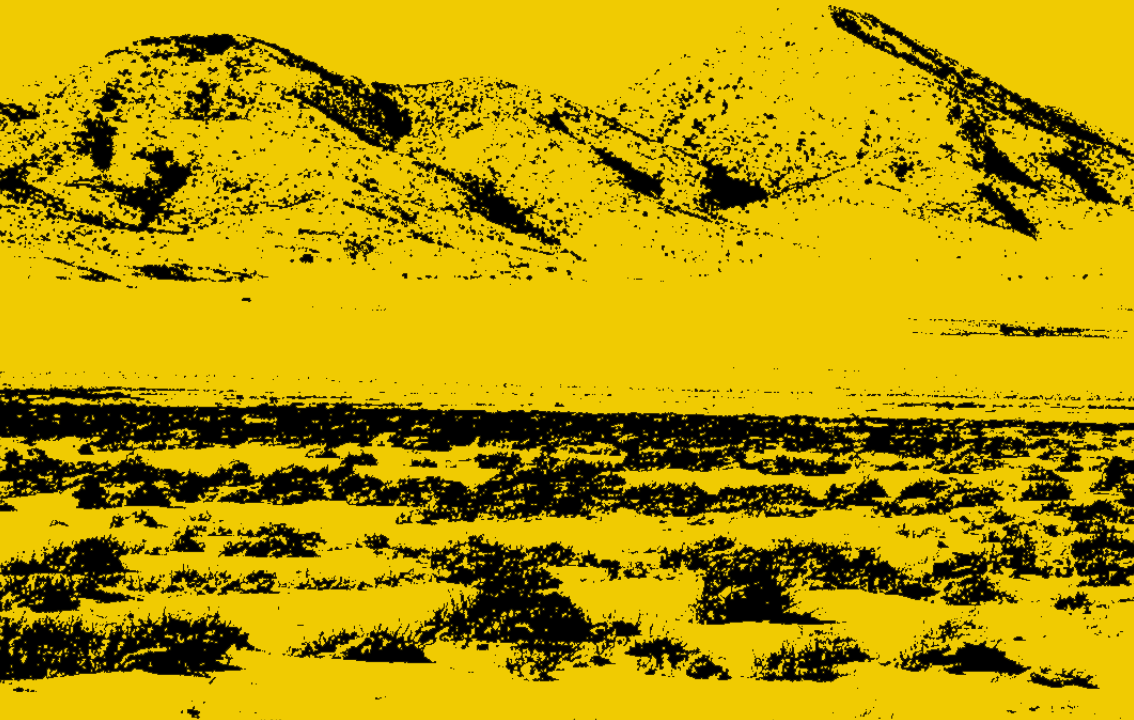


# The Desert and the Garden: Climate as Attractor and Obstacle in the Settlement History of the Western United States

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**C**limate and climate change have often been neglected as a factor in the history of human migrations. While climate, in a broad and often vague sense, is accorded some agency in shaping human history – the role of the “Little Ice Age” in encouraging outmigration from Europe, for example, or changing weather patterns perhaps spurring the migrations of nomadic peoples into the late Roman Empire



– more concrete historical examples are often lacking. Though climate scientists have convincingly recreated the climate regimes of the past, and uncovered weather patterns that may have shaped human history, scholars in the humanities have not accorded climate such a visible role in their recreations of the human past or human migrations, or often connected it directly to the historical record. Within the context of North America and specifically the United States, the only widely-known example of climate migration are the “Okies,” settlers on the southern Great Plains, who fled the Dust Bowl drought and dust storms of the 1930s, and were immortalized in John Steinbeck’s novel, *The Grapes of Wrath* (1939). This absence of climate from migration history is especially glaring in light of current global concerns about migrations due to climate change, whether planned in advance or instead the result of sudden catastrophic events.<sup>1</sup>

This article examines the historic role of climate, real, perceived, and imagined, in the settlement and migration history of North America. It focuses first on two regions of great interest in the nineteenth century. One, the so-called Great American Desert, seemed a potential obstacle to settlement, while the other, the region of Mexican Alta California, and after 1848 the US state of California, proved a definite attraction to settlers. By the late nineteenth century, both regions were attracting migrants. One, however, would experience climatic disasters that discouraged settlement, while the other would continue to grow, helping trigger an even larger climate-related migration in the twentieth century to the southernmost tier of US states, from Florida, Georgia, and the Carolinas in the East, to Texas, Arizona, and California in the West, a diverse region that became known as the Sunbelt. By examining these regions and the climatic migrations they spurred, we can see how perceptions of climate have changed in the United States. Climate was transformed from a problem to be overcome into a commodity to

<sup>1</sup> B. Fagan has examined the large-scale role of climate in human history in *The Long Summer: How Climate Changed Civilization*, Basic Books, New York 2004 and *The Great Warming: Climate Change and the Rise and Fall of Civilizations*, Bloomsbury Press, New York 2008.

be profited from. Most strikingly, we can see how climate was altered from an obsession – something that ordinary Americans were deeply concerned about and interested in – to an afterthought, at most a benign asset, such as mild winters, and no longer a threat. Climate became something Americans were increasingly, and dangerously, oblivious to. By better understanding these perceptions of climate, we can more clearly see how it could prove either an obstacle to or an attractor of migration, why people migrated to areas of environmental hazard, and how they responded when those hazards became evident, whether in the US, or elsewhere.

In some places of European settlement and exploration, Europeans encountered climates far different from those they had known. Most disconcerting were arid landscapes, or grasslands where trees were rare. In Australia, on the Steppes of Asiatic Russia, and in the Great Plains, Pampas, and deserts of the Americas, this led to speculation and contentious debates over development, settlement, agriculture, and urbanism. Indeed, even in Europe, where landscapes and climates were long-inhabited and presumably familiar, there were debates as well, concerning internal colonization or resettlement schemes, or attempts to improve soil fertility. This proved especially true of underutilized or seemingly agriculturally unproductive lands, such as the marshes and heaths of England, or wetlands and areas of sandy soil in Prussia. Even in the humid East of North America, rivers, watersheds, and other waterscapes and natural assets were of intense interest, objects of imperial ambitions and settler concerns.<sup>2</sup>

<sup>2</sup> A.W. Crosby examines the long history of European exploration, colonization, and settlement in *Ecological Imperialism: The Biological Expansion of Europe, 900-1900*, Cambridge University Press, New York 1986. For the history of agricultural development and colonization efforts in continental Europe, particularly Germany and its predecessor states, I am indebted to conversations with E. Jones about her current research and forthcoming book, *The Settlement Imagination: German Internal Colonization and Empire, 1850-1930*. A related study is David Blackbourn, *The Conquest of Nature: Water, Landscape, and the Making of Modern Germany*, W. W. Norton, New York 2007. For the continental history of water, rivers, and hydraulic transformation in the US, see D.J. Pisani, “Beyond the Hundredth Meridian: Nationalizing the History of Water in the United States,” in *Environmental History* 5, October 2000, pp. 466-82.

European settlers in North America and many other places drew upon a long experience of farming, on the agricultural folk knowledge of their cultures, on old – and sometimes ancient – religious and philosophical ideas about nature, and on the newly-emergent natural sciences.<sup>3</sup> Folk belief may seem dubious by the standards of the early twenty-first century, but it developed over hard generations of long and hard agricultural work, of learning nature through labor. When explorers or settlers tried to discern climate, they were first and foremost reading landscapes. Indeed, the word climate, which in modern usage usually means “long-term weather,” originated instead as a geographic term, referring to one of a series of zones on the earth’s surface, each associated with a particular weather regime.<sup>4</sup> In an era before precise measurements of rainfall, humidity, or temperature, and long before regular weather and temperature records were kept, a new landscape held many clues to a region’s climate. Were trees abundant, or was there good pasturage? Did streams and rivers seem constant? What kind of flora and fauna occupied the landscape? Did it remind settlers of productive agricultural landscapes they had seen or heard of in Europe? Did the climate seem healthful, and free of disease? Such questions were logical and valid. Settlers lacked modern climate science, and – no less importantly – long-term experience with these landscapes. In their native lands in Europe, they had possessed long histories of heat and cold, of floods, droughts, and blizzards, of average times to plant or harvest, of times of feast or famine. Native peoples, of course, knew all these as well, though European settlers often refused to ask or listen.<sup>5</sup>

<sup>3</sup> The classic work on nature in European intellectual traditions remains C.C. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, University of California Press, Berkeley 1967.

