

An aerial photograph of a vast wetland or floodplain. The landscape is a mosaic of blue water, green grass, and brownish, dried-out vegetation. In the distance, a line of trees marks the horizon under a clear sky. The overall scene is one of a natural, somewhat desolate environment.

# GREEN LANDS FOR WHITE MEN

*Desert Dystopias and  
the Environmental Origins  
of Apartheid*

MEREDITH MCKITTRICK

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*The University of Chicago Press* Chicago and London

The University of Chicago Press, Chicago 60637

The University of Chicago Press, Ltd., London

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Published 2024

Printed in the United States of America

33 32 31 30 29 28 27 26 25 24     1 2 3 4 5

ISBN-13: 978-0-226-83180-0 (cloth)

ISBN-13: 978-0-226-83469-6 (paper)

ISBN-13: 978-0-226-83468-9 (e-book)

DOI: <https://doi.org/10.7208/chicago/9780226834689.001.0001>

Library of Congress Cataloging-in-Publication Data

Names: McKittrick, Meredith, author.

Title: Green lands for white men : desert dystopias and the environmental origins of apartheid / Meredith McKittrick.

Other titles: Science.culture.

Description: Chicago : The University of Chicago Press, 2024. | Series: Science.culture | Includes bibliographical references and index.

Identifiers: LCCN 2023052478 | ISBN 9780226831800 (cloth) | ISBN 9780226834696 (paperback) | ISBN 9780226834689 (ebook)

Subjects: LCSH: Schwarz, E. H. L. (Ernest Hubert Lewis), 1873–1928. | Reclamation of land—South Africa—History—20th century. | Reclamation of land—Political aspects—South Africa. | Irrigation farming—South Africa—History—20th century. | Climatic changes—South Africa—History—20th century. | White people—South Africa—Economic conditions—20th century. | Climatology—Political aspects—South Africa. | Water diversion—South Africa—History—20th century. | South Africa—Race relations. | Kalahari Desert.

Classification: LCC S616.S6 M35 2024 | DDC 631.5/87096—dc23/eng/20240112

LC record available at <https://lcn.loc.gov/2023052478>

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## INTRODUCTION

On January 30, 1918, an article in the Johannesburg *Star* issued an ominous warning: South Africa was drying up. This aspiring white man's land at the end of the so-called Dark Continent had once resembled North America, a fertile land "clothed with forests and prairie vegetation." But now the Kalahari's "sun-scorched wastes" generated hot winds that drove back the ocean air whose moisture produced rain, and aridity intensified every year. The Union of South Africa had been forged just eight years earlier, in the aftermath of war between the Boer republics and the British Empire. Its 1.5 million whites, one-fifth of the population, had laid claim to more than 90 percent of the land and all its mineral wealth. But without human intervention, the *Star* argued, it was fated to become as uninhabitable as the Sahara.<sup>1</sup>

That southern Africa was drying up was not news to the *Star*'s readers. For a century, white farmers had watched springs and wells disappear. Explorers and missionaries who ventured into the Kalahari and the coastal Namib Desert had reported dry riverbeds, smoothed boulders, and even seashells—all evidence of a much wetter past. Professional and amateur scientists, farmers, and interested observers all debated the causes of the apparent disappearance of southern Africa's water. But by the early twentieth century, government experts insisted that there was no process of progressive desiccation. Periodic droughts were a normal feature of southern Africa. The degradation of land and water resources and the mounting economic losses from drought were the fault of white farmers and their backward agricultural practices. Many—perhaps most—white South Africans rejected the experts' message. They insisted that the changes in the land had natural, nonhuman causes. The rains were failing and the desert was expanding, even in places untouched by white settlement. The question was why.

