crops such as bananas are a lucrative export item, but in many cases, their exportation amounts to a literal exportation of water hidden within the fruit itself. The exportation of such a precious resource, it is argued, is indefensible, particularly when extraction techniques actually degrade the local waterscape.

Agriculture is very much a double edged sword in the contemporary moment. There is a profound tension within Palestinian agricultural aspirations; for while publications like the *History of Agriculture* seek to legitimize an agrarian future on the basis of continuity with a mythical past, at the same time Palestinian policy makers and non-governmental researchers are painfully aware of the growing demographic burden in the Occupied Territories, and that potential Palestinian statehood would entail an economic and technological intensification in order to administer that population. These two notions – the traditional/decentralized and the developed/rationalized – are not easily reconcilable. While it was argued that restoration of Palestinian hydrological sovereignty would pave the way for sustainable water management and agriculture, members of the ARIJ team nevertheless made it quite clear that Palestinians are opposed to “giving free water to nature,” a stance which is arguably the root of the Dead Sea problems. Can agricultural folkways, regardless of how ecologically sensitive they may or may not be (which is certainly an open question), possibly endure in the face of the economic and social imperatives that statehood entails? Can the timeless traditions of the Levantine farmer constitute a viable economic base in these times of increasing capital flows and decreasing hydrological flows?

This is a question of which the Israelis have claimed to be particularly cognizant. As Alon

Tal reflects, “The development of water resources solidified a healthy national myth that glorified farming as the most honorable of Jewish occupations after a two-millennium exclusion from tilling the land [...] But this hydrological ‘progress’ also left rivers filthy and subjected aquifers to a contaminant bombardment from which they may never really recover” (Tal 242). This admission of culpability was echoed in the conference:

Jad (Palestine): People have historical water rights, and they will accept no substitute.

Rudy (Austria): We need a water revolution!

Clive (Israel): People die in revolutions.

David (Israel): Perceptions change. Israeli agriculture underwent a change.

Clive: The central role of agriculture in the Israeli economy was always the golden calf. But things are changing. Desalinization plants in Israel suggest a departure from the idea of “God’s water.”

[...]

David: A Palestinian narrative is growing that suggests that the state must be built on agriculture like all others. That needs to be reconsidered. In Israel, we are undergoing a transformation [...] We are starting to ask if Israel is part of the Middle East, or Europe.

The final question in the above exchange is crucial insofar as it alludes to the imbrication of the material experience of hydrology and geography with the eminently social imagination of proper water management. By asking whether Israel (or, for that matter, Palestine) is part of the Middle East or Europe, we are forced to reckon with the negotiable environmental ethics that underwrite the commonweal.

In the debates that unfolded over the mechanics of sustainability in the Dead Sea Basin, the destiny of water was intimately linked with the destiny of the state. As much as the project was geared towards concrete and practical recommendations, the discussions which unfolded, particularly in the final meeting, were concerned with rather sociological issues of scale; that is, the extent to which often overlapping social scales (the individual, the socio-cultural group, the nation-state, the trans-national organization) were reconcilable to the similarly complex physical scales of water movement (the Dead Sea basin, the Jordan watershed, the agricultural produce trade, the global water cycle). Inasmuch as environmentalism is constructed as a point of interface between

what are discursively defined as “humanity” and “nature,” that which is environmentally viable is bound up with that which is politically viable. The ability to pursue environmental sustainability is a crucial element of state sovereignty.

Conclusion; or, the View from Downstream

Water, as a product of fundamentally social processes of experience, perception, and imagination, is inseparable from environmental discourses that are intimately concerned with notions of sustainability, national sovereignty, and stewardship. It is in this regard that water can most fruitfully be considered political. To suggest without introspection that water is “political” is a cliché that seems so self-evident as to border on irrelevance. More dangerously, though, it situates water as an ontologically neutral placeholder upon which humans, for better or worse, impose their political prerogatives. Water is reduced to little more than a bargaining chip, its materiality only superficially relevant (if not patently irrelevant) to the debates that surround it. Even those who decry this sublimation of water to vulgar politics as a potentially catastrophic disregard for ecological reality are complicit in this reification – this de-socialization – of water.

This essay has endeavored to show that the political nature of water arises from a profound imbrication of the material experience of water with the social projections and imaginations of water. Such a framework allows us to historicize and better situate our present hydrological predicaments, and move forward into an analysis that eschews material or social essentialisms in exchange for more incisive and productive inquiries into the state of things and the potentialities for change that are available. In presenting two temporally distinct but connected narratives of environmental stewardship – W.C. Lowdermilk’s Mandate Era plan for the Jordan River Basin and quite contemporary debates over water management in the Dead Sea Basin – I have tried to highlight the malleability of environmentalism as a moral and political force, and the dependence of

the terms of this “ecology of statehood” upon the mutually constitutive realms of water as biological and social flow. Given this schema, it is my belief that we can begin to ask more productive questions about water in the Israeli-Palestinian conflict (and the figuration of resources in society in general). What allows an individual or a social group to set the terms of environmental stewardship, and what does such social and political capital afford to its holder? What are the limits of indigeneity or authentic culture in global society? What do tropes of sustainability assume about human water needs and rights? I have no doubt that environmentalism can serve as a corrective to conflict, but we must excavate the ways in which such a resolution might be effected, and take nothing – not even the water we drink – for or as a granted.

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