<sup>4</sup> Oxford English Dictionary, [www.oed.com](http://www.oed.com), accessed online 2 March 2011. In the Greek and Roman era, the known world was divided into seven climate zones, associated with the seven known planets.

<sup>5</sup> Willful ignorance of the climate knowledge possessed by natives of these “alien” landscapes was hardly limited to the era of early exploration or settlement. To give just one modern example, Anglo American settlers paid no heed when

## The High Plains, the Great Basin and the Great American Desert

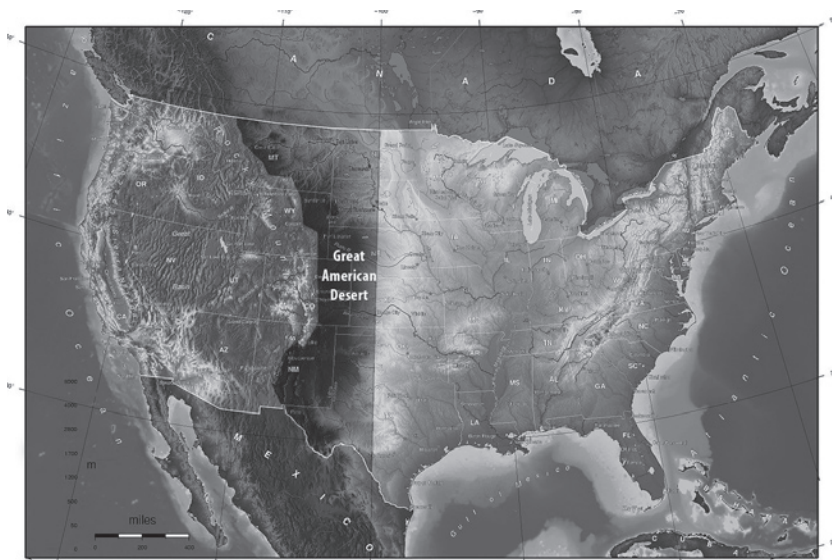
One key moment in the history of perceptions of climate was the Euro-American encounter in North America with the Great Plains and the arid, high-elevation terrain of the Great Basin between the Rocky Mountains and the Sierra Nevada Mountains. This encounter led to a cartographic creation that once appeared prominently on maps of the continent, but has now completely disappeared: the Great American Desert. A treeless expanse began west of the Mississippi and Missouri rivers, and stretched across ever-higher terrain all the way to the easternmost ranges of the Rocky Mountains. Beyond these were dry valleys and ranges, extending across a vast interior basin all the way to the Sierra Nevada Mountains, inland from the Pacific coast. Here, white Americans thought that they had found a barrier and roadblock to their continental ambitions. Indeed, even humid areas with abundant rainfall but limited forests were initially viewed as agriculturally useless. While settlers soon discovered that the eastern prairies – which would later become states like Illinois and Iowa – were in fact productive farmland, the high plains further west seemed more daunting.<sup>6</sup> (Figure 1)

Federal surveys, like those led by John Charles Frémont, led to the publication of survey reports full of detail, lavishly illustrated with il-

Mexican and Native American residents of Southern California warned them that the seemingly small and placid Los Angeles River was capable of huge floods – which is exactly what the city of Los Angeles suffered multiple times in the first decades of the twentieth century, until the US federal government embarked on the largest flood control project ever attempted in the US to protect the city that had been built in the river's floodplain. See J. Orsi, *Hazardous Metropolis: Flooding and Urban Ecology in Los Angeles*, University of California Press, Berkeley 2004.

<sup>6</sup> The exact dimensions of the Great American Desert varied widely on maps and in the popular imagination, sometimes encompassing much of the western half of the continent, and at other times occupying only much smaller sub-regions. The area most commonly defined as the Great American Desert, however, was a region encompassing the high plains west of the 100th meridian of longitude, extending westward to the summits of the Front Range, the easternmost range in the Rocky Mountains.

**Figure 1. The general region defined as the “Great American Desert”**



Source: Wikimedia Commons

illustrations of landscapes, flora, fauna, and maps. Zebulon Pike’s journal of his 1810 expedition portrayed the treeless and windswept plains as a desert as forbidding as the Sahara. The Stephen F. Long expedition reconfirmed this when its report was published in 1823, and Long described the southern Plains as the “American Desert.”<sup>7</sup> Frémont’s later expeditions in the 1840s found more promising lands further west in the Rocky Mountains and beyond, places where steady rivers flowed and mountain ranges precipitated more rainfall. These places, represented in maps, drew the avid attention of eastern Americans.

In this era, maps were more than simple visual expressions of geographic information. In the early republic of the US, they represented

<sup>7</sup> H. Smith, *Virgin Land: The American West as Symbol and Myth*, Harvard University Press, Cambridge, MA 1950, pp. 175-76.

national ambition and the confluence of science and art. Geographic literacy – the ability to read and create maps, and the money to collect them – was proof of social and economic status. Several of the nation's founders, including George Washington and Thomas Jefferson, took pride in their experience and abilities as land surveyors. Not for nothing were so many Americans – the rich and the striving alike – pictured with maps and globes in individual and family portraits. These maps were visual manifestations of individual and collective ambitions. Maps, in short, mattered, and citizens took them seriously.<sup>8</sup>

These published reports made a significant impression among eastern readers. Historians today often see them as landmarks in the scientific exploration of western North America, but do not always realize that to many readers of the time they were more like glossy real estate brochures. The reports, in fact, often cost more to print than the surveys themselves cost to complete. The sale of western lands was a primary source of income for the national government, and it had a vested interest in this revenue. That does not mean that these reports were false; on the contrary, they were usually based on the best scientific data available for their time. Instead, it meant that many readers, and sometimes federal government officials, were only too eager for them to confirm their most optimistic imaginings about the West.<sup>9</sup>

Across the nineteenth century, some would repeatedly assert that the Great American Desert was no more than a passing mirage, while others asserted it would function as a brake on national expansion. The real issue was not aridity per se, but the volatile subject of slavery and its potential expansion. Many Northerners saw the Great American Desert, and the vast tracts of mountains and wilderness that lay beyond it, as ample evidence that slavery would not expand, that the nation had reached its natural limits, and that what lay beyond would best be left to Indians and wild animals.

<sup>8</sup> M. Brückner writes convincingly about the centrality of maps to individual and national identity in *The Geographic Revolution in Early America: Maps, Literacy, and National Identity*, University of North Carolina Press, Chapel Hill 2006.

<sup>9</sup> The classic history of these federal surveys, and their place in national history, is W. Goetzmann, *Exploration and Empire: The Explorer and the Scientist in the Winning of the American West*, Knopf, New York 1966.