The article offered an answer. It absolved whites of responsibility by arguing that the land itself was to blame for the unfolding apocalypse. Natural processes of erosion, unleashed by the continent's topography,

had caused the rivers that had once fed inland lakes to turn toward the coast. Deprived of their water supply, the lakes vanished—and with them, the atmospheric humidity that had generated abundant rains. The desert was born, and a self-reinforcing cycle began. White farmers were therefore correct when they said rainfall was declining and that it was not their fault. But there was a solution. Past environmental conditions could be restored by diverting two major rivers that lay outside South Africa's borders into the subcontinent's interior, where they would refill the Kalahari's large, shallow basins. Drought would no longer threaten white survival; instead, a vast and newly greened land would be opened for white settlement.<sup>2</sup>

The article had no byline. But the language and ideas were those of Ernest Schwarz, professor of geology at Rhodes University in Grahamstown, in the Eastern Cape. When Schwarz repeated his message before the country's scientific elite six months later at the annual meeting of the South African Association for the Advancement of Science, his colleagues responded with polite skepticism.<sup>3</sup> But the British-born geologist had tapped a deep reservoir of white fears and aspirations. Members of Parliament, native commissioners, writers, professors, engineers, and white farmers in South Africa and the countries now known as Namibia, Botswana, and Zimbabwe threw their support behind what became known as the Kalahari Thirstland Redemption Scheme. The country's largest munitions manufacturer, American by birth, presented an anonymous donation—from a British industrialist—to fund the costs of a government investigation into its feasibility. Schwarz died in 1928 while researching river basins in West Africa. But support for his scheme survived. More investigations followed, and scientists grew increasingly vocal in their rejection of Schwarz's ideas. This simply generated a backlash, revealing the depth of popular mistrust of the new and expanding scientific elite. At farmers' meetings and in letters to newspaper editors, white men insisted that such experts were completely out of touch with the realities of South African life.

The Kalahari Thirstland Redemption Scheme had counterparts around the world. White South Africans' fears for their environmental and racial future coincided with the rise of a global politics of whiteness, and a sense that European settler colonialism was hitting ecological limits. In the first half of the twentieth century, engineers, architects, and other "visioneers" proposed transforming climates and racial regimes in North Africa, Brazil, and Australia by moving and holding water on dry land.<sup>4</sup> None of these schemes ever came to pass, but the intellectual currents they reflected and nurtured are with us today.

This book excavates the popular and populist environmental and racial



ideas that circulated around the settler colonial world and informed such schemes—ideas that blended local experiences and transnational conversations, but which diverged from a coalescing body of official knowledge. It is a study of white fears, white aspirations, and the construction of white identity during a time noted for the proliferation of imagined dystopian and utopian futures.<sup>5</sup> It seeks to understand the quotidian ideas and everyday worldviews that were crucial to creating and sustaining white supremacist societies beyond the realms of statesmen and ritualized racial violence. And it argues that the environment—in both its physical and its imagined forms—has been central to the construction of the “global color line,” and the “white man’s lands” that line was designed to protect.<sup>6</sup> The perceived threats posed by both aridity and dark-skinned peoples fueled popular fears of white extinction, and spawned ideas about climatic and racial futures that challenged emerging expert knowledge.

The Schwarz scheme became part of a larger debate over how to secure white power and white prosperity in South Africa, and over what constituted rational (and, by implication, white) knowledge. In the first decades of the twentieth century, South Africa’s leaders saw industrial capitalism, environmental conservation, and scientific agriculture as the path toward a secure future. Schwarz’s supporters imagined a different path: an engineered climate and a vast country of independent white farmers that extended beyond South Africa’s existing borders. Both visions rested on segregation, but the role of white farming differed in each.

These decades were characterized by the increasing displacement and disenfranchisement of Black people, even as they began to advocate more forcefully for political rights. They were also characterized by increasing paranoia on the part of white South Africans, who argued that existing policies were inadequate to mitigate the forces threatening “white civilization.” Reading these “archives of the visionary and expectant”—the ideas and predictions that were written off as uninformed or irrational by experts—reveals forms of white environmental knowledge and racialist thought that were often at odds with experts, but circulated widely.<sup>7</sup>

The lack of historical attention to the Kalahari Scheme and its counterparts is the result of the methods and assumptions of much recent scholarship on environmental and scientific knowledge creation, white nationalism, and “high modernist” engineering projects. This literature, which has contributed enormously to our understanding of how apparently national stories have transnational dimensions, tends to rely on official archives and the writings of mainstream intellectuals, thus inherently privileging statist and elite narratives. It also tends to focus

on the origins of contemporary ideas and infrastructure, thus resulting in history being read backwards from a known endpoint. And it shares an assumption that popular knowledge is local, even insular knowledge, and that it has been gradually subsumed by global expert knowledge.<sup>8</sup> Conversely, recent writing on white racial ideas has suggested a certain homogeneity until the mid-twentieth century, when popular white nativist movements around the world diverged from political and economic elites who were making their peace with a decolonized world.<sup>9</sup>

This is an oddly racialized view of intellectual history, in which Indigenous knowledge systems continue to flourish among nonwhite communities but not among white ones. Indeed, histories of imperial knowledge often tacitly presume a binary between colonists and Indigenous people.<sup>10</sup> But neither category was in itself homogenous, and there was significant variability in what different whites “knew.” Historians’ traditional focus on scientific and intellectual elites, on ideas that dominate our present, and on schemes that were built rather than merely imagined obscures important aspects of settler colonial history—not least how race and environment have been fused in the popular imaginaries of white communities. This book suggests that both environmental and white nationalist ideas have long and heterogeneous histories.

Global schemes to transform society through transforming the climate were envisioned and popularized at a time when scientific understandings of both climate and arid lands were in their infancy. It was also a time characterized by a sense of existential crisis brought on by world war and economic upheaval, as well as racial anxieties among whites about their future on the planet. Our own time is, in some respects, not so different, marked as it is by fears of climate change, ecological limits, demographic shifts, and economic dislocation, as well as popular skepticism about experts. Moreover, a populist nationalism—often with a dose of virulent racism—has become increasingly visible in many of the same settler societies that embraced this vision of green lands for white men a century ago.

We need to understand the circulation of these other bodies of knowledge, because they continue to shape people’s receptivity to a wide range of messengers, including science skeptics, anti-elitists, and white nationalists. In *Merchants of Doubt*, Naomi Oreskes and Erik M. Conway’s powerful examination of science denialism, the authors draw connections between multiple attempts to discredit emerging scientific consensus, from tobacco’s health effects to human-induced climate change. But they cannot explain why people seem inherently willing to mistrust experts and why, as Ronald Doel put it, “lone dissenters” and “merchants of doubt” find

such an eager audience. Doel suggests that those who accept the claims of skeptics may “embrace a consistent but distinct worldview (or environmental view) about which academics know little.”<sup>11</sup> The same is true of those who today embrace white nationalist causes and who question the authority of elites and experts. These groups, of course, have transnational networks of their own. This is not a new phenomenon: we see it among the white men who for three decades advocated for Schwarz’s vision of a future South Africa.

### **Transnational Networks of Knowledge**

The proposal to inundate the Kalahari marked a moment when a growing cadre of scientific experts in South Africa was forced to confront widespread skepticism of their authority, not only among those whom they ruled without consent but also among those who were their supposed political equals. These experts, many of them trained overseas, lamented that their attempts to inform the white public about the flaws in Schwarz’s plan had the reverse effect of further entrenching popular enthusiasm. In their frustration, they characterized their opponents as misinformed, unscientific, and wedded to irrational ways of knowing the world. But popular ideas were not simply the remnant of some pre-scientific body of folk knowledge, and they were not parochial. Like scientific experts themselves, Schwarz’s supporters were embedded in a complex web of local and transnational systems of knowledge.

Over the past quarter century, scholars have explored the centrality of global networks forged by imperialism to the creation of a whole range of scientific subfields, including ecology, botany, agronomy, hydrology, medicine, climatology, and meteorology.<sup>12</sup> More recently, the spatial form of those networks has been imagined in more diverse ways, to include connections between colonies and beyond the formal bounds of empire.<sup>13</sup> Yet the focus remains on the circulation of particular kinds of people, ideas, and institutions: those centered on the state and those that are the precursors of contemporary equivalents, such as today’s botanical gardens and game parks, or models of range ecology and climate change. The actors are primarily professional scientists, usually in government employ, and other types of experts and state officials.<sup>14</sup>

This literature has offered important insights into how colonial science functioned as an instrument of power. But opposing a transnational world of primarily white experts who birthed today’s scientific practices and ideas to a local one of primarily Indigenous intellectuals creates a binary that is simultaneously spatial and racialized. It situates global networks within a progressive vision of history, overlooking those networks that



are “ephemeral and even fleeting.”<sup>15</sup> Historians who have broadened their lens to include networks of trade and consumerism, migration, and anti-colonial resistance have been able to incorporate the stories of actors who operate outside or in opposition to the machinery of imperialism. But our conception of networks of scientific, environmental, and racial knowledge among whites is still tied very closely to the imperial state.