No less a national figure than Daniel Webster, New Englander by birth, senator from Massachusetts, and secretary of state under three presidents, railed against the prospect of a federal mail route connecting the Pacific coast to the US, let alone future annexation:

What do we want with this vast, worthless area? This region of savages and wild beasts, of deserts, of shifting sands and whirlwinds of dust, of cactus and prairie dogs? To what use could we ever hope to put these great deserts, or those endless mountain ranges, impenetrable, and covered to their very base with eternal snow? [...] What use have we for such a country?<sup>10</sup>

Proslavery Southerners, in contrast, saw the exact opposite – the expansion of slavery as inevitable. They headed west, and as far as they were concerned, the political dominion and humid climes of the US were destined to go with them. Such ideas would lead them into Mexican Texas and precipitate a war with Mexico from 1846 to 1848. The US defeated Mexico with relative ease, and in east Texas, with a humid, warm climate, much like that of the US South, cotton production spread rapidly and with it, slavery.

Now all that formerly Mexican land lay free for the taking, slave owners eagerly anticipated expanding their cotton empire to the Pacific. Northerners fretted about the same outcome – the spread of slavery meant the growth of its economic power and political influence. The US had won the war, but its union was fragile, and after gobbling up more than half of Mexico, it nearly undid itself in the Civil War of 1861 to 1865.

That looming sectional division was rapidly manifested in differing views of climate. A survey party, commissioned to delineate the new boundary between the two nations, offered a concise example of the sectional and climatic divide. The head of the boundary commission, New Yorker John Russell Bartlett, was sacked after committing two unpardonable crimes: compromising with his Mexican counterpart on the location of the boundary, and publicly stating

<sup>10</sup> D. Webster, quoted in W.E. Connelley, *Doniphan's Expedition and the Conquest of New Mexico and California*, published by author, Topeka, Kansas 1907, p. 146.



that much of this new American territory appeared to be worthless. As he and his men trudged west from El Paso through the rugged deserts of the future states of New Mexico and Arizona, his faith in the national enterprise began to falter:

As we toiled across these sterile plains, where no tree offered its friendly shade, the sun growing fiercely, and the wind hot from the parched earth, cracking the lips and burning the eyes, the thought would keep suggesting itself. Is this the land which we have purchased, and are to survey and keep at such a cost? As far as the eye can reach stretches one unbroken waste, barren, wild, and worthless.<sup>11</sup>

He was stripped of his command, and Congress refused to pay for the publishing of his journal, unlike other surveys they had funded. His replacement, William Emory, while more attuned to the territorial aspirations of the Southern slaveholding interests who had pushed for war, was nonetheless likewise hard-pressed to paint an overly positive picture of the region. His best hope was that technological development – railroads – and military suppression of the Apache Indians would render the region more amenable to development, preferably through slave agriculture.<sup>12</sup> By the time Emory's report was published in 1857, however, most Anglo-Americans had already turned their attentions to a new region of avid interest: California.

## **California Before the Gold Rush and Climate, the “Gold” of Southern California**

Though intensely interested in and ready to debate reports about the interior of North America, eastern Americans were already avidly reading accounts of a land farther west – California, on the Pacific

<sup>11</sup> The Albuquerque Museum, *Drawing the Borderline: Artist-Explorers of the U.S. Mexico Boundary Survey*, Albuquerque Museum, Albuquerque, NM 1996, pp. 37-38.

<sup>12</sup> A.S. Greenberg, “Domesticating the Border: Manifest Destiny and the ‘Comforts of Life’ in the U.S.-Mexico Boundary Commission and Gadsden Purchase, 1848-1854,” in *Land of Necessity: Consumer Culture in the United States-Mexico Borderlands*, A. McCrossen (ed.), Duke University Press, Durham, NC 2009, pp. 83-112.

coast. The first account for many eastern readers was not a federal survey report, but Richard Henry Dana's description of coastal California in *Two Years Before the Mast*, published in 1840. At this time, California was still the Mexican State of Alta California, roughly contiguous with the US state of California created in 1850. Dana's book, a memoir of life as a sailor in the 1830s on one of the many Yankee merchant vessels that traded California cattle hides and tallow for US finished goods, offered readers a vision of a picturesque, exotic region. Like many other Anglos, his depiction of elite Californio (Mexican Californian) life in Santa Barbara and other towns was essentially an endless fiesta of dances, games, and leisure, with little hint of the brutal labor system that exploited local Indians to provide wealth for elite Californios.

It was the landscape of California that drew most of Dana's praise, and readers' attention. They, like Dana himself, viewed California not merely as a remote and exotic region, but as potential future US real estate. He cataloged the forests and fisheries, cattle and crops of California, and asserted of its climate that "there can be no better in the world." In the most famous line in his book, Dana praised California's landscape while simultaneously insulting its residents: "In the hands of an enterprising people, what a country this might be!" Yet he worried that California would prove too soft and comfortable to maintain Yankee industry. According to Dana, the children of Anglo settlers "are brought up Spaniards, in every respect, and if the 'California fever' (laziness) spares the first generation, it always attacks the second." Dana fretted that the seemingly leisurely life of the Californios would infect Anglos – that in California, leisure was a dangerous contagion. The climate seemed so appealing, so seemingly perfect, that it might even be dangerous.<sup>13</sup>

<sup>13</sup> R. Dana, *Two Years Before the Mast*, P.F. Collier and Son Corporation, New York 1937, p. 170. For more historical perspectives on American and European thought concerning how climate or environment could shape human health or character, see G. Chinard, "The American Philosophical Society and the Early History of Forestry in America," in *Proceedings of the American Philosophical Society* 89, July 1945, 444-88, and A. Gerbi, *The Dispute of the New World: The History of a Polemic, 1750-1900*, J. Moyle (trans.), University of Pittsburgh Press, Pittsburgh 1973.

Author Robert Louis Stevenson, who crossed the US in the late 1870s and recorded his experiences in *Across the Plains* (1892), found the climate of Monterey, the old capital of Mexican California, appealing. Yet he also realized that it had hidden dangers. Unlike in his rainy native Scotland, fire was a constant danger, and would remain a hallmark of the seemingly idyllic but actually hazardous climate and terrain of California:

For days together a hot, dry air will overhang the town, close as from an oven, yet healthful and aromatic in the nostrils. The cause is not far to seek, for the woods are afire, and the hot wind is blowing from the hills. These fires are one of the great dangers of California. I have seen from Monterey as many as three at the same time, by day a cloud of smoke, by night a red coal of conflagration in the distance. A little thing will start them, and, if the wind be favourable, they gallop over miles of country faster than a horse.<sup>14</sup>

Moreover, Stevenson asserted that these fires did more than destroy valuable timber or scenery. They could alter climate, leaving a denuded and drier landscape in their wake:

The inhabitants must turn out and work like demons, for it is not only the pleasant groves that are destroyed; the climate and the soil are equally at stake, and these fires prevent the rains of the next winter and dry up perennial fountains. California has been a land of promise in its time, like Palestine; but if the woods continue so swiftly to perish, it may become, like Palestine, a land of desolation.<sup>15</sup>

The Gold Rush brought a vast wave of migrants and immigrants to San Francisco, Sacramento, and the Sierra Nevada goldfields. Statehood arrived in 1850, and California was inundated by Anglo-Americans who brought dispossession to Californio landowners and disaster to countless Indians. Yet in southern California (the southern portion of the US state, not the peninsular Mexican state of Baja California), which was bypassed by the Gold Rush, “Mexican”

<sup>14</sup> R.L. Stevenson, *Across the Plains*, Charles Scribner’s Sons, New York 1892, p. 85.

<sup>15</sup> *Ibid.*

California lingered. There the rancho economy held on until a severe drought in the 1860s, mercenary Anglo land speculators, and increasing property taxes gradually led to the loss of most Californio holdings.

Until after the completion of the transcontinental railroad in 1869, most guidebooks and travel accounts aimed at the nascent western tourist market informed prospective travelers of three primary areas, each transformed by mining rushes: cosmopolitan San Francisco, the Colorado Rockies, acclaimed as “America’s Switzerland,” and the California Sierras, especially Yosemite Valley.

These areas, in addition to being those most likely to be appreciated by eastern urbanites and tourists steeped in the Romantic affinity for sublime mountain vistas, were also the places most accessible by train or boat. The Southwest, which until 1848 had been the Mexican North, but now comprised southern California, the western portion of Texas, the future states of Arizona and New Mexico, and the southern portions of Colorado, Nevada, and Utah, in contrast, warranted little attention. When southern California appeared at all in such texts, it was as a remote and exotic realm, with a balmy “tropical” climate. One 1869 account referred to “Los Angeles,” “far away in the South of California, where the tropical fruits grow so luxuriantly.” George Crofutt’s 1878 guidebook expounded upon the region south of the “Mojava” (Mojave) Desert, where Los Angeles, the “city of gardens and groves,” lay surrounded by “magnificent plantations” containing “the wealth of the tropics.”<sup>16</sup>

More substantial guides to southern California offered more detail, but maintained the region’s aura of tropical verdure. The first

<sup>16</sup> S. Bowles, *Our New West: Records of Travel between the Mississippi River and Pacific Ocean*, Hartford Publishing Company, Hartford, CT 1869, p. 362. Bowles’ earlier travel account bypassed the region entirely, sailing past Southern California and instead landing at Acapulco, where he brooded upon the “pitiful civilization” and “mulattoish race” of Mexico: id., *Across the Continent: A Summer’s Journey to the Rocky Mountains, the Mormons, and the Pacific States*, Samuel Bowles and Company, Springfield, MA 1865, p. 374; G. Crofutt, *Crofutt’s New Overland Tourist and Pacific Coast Guide*, Vol. 1, The Overland Publishing Company, Chicago 1878, p. 245.

such book to discuss southern California extensively was journalist Charles Nordhoff's *California: For Health, Pleasure, and Residence*, published in 1873. With the transcontinental railroad completed, and rail lines under construction that would link Los Angeles to San Francisco in the north and to other cities in the east, it suddenly became a far easier place to visit. Shipping agricultural goods out of the region also became feasible.<sup>17</sup>

Nordhoff's book posited southern California as a place where middling white farmers could live in a citrus-scented agricultural utopia – a sort of Jeffersonian Polynesia. It was the region's seemingly magical climate that made this new Eden possible. Here, in “the first tropical land our race has thoroughly mastered,” white America could enjoy “the delights of the tropics, without their penalties.” Enervated by the rush of modern life and threatened by “mongrel” immigrants, Americans could here be cured of illness and regain their vitality without falling prey to the diseases of more humid tropical climes. In an era when disease was common and tuberculosis a constant danger, a climate that encouraged health would prove irresistible.<sup>18</sup>

In the nineteenth century, most Americans saw “climate” as synonymous with health, or with its absence. They believed that illness was spread by bad air, “miasmas” of fog, mist, or stale atmosphere. Tuberculosis and other respiratory illnesses were most often blamed on this “bad” air, but other illnesses were as well. Swamps or other places of stagnant water were viewed as public health dangers in need of draining, just as a sick person might need bleeding. While

<sup>17</sup> C. Nordhoff, *California: For Health, Pleasure, and Residence*, Harper and Brothers, New York 1873, p. 18.

<sup>18</sup> *Ibid.*, p. 11. See also J.E. Baur, “Charles Nordhoff, Publicist Par Excellence,” in *Ventura County Historical Society Quarterly* 19, Summer 1974; *id.*, *The Health Seekers of Southern California, 1870-1900*, The Huntington Library, San Marino, CA 1959; and J.W. Elias' brief but exceptionally informative *Los Angeles: Dream to Reality, 1885-1915*, Santa Susana Press, Los Angeles 1983. For a succinct analysis of the various boosterist strategies employed by Los Angeles from the late nineteenth to the late twentieth centuries, see N.M. Klein, “The Sunshine Strategy: Buying and Selling the Fantasy of Los Angeles,” in *20th Century Los Angeles: Power, Promotion, and Social Conflict*, N.M. Klein and M.J. Schiesl (eds), Regina Books, Claremont, CA 1990.

knowledge of pathogens, bacteria, or viruses was primitive or non-existent, the concerns were well-placed: swampy water bred mosquitoes, and mosquitoes were most definitely vectors of contagion. The dry air and moderate temperatures of southern California were touted as perfect for people suffering from tuberculosis or other illnesses. Perhaps as much as 25 percent of the total migration to the region prior to 1900 was composed of health migrants.<sup>19</sup>

While the late-nineteenth-century promotion of climate for health in places such as southern California can easily be dismissed as booster hokum, it did likely have at least one healthful effect. Not because of a lack of “miasmas,” but instead because all that southern California sunshine shining on the skin of new arrivals stimulated production of vitamin D. The central role of that nutrient in immune system health and a robust immune response to pathogens has only become clear in the recent past. Evidence from studies of British nationals in this era suggests that many European Americans, with the exception of those who labored outside, likely suffered from significant deficiencies of vitamin D due to poor diet and efforts to avoid sun exposure. This would have made them more susceptible to tuberculosis and other infectious diseases. Even allowing for a “placebo effect,” the claims of health migrants that their illnesses seemed to improve were likely correct, even if many would still eventually die from the diseases they suffered from. Though their scientific knowledge might have been limited or faulty, nineteenth-century Americans saw clear connections between their bodies and the surrounding environment, a link that later generations would lose, and are only now reconnecting, as twenty-first century humans worry about contaminants, from heavy metals to artificial hormones, accumulating in ecosystems and in human bodies.<sup>20</sup>

<sup>19</sup> J.E. Baur, *The Health Seekers of Southern California, 1870-1900*, 2nd ed., Huntington Library, San Marino, CA 2010.

<sup>20</sup> For more on the connections between climate and health, see C.B. Valenčius, *The Health of the Country: How American Settlers Understood Themselves and Their Land*, Basic Books, New York 2002. For more on the case of southern California, see Baur, *Health Seekers* cit. It includes an introduction by R.G. Frank Jr. with new medical perspectives on the research Baur originally completed in 1959. See also

In addition to climate, moreover, Nordhoff asserted that southern California possessed other resources of significant value. His prose made clear that this new land would prosper not from the labor of diligent white farmers, but instead through workers drawn from a pre-existing resident nonwhite population. Of these, Nordhoff devoted the most time to discussing Native American Indians. The book even contained a chapter unambiguously entitled “The Indians as Laborers.” In southern California, Nordhoff asserted, “it was thought a great advantage for a man to ‘have’ Indians” – claiming that that they were docile, knew how to handle horses, and would work for little money.<sup>21</sup>

Elsewhere, Anglo-Americans had most often pushed Indians away, confined them to reservations, or tried to exterminate them, as was particularly the case in much of the rest of California. In southern California, however, they would provide essential labor, along with Mexicans and Asian immigrants. This was especially true at citrus farms, which resembled plantations more than ranches, and which Nordhoff predicted would bring wealth to wise investors. Nordhoff was using the region’s climate and existing population to imagine a future that shared more with the US South, or American dependencies such as Hawaii and Puerto Rico, than it did the pioneer homesteads of the archetypal Anglo-American West.<sup>22</sup>

In its review of the book, *The Nation* magazine pronounced Nordhoff “an excellent *raconteur*,” with the tone “of a man who half expects his audience to put their tongues in their cheeks at which he is telling them.” The magazine scoffed at his book’s attempt to herald an agricultural utopia in an age of industry: “If he had any purpose more than another in writing it, we should say it was to recommend the climate to invalids, and not to preach the superiority of agriculture to mining as a means of comfortable living and even

E.K. Abel, *Suffering in the Land of Sunshine: A Los Angeles Illness Narrative*, Rutgers University Press, New Brunswick, NJ 2006.

<sup>21</sup> Nordhoff, *California* cit., pp. 137-39, 155-56.

<sup>22</sup> J.M. Guinn, “Early California Industries that Failed,” in *Out West* 28, May 1908, pp. 418-19. For a broader discussion of intersections between the antebellum South and the West, see H.N. Smith, *Virgin Land: The American West as Symbol and Myth*, Harvard University Press, Cambridge, MA 1950.

of affluence.” The elite eastern press might dismiss the attributes of distant southern California, but others would not. The book would sell three million copies by the end of the century.<sup>23</sup>

Many more books by other authors would follow. The sheer output of southern California booster literature, however, is in some ways less impressive than its striking consistency. The same attributes, the same advantages, would be heralded again and again, with little substantive difference between authors. Some alterations did inevitably occur. Later writers and promoters eschewed the term “tropical.” Boosters imagined that it conveyed a balmy, comforting climate, but in an era when Europeans were still vulnerable to tropical diseases, “tropical,” in the minds of eastern readers, proved less likely to instill visions of paradise than specters of pythons and malaria. Instead, they claimed that the climate was that of an idealized Mediterranean, warm, but not torrid or excessively humid, as did Charles Dudley Warner in *Our Italy* (1891), and Peter Remondino in *The Mediterranean Shores of America* (1892). Remondino provided a wide amount of “scientific” climatic data to prove that southern California possessed the healthiest climate on earth.<sup>24</sup>

It is difficult to overstate how appealing, even amazing, southern California’s climate once seemed to eastern Americans. Rarely humid, occasionally hot, but almost never below freezing, most of the year the climate was moderate, with some rain for agriculture that could be supplemented by irrigation. Though not true to the stereotype of a constant 72° F (22° C) and sunshine, temperatures

<sup>23</sup> *The Nation*, 5 December 1872, p. 369; Baur, *Charles Nordhoff Publicist* cit., p. 6; L.C. Powell, *California Classics: The Creative Literature of the Golden State*, Capra Press, Santa Barbara 1971, p. 19.

<sup>24</sup> P.C. Remondino, *The Mediterranean Shores of America*, F.A. Davis Co., Publishers, Philadelphia 1892; C.D. Warner, *Our Italy*, Harper and Brothers, New York 1902, p. 147. In his study of citrus agricultural communities in Southern California, M. Garcia discusses the promotion and development of what he terms the “ideal country life” in *A World of Its Own: Race, Labor, and Citrus in the Making of Greater Los Angeles, 1900-1970*, University of North Carolina Press, Chapel Hill 2001. D.C. Sackman links the promotion and development of California to the citrus industry in *Orange Empire: California and the Fruits of Eden*, University of California Press, Berkeley 2005.



were definitely mild most of the time. Throughout the year, average monthly temperatures ranged between 68° and 85° F (20° and 29° C), with lows averaging between 48° and 66° F (9° and 19° C). Climate became the central appeal of Los Angeles and southern California. Here, climate was transformed from a concern into a commodity. Instead of being something settlers worried about, it became something to simply enjoy.

According to promoters of the region, its climate could create wealth, restore and preserve health, and facilitate outdoor recreation and with it a closeness to nature that many eastern Americans found alluring. It drew tourists and new residents. Climate, in short, made Los Angeles, transforming it from a small pueblo of five thousand people in 1870 to the largest city in the state by 1920. Mild winters meant that farmers could grow luxury crops such as oranges, lemons, and avocados that were expensive and scarce. Instead of just family sustenance, one could have wealth from a southern California farm – though non-Anglo labor, exploited through a racialized labor system, was also central to the regional growth machine.

That labor, however, was largely ignored. Leisure, on the other hand, was promoted endlessly from the 1880s forward. At public beaches and resorts such as Palm Springs, southern California perfected its reputation as a place of recreation. In the 1890s, local promoter Charles Fletcher Lummis, editor of the regional magazine *Land of Sunshine*, claimed that southern California “was destined to show an astonished world the spectacle of Americans having a good time.” Far more potent than any individual promoter, however, was Hollywood. By the 1920s and 1930s, Hollywood cemented Los Angeles’s national and even global reputation as a city linked with leisure. Newsreels of movie stars frolicking at local resorts and films that showcased the natural landscapes and lushly landscaped yards and neighborhoods of Los Angeles screened worldwide.<sup>25</sup>

<sup>25</sup> C. Lummis, *Land of Sunshine*, May 1896, p. 261. L. May argues that film served a crucial role in the emergence of an American culture of recreation, with celebrities playing the part of “leisure experts,” instructing the masses to embrace leisure, but also to enjoy it “correctly.” See L. May, *Screening Out the Past: The*

The bungalow neighborhoods of Los Angeles offered a vacation as a permanent lifestyle. Bungalows were first popularized in the US as resort housing, and promised a simpler way of life, with verandas and yards that made it possible to live residential life outside in balmy weather, which in Los Angeles was most of the year. New residents of the city sometimes even paid for photographers to make postcards of their new homes, which could then be sent to eastern relatives and friends as if the homeowners were visiting some seaside resort. And in a sense, they were. Interurban trains connected the towns of southern California to each other, as well as to the beaches and mountains that drew tourists and residents alike. The automobile would only increase this mobility, as the city's notorious traffic jams still lay well in the future. Instead of life in a cramped city apartment, or isolation on a rural farm, Angelenos could live in a de-centered, dispersed landscape of residential housing, farmland, and retail and business centers – very different from older, denser eastern cities, and prefiguring the sprawling suburbia to come in the twentieth century. Los Angeles most definitely did not create equal opportunities for all, but it did create the first mass suburbia, portending the sprawling nature of urban development in the US after 1945, and it promoted the ideal, pursued with great ardor by many Americans, of owning their own home, with a yard for outdoor socializing and leisure, and a car to connect them to the larger city for work and play. Though few residents of the US realize it, climate has shaped key elements of their national culture, including the appearance and function of their houses and cities.

In the migration to southern California, climate had been transformed from a frontier hazard to an amenity. Yet this amenity proved more and more demanding. The city soon outgrew its original water supply and appropriated a new one. Representatives of the city, operating in secret, bought up most of the land in the Owens Valley, which lay east of the Sierra Nevada Mountains. The abundant snowfall of the Sierras fed the Owens River, and due to terrain, gravity

*Birth of Mass Culture and the Motion Picture Industry*, Oxford University Press, New York 1980.

could bring that water to Los Angeles. The farms of the Owens Valley soon withered as the city constructed the longest aqueduct ever built to deliver water to the city. More aqueducts followed, connecting the city to the Colorado River and rivers in northern California. Winter rains sometimes made the small Los Angeles River into a raging torrent, capable of flooding large areas. One of these winter storms carried enough water to supply the city for a year. Instead of using this, the federal government paved the entire river, from its headwaters to the Pacific, transforming it into a flood control ditch. A city desperate for fresh water now dumped vast quantities of it into the Pacific Ocean each winter.<sup>26</sup>

If flooding proved to be one problem, another was fire. The landscape surrounding the city varied, from forested mountainsides to chaparral, a highly combustible mixture of grasses and shrubs. When ignited by lightning or humans in dry weather, the landscape could be a tinderbox. Fires swept local hillsides and alarmed homeowners demanded that the federal government intervene. In the Angeles National Forest, adjacent to wealthy suburbs of Los Angeles, such as Pasadena, the new US Forest Service (officially founded in 1905) mounted an aggressive effort to prevent and quickly extinguish forest fires, and soon did the same in all national forests. In California and the West, where forest fires were a regular occurrence and forest ecosystems had adapted to them, the absence of fire has proven a dire problem. Forests grew far more dense, and fires more severe. The seeds of a number of tree species, including the lodgepole pines common in Yellowstone National Park and the giant sequoias of the Sierra Nevada, the largest trees in the world, can only germinate after a fire. Homeowners who demanded safety in an arid climate inadvertently wrought vast changes in the forest ecosystems of western North America.<sup>27</sup>

Yet another environmental hazard in southern California, though unrelated to climate, is earthquakes. Quakes were common in Span-

<sup>26</sup> M. Reisner, *Cadillac Desert: The American West and Its Disappearing Water*, rev. ed., Penguin, New York 1993.

<sup>27</sup> The standard history of fires and fire policy in the US is S.J. Pyne, *Fire in America: A Cultural History of Wildland and Rural Fire*, University of Washington Press, Seattle 1997.

ish accounts of the region, and in 1857 a huge quake occurred, registering approximately 8.0 on the Richter scale, along the San Andreas Fault, which runs for 810 miles (1,300 km) across the state. The southern portion of that fault has not ruptured since and is now well overdue for a major earthquake. Such a rupture in the San Andreas would cause catastrophic damage to buildings and roadways in metropolitan Los Angeles and might also rupture the Owens River and Colorado River aqueducts, cutting off water supplies for six months or more. Other faults have produced smaller, but still damaging quakes in southern California, most notably the Long Beach quake of 1933, the Sylmar quake of 1971, and the Northridge quake of 1994. If a truly large quake had hit at a key moment of growth – say, the “Hollywood Earthquake of 1925,” or the “Great Disneyland Earthquake of 1959,” the region’s development might have slowed considerably. The San Francisco Earthquake of 1906 and the subsequent fire destroyed much of that city; this helped delay the city’s growth, allowing Los Angeles to overtake it in size by 1920. Likewise, a residential and resort development boom in South Florida was stopped in its tracks by the deadly Lake Okeechobee Hurricane of 1928, when a category 5 hurricane caused a storm surge on the large lake that flooded a wide area and killed at least 2,500 people. Significant growth would not occur again in South Florida until after 1945.<sup>28</sup>

## **The Dust Bowl and the Hydraulic Reengineering of the Western US**

While southern California was spared a disaster that might have stopped settlement, the same was not true in the region that had been called the Great American Desert. The first of these, mass cattle deaths following harsh winters in the 1880s, did not halt settlement. The second such disaster, however, the Dust Bowl of the 1930s, dealt the region

<sup>28</sup> M. Davis elaborates the earthquake dangers (and many other threats) facing Southern California in *Ecology of Fear: Los Angeles and the Imagination of Disaster*, Vintage, New York 1999. T. Steinberg discusses the Lake Okeechobee Hurricane in *Acts of God: The Unnatural History of Natural Disaster in America*, second edition, Oxford University Press, New York 2006.

a blow from which it has never recovered and triggered an outmigration still underway. Irrigation seemed the only feasible solution to the arid climatic conditions of the region. "Reclamation," the irrigation of western lands, soon became a national cause. The most informed proponent of this, though not the most popular, was John Wesley Powell.<sup>29</sup>

Powell had made a national name for himself by leading an expedition down the Colorado River, surviving the terrifying rapids in the Grand Canyon and other gorges, and surveying geography that had been utterly unknown to whites. Powell later served as the chief geologist for the United States Geographical and Geological Survey of the Rocky Mountain Region, and then as director of the United States Geological Survey. His reports combined Victorian travelogues and descriptions of scenery with a clear-eyed and decidedly unromantic view of the limited potential of the arid western lands for settlement and agriculture.<sup>30</sup> The culmination of his writings was his *Report on the Lands of the Arid Region of the United States* (1879). Powell argued that the arid West called for a new government approach, and a new kind of homesteading. Unlike in the East, homesteading land allocations would have to be much larger, and the government would have to plan large-scale irrigation projects: "To a great extent, the redemption of all these lands will require extensive and comprehensive plans ... individual farmers, being poor men, cannot undertake the task."<sup>31</sup> Powell thought that the arid West, properly settled through careful planning, could be home to a small population of farmers and ranchers.

This modest, slow, and carefully planned future did not appeal to some Americans, who thought that irrigation could be transformative: they believed it could utterly remake the West into a place as populous and agriculturally productive as the East. A vociferous

<sup>29</sup> For a biography of Powell, see D. Worster, *A River Running West: The Life of John Wesley Powell*, Oxford University Press, New York 2002.

<sup>30</sup> M. Padgett skillfully analyzes the mix of science and more romantic elements in Powell's writing in *Indian Country: Travels in the American Southwest, 1840-1935*, University of New Mexico Press, Albuquerque 2004.

<sup>31</sup> J.W. Powell, *Report on the Lands of the Arid Region of the United States, with a More Detailed Account of the Lands of Utah*, second edition, Government Printing Office, Washington, DC 1879, p. viii.

champion of this view was William E. Smythe. Smythe saw irrigation as a *deus ex machina*, a wondrous solution that could transform the desert into a garden, make farms productive, and create cities as large as any in the East. His magnum opus, printed as a book and in serial or excerpted form in numerous regional and national magazines, was *The Conquest of Arid America* (1900). Readers eagerly bought what Smythe was promising. So did the nation's political class.

In 1902, Congress passed the Newlands Reclamation Act, authorizing the federal funding of dam and irrigation projects. The first project completed under the new law was the Roosevelt Dam on the Salt River in Arizona. Anglo settlers renamed the Salt River Valley the Valley of the Sun, planted lawns and eastern greenery to offset the stark landscape of the Sonoran Desert, and metropolitan Phoenix was born. By 2010, Phoenix – located in the middle of one of the driest deserts on earth – had surpassed Philadelphia to become the fifth largest city in the US. Powell likely would have found this unsustainable and foolhardy, but his vision of the West had lost, and Smythe's had won.<sup>32</sup>

Even wilder claims that “rain follows the plow” – that plowing the earth released moisture into the air that would return as rain, and that rain would in turn be more readily absorbed by plowed earth, creating a permanent cycle and a new, wetter climate regime – drew large numbers of settlers and speculators onto the Plains – and towards certain disaster. A speculative boom and bust in cattle, in which millions of dollars were lost and hundreds of thousands of cattle died, occurred on the High Plains in 1886, the result of an especially harsh winter. Aided by global investors and the newly invented barbed wire, ranchers filled the prairie with cattle on the assumption that they could graze through the winter. The cattle instead froze and starved en masse, piling in ghoulish mounds alongside the barbed wire fences. The calamity triggered a depression among Plains ranchers that lasted twenty years.<sup>33</sup>

<sup>32</sup> For the development history of Phoenix, see M.F. Logan, *Desert Cities: The Environmental History of Phoenix and Tucson*, University of Pittsburgh Press, Pittsburgh 2006.

<sup>33</sup> W. Nugent, *Into the West: The Story of Its People*, Alfred A. Knopf, New York 1999, p. 75.

This calamity scared away eastern and international investors for a time, but not settlers. The Homestead Act, passed by Congress in 1862, made it easier and far less expensive for settlers to purchase federal land, or to take possession for no cost if they lived on the land and “improved” it by constructing a house or farming it. By 1900, 1,400,000 people had applied for homesteads in the West. From 1900 to 1913, another million would do so, more than twice as many per year as before 1900. With the best land already taken, these later settlers moved into arid regions, areas of high elevation, and places where rain and favorable temperatures were the least reliable. Many of them started a new life right in the heart of the lands that had once borne the foreboding title of the “Great American Desert.” In the first two decades of the twentieth century, four million people moved into the region. Wheat farms, grain elevators, farm houses, and windmills pumping groundwater for surface irrigation rose where prairie grasses had once grown. Many of these were built by eastern urbanites and European immigrants, Germans, Scandinavians, Eastern Europeans, and others who had been drawn by the promise of American plenty. Few had any experience with arid farming, and fewer still knew the dire environmental dangers of the region they had migrated to.<sup>34</sup>

They would be struck by a combination of economic and environmental disasters. Technology, first water-pumping windmills, then tractors, harvesters, and other mechanical innovations, allowed agricultural productivity to grow. Production increased further due to increased global demand during World War I. After the war, however, demand plummeted. Prices for staple crops such as corn and wheat collapsed, and farmers found themselves with crops worth less than it would cost to harvest and ship them to market. Even before the market collapsed, farmers across the region were encountering trouble, from windmills that no longer brought up groundwater, to soil that had lost its nutrients due to over-farming. The settlers, or in some cases their children or even grandchildren, began to flee. Some counties and towns on the High Plains in both the US and Canada had lost a third of their population by 1925. This began a migration that

<sup>34</sup> *Ibid.*, pp. 131-41.

on some parts of the Plains has never stopped. In central Nebraska, for example, the population at the end of the twentieth century was less than half what it had been in 1930.<sup>35</sup> One woman, the daughter of a sheepherder, remembered the mass flight from the high plains of Montana, where many settlers had been drawn by the promotional efforts of Jim Hill, the magnate of the Great Northern Railroad: “By 1924 many homesteaders were leaving – leaving with despair and bitterness in place of the eager confidence and hope with which they had come ... So the covered wagons rolled again – eastward.”<sup>36</sup>

The exodus from the Great Plains accelerated a movement out of the rural South and southern Great Plains. This is remembered most famously through the Great Migration, the mass movement of African Americans from the rural South to the urban North. Many white Southerners left the region as well. This mass migration also had an environmental trigger: the boll weevil, an invasive insect that destroyed cotton crops in the US South from the 1900s to the 1920s.<sup>37</sup>

And something far worse still loomed in the future. That event, the Dust Bowl, is one of the rare occasions when environmental history played a prominent role in the popular historical narrative of the United States. Overgrazed and over-plowed soil, no longer rooted by native grasses, dried out in a prolonged drought in the early 1930s. In 1933, and for several years thereafter, windstorms made the soil of the southern Great Plains take flight. It rained down on Chicago and Washington, DC, and even on ships at sea in the Atlantic. On the plains, anyone caught outside in a dust storm could be blinded and choked to death by the dust. Historians and scientists still argue about the combination of environmental and economic forces that conspired

<sup>35</sup> Ibid., pp. 188-95.

<sup>36</sup> M. Lux, “Honyockers of Harlem, Scissorbills of Zurich: A Personal Account of the Harsh Challenges Met by Homesteaders Who Answered Jim Hill’s Siren Call,” in *Montana* 13, Fall-Winter 1963, p. 13. Quoted in Nugent, *Into the West* cit., p. 194.

<sup>37</sup> See J.N. Gregory, *The Southern Diaspora: How the Great Migrations of Black and White Southerners Transformed America*, University of North Carolina Press, Chapel Hill 2005. T. Steinberg discusses the likely role of the boll weevil in spurring the Great Migration in *Down to Earth: Nature’s Role in American History*, Oxford University Press, New York 2002, pp. 103-104.



to create the Dust Bowl. For the people fleeing its effects, the cause was a moot point. They fled for their lives, or at least for their economic survival. They joined the Plains exodus already underway.<sup>38</sup>

The Dust Bowl triggered one of the largest recalibrations of federal environmental policy in US history. Several components of President Franklin Delano Roosevelt's New Deal of the 1930s tried to address the disaster, including the Agricultural Adjustment Act, which aimed to limit over-farming, and the Soil Conservation Service, which worked to educate farmers about ways to limit soil erosion. Even more importantly, the government created a new national agency, the Bureau of Land Management, to oversee all of the unsold land still in its possession. With this act, the federal government was transformed from the nation's largest real estate agent to its primary land steward. At the same time, the Dust Bowl only accelerated the federal hydraulic reengineering of the West begun with the Newlands Reclamation Act through the construction of massive dams and aqueducts on the Colorado, Columbia, and other rivers.

### **From Southern California to the Sunbelt: A Climate-Inspired Migration in which Climate Was Forgotten**

This hydraulic reengineering made possible population growth in the Southwest unimaginable to even the most ardent promoters of southern California in the late nineteenth century. Fleeing the cold winters and heavy snows of New England and the industrial Midwest, millions moved to the states of the South and Southwest, where, especially after 1960, air-conditioning made hot summers tolerable. Though far less well-known than either the US expansion westward across the continent or the Great Migration, and less infamous than the exodus of the Okies from the Great Plains in the 1930s, this migration to the region that came to be called the

<sup>38</sup> The classic study of the disaster on the Plains is D. Worster, *Dust Bowl: The Southern Plains in the 1930s*, Oxford University Press, New York 1982. For the Okies, see J. Gregory, *American Exodus: The Dust Bowl Migration and Okie Culture in California*, Oxford University Press, New York 1991.

Sunbelt was in fact the largest internal domestic migration in US history, and it was inspired first and foremost by climate.<sup>39</sup>

One way to trace the development of this region is simply to document its meteoric growth. Arizona contained less than half a million residents in 1940, but by 2009 metropolitan Phoenix alone contained 4.3 million. By the first decade of the twenty-first century, Phoenix supplanted Philadelphia as the fifth largest city in the nation, and Detroit, the industrial metropolis of the Midwest, fell off the list of the nation's ten largest cities and was replaced with San Jose, the hub of California's Silicon Valley. Other cities in the southern tier of US states also experienced rapid growth in the six decades following World War II. In Texas, Houston and Dallas grew from cities of less than 400,000 in 1940 to metropolitan areas of more than 5,000,000 in Houston and nearly 6,000,000 in Dallas. Atlanta, Georgia grew from a city of 300,000 to a metropolitan area of 5,000,000. Miami, Florida grew from a city of 172,000 to a metropolitan area of 5,400,000. In 1940, the combined population of California, Texas, and Florida was 15 million. By 2010, these three states were the three largest in the nation, with a combined population of 84 million, more than 25 percent of the nation's total population. African Americans also participated in a reversal of the Great Migration, relocating in large numbers to Sunbelt cities such as Atlanta, where a warmer climate, job growth, and radically improved race relations made the South an appealing region. Sunbelt growth also attracted Mexicans northward to booming maquiladora factory towns near the US border, and many crossed the border, entering the US to take menial jobs in the Sunbelt, the western half of which had once been part of Mexico. Since 1990, that immigration is estimated to have totaled at least ten million people, and perhaps significantly more. These migrants were certainly not all coming for climatic reasons. Jobs and economic opportunity were potent draws as well. Yet for some migrants, such as retirees, warm climates did

<sup>39</sup> For the history of air-conditioning, see G. Cooper, *Air-Conditioning America: Engineers and the Controlled Environment, 1900-1960*, Johns Hopkins University Press, Baltimore 1998; and M.E. Ackermann, *Cool Comfort: America's Romance With Air-Conditioning*, Smithsonian Institution Press, Washington DC 2002.

indeed remain a major attraction, leading to a retiree influx in states such as Florida and Arizona. The engineering-away of excessive heat through air-conditioning also made many locales, from Atlanta to Houston to Phoenix, more bearable, and the growth of these cities increased rapidly as residential air-conditioning spread rapidly by the later 1950s and 1960s. At Sun City, opened in 1960 in Arizona as the first housing development aimed exclusively at older adults and retirees, developer Del Webb made certain that his new “active adult” planned community had two resident professionals on site, and on call at all times: a physician, and an air-conditioning repairman.<sup>40</sup>

Yet population figures, however impressive, do not in themselves explain why the Sunbelt grew so dramatically. At the most basic level, the growth that had begun in Los Angeles in the 1880s and the growth that occurred in cities across the Sunbelt after 1945 bore some similarity. In both cases, new arrivals were drawn by jobs, inexpensive land and housing, or the opportunity to begin life anew. Unlike those earlier migrants, however, the later, larger wave enjoyed more benefits than merely affordable rail transportation. Many would have their own transportation, in the form of automobiles. Some were also already acquainted with the region, since so many military personnel had trained or been stationed in the Southwest during World War II.<sup>41</sup>

<sup>40</sup> Population figures for cities from the 1940 census, “Table 17: Population of the 100 Largest Urban Places: 1940,” available online at: <http://www.census.gov/population/www/documentation/twps0027/tab17.txt>. Arizona state population from 1940 census, “U.S. Population, Vol. 1, Number of Inhabitants,” p. 89, available online at: <http://www2.census.gov/prod2/decennial/documents/33973538v1ch03.pdf>. Post-2000 population estimates from “July 1, 2005 Population estimates for Metropolitan, Micropolitan, and Combined Statistical Areas,” available online at: [http://www.census.gov/population/www/estimates/Estimates%20pages\\_final.html](http://www.census.gov/population/www/estimates/Estimates%20pages_final.html). For the reversal of the African American Great Migration, see “Census Estimates Show More U.S. Blacks Moving South,” *USA Today*, 15 February 2011. For the history of Sun City and other retiree communities in the Sunbelt, see J.A. Trolander, *From Sun Cities to the Villages: A History of Active Adult, Age-Restricted Communities*, University Press of Florida, Gainesville 2011.

<sup>41</sup> Historical studies analyzing the growth of the Sunbelt region include R.M. Bernard and B.R. Rice (eds), *Sunbelt Cities: Politics and Growth since World War II*, University of Texas Press, Austin 1983; R.A. Mohl (ed.), *Searching for the Sunbelt: Historical Perspectives on a Region*, University of Tennessee Press, Knoxville 1990;

More importantly, the federal government, with far more resources than any local chamber of commerce or individual promoter, actively aided the creation of a new mass suburbia across the United States, particularly in the Sunbelt. This began during the war, with the GI Bill of 1944. The GI Bill offered educational grants, low-interest mortgages, and business loans for returning servicemen. By 1960, more than five million homes had been financed through the Veteran's Administration. Yet this federal housing program would be dwarfed by another assistance initiative, the Federal Housing Authority (FHA) loan system. FHA loans began during the New Deal, but were expanded after the war. With FHA loans, the federal government made it far easier to buy a house – applicants could put less than ten percent down, and would have 30 years to pay off the mortgage. This became the standard terms for most private home loans as well, and would remain so until the dubious mortgage schemes that collectively helped trigger the economic crisis of 2008. Previously, prospective home buyers had to have cash on hand to buy houses outright, or at least cover a much larger down payment. Unsurprisingly, this meant that before this loan system was implemented, a much smaller proportion of Americans were homeowners, and a much larger number of those who were built their houses themselves.<sup>42</sup>

In addition to employment and new forms of housing assistance, the government also created the new Interstate Highway System. The Federal Highway Act of 1956, signed by President Dwight D. Eisenhower, inaugurated the largest single public-works program in US history. The interstate system was designed for defense purposes, but it had a vast impact on American society. It favored cars and trucks over trains for freight and long-distance passenger transport, and the pas-

J.R. Pack (ed.), *Sunbelt/Frostbelt: Public Policies and Market Forces in Metropolitan Development*, Brookings Institution Press, Washington, DC 2005; and B.J. Schulman, *From Cotton Belt to Sunbelt: Federal Policy, Economic Development, and the Transformation of the South, 1938-1980*, Oxford University Press, New York 1991.

<sup>42</sup> For a history of the FHA loan system, see R. Fishman, *Bourgeois Utopias: The Rise and Fall of Suburbia*, Basic Books, New York 1987, p. 174-77. For broader examinations of suburban house financing and construction, see L. Cohen, *A Consumer's Republic: The Politics of Mass Consumption in Postwar America*, Vintage, New York 2004, and B.M. Nicolaidis, *My Blue Heaven: Life and Politics in the Working-Class Suburbs of Los Angeles, 1920-1965*, University of Chicago Press, Chicago 2002.

senger car over mass transit. It made Americans even more mobile and facilitated suburban growth. Between home loans and freeways, the federal government was a primary architect of a new kind of urbanism, de-centered, sprawling, and mixing places of residence and work.

For all of their history, Americans had analyzed and argued about climate. Now, however, it became merely an asset – more sunshine and milder winters. Federal water and electricity, along with air-conditioning, made even the harshest desert environments livable. Vast transformations of the US environment – the dams on the Colorado River, aqueducts that carried water to southwestern cities, huge new coal-burning power plants in northern Arizona that created electricity for air-conditioning in Arizona and southern California, the new interstate highway system that made the Southwest easy to traverse – these federal initiatives had altered the landscape of the western United States. Climate, it seemed, had been engineered away as a problem. Yet these more modern settlers were still very much making climatic decisions, and ones with far-reaching consequences at that. At the very moment Americans stopped arguing over climate, many millions of those same Americans were potentially placing themselves in climatic peril by choosing to live in places of dire ecological hazard. Southern California and then the Sunbelt sold balmy climates and less crowded and more informal ways of living that promised the amenities of urban life alongside closeness to nature and the outdoors, from a modest suburban backyard to the most spectacular landscapes in the western US. At the same time, however, the growing interest in nature and in architectural and urban forms that allowed Americans to live close to nature, did not denote true ecological awareness, and it almost never led to environmentally sustainable development. Instead, it led to dependence upon automobiles and petroleum. All that air-conditioning required vast amounts of electricity, much of it supplied by coal power plants responsible for large amounts of particulate pollution, as well as greenhouse gas emissions. It necessitated the hydraulic reengineering of western North America to carry water to large populations settled in arid regions. In the longer term, it also placed millions of Americans in places of dire ecological hazards.

By the middle of the twentieth century, Americans had seemingly

forgotten about climate, even though they were engaged in the largest climatic migration in their history. By the later twentieth century, however, that began to change. Climate change and human-induced global warming became topics of widespread scientific and political discussion by the 1980s. Hurricane Andrew, which hit South Florida in 1992, and huge forest fires that struck the West, Southwest, and southern California in the 1980s, 1990s, and 2000s reminded Americans that they were not immune to severe weather events or, perhaps, long-term climatic threats as well. The grimmest example of all came in 2005, when Hurricane Katrina hit New Orleans and the US Gulf Coast. That storm cost the lives of 1,836 people and triggered the largest movement of refugees in the US since the Dust Bowl of the 1930s. Despite a minority of Americans who still deny anthropogenic climate change as a scientific issue, fears about climate change – most notably that warmer air and oceans will create larger hurricanes in the South and also cause long, possibly permanent droughts in the Southwest – have triggered even greater fears about the future.<sup>43</sup>

Americans had once speculated obsessively about climate, arguing whether it was a help or a hindrance, and later transformed it into a commodity, a thing to be sold and profited from, or enjoyed as an amenity. Then, however, they largely stopped talking about it, and that placed them at great peril. We can now look back with the advantage of historical perspective and state that settling on the High Plains in the 1880s or 1910s was a dangerous idea. Future historians may well look upon the Sunbelt migrants to Florida and Arizona from 1945 to 2000 as no less foolhardy. Climate spurred Americans west and south in the nineteenth and twentieth centuries, triggering the largest migrations in the nation's history. While our scientific knowledge far exceeds that of prior generations, contemporary Americans are still re-learning that they, like Americans of a previous century, and all the world's inhabitants, must once again take climate seriously, whether they choose to migrate or not.

<sup>43</sup> For an account of Hurricane Katrina – both the natural disaster and the governmental fiasco that followed – see D. Brinkley, *The Great Deluge: Hurricane Katrina, New Orleans, and the Mississippi Gulf Coast*, Harper Perennial, New York 2007.