Global white solidarity and the quest to secure “white man’s lands” emerged contemporaneously with modern science, and in much the same context. A century ago, W. E. B. Du Bois described the global nature of what he called the “new religion of whiteness,” defining it as “the ownership of the earth forever and ever. Amen.”<sup>16</sup> Recently, historians have explored the creation of the “global color line” and the unspoken racial dimensions of ostensibly nonracial ideas. Tyler Stovall argues that nineteenth-century imperialism helped entrench the idea of “freedom” as a specifically white entitlement. Where Europeans had previously been divided into responsible people with property and poor “revolutionary savages,” imperialism placed all white men in opposition to colonized subjects, thereby racializing the idea of liberty. Marilyn Lake’s study of progressivism highlights the importance of a global politics of whiteness in forging new ideas about the role of the state in securing the common good. Miles Powell demonstrates how the American conservation movement emerged out of perceived threats to white racial dominance.<sup>17</sup>

But like the histories of imperial knowledge, histories of transnational whiteness have an elitist bent to them. They are stories of how prominent intellectuals, reformers, and political leaders shaped policies that created and reinforced the color line in “white man’s lands” around the world, in the spheres of labor, immigration, citizenship, and voting rights.<sup>18</sup> To be sure, historians have grappled creatively with their sources to identify the contributions of nonwhite assistants in the development of global scientific knowledge in the late nineteenth and early twentieth centuries. These studies perform an important recuperative function. But they broaden the picture without fundamentally changing it, leaving intact the equation of global scientific knowledge and white colonial knowledge. There has been less curiosity about the white knowledge systems that deviated from that of an increasingly professionalized class of scientists and experts. As Powell notes in *Vanishing America*, “Many—perhaps most—Americans held environmental and racial views that differed radically from those of elite white men.”<sup>19</sup> We know surprisingly little about those differences in the United States or anywhere else, and we know even less about where they originated and how they were shared, sustained, and

changed over time and space. The important works that do explore white popular knowledge almost universally end their story before the late nineteenth century, leaving intact a teleology that has white knowledge, but not Indigenous knowledge, converging with scientific orthodoxy by the twentieth century.<sup>20</sup>

In the early twentieth century, popular and expert systems of knowledge might indeed differ radically, as Powell suggests, but they were more entangled than exclusive. Sandra Swart has shown how rural white intellectual worlds, even in communities historically regarded as isolated, were shaped by both global and Indigenous networks of knowledge.<sup>21</sup> Around the settler colonial world, farmers used forked sticks to find underground water, as had their ancestors in Europe, but they now insisted that science could explain their success. Several groups of South African farmers tried to recruit the California rainmaker Charles Hatfield to come to South Africa, but also wrote the US Weather Bureau and a Berkeley meteorology professor to check his credentials, while a white sheep farmer in the arid Karoo, trained as an engineer, built his own rainmaking apparatus based on what he had read about experiments in the United States and Australia.<sup>22</sup> The German farmer who proposed the precursor of Schwarz's climate-engineering scheme read John Wesley Powell's report on the arid lands of the United States, traveled to Egypt to study irrigation, and used the research of German and Russian scientists to argue for his proposal's feasibility. These engagements with a wider world all centered on a quest to secure water, whether in the form of rain, rivers, or groundwater, as a means of making white settlement more secure. It was a quest that took on renewed urgency in the late nineteenth and early twentieth centuries, as settler colonialism expanded into the world's arid and semiarid lands.

### **Dry Lands, White Man's Lands**

The environment has been a central if often only tacitly acknowledged factor in the project of empire, settler colonialism, and white supremacy. What Alfred Crosby termed "neo-Europes" were largely defined by their climate and how would-be settlers perceived their suitability for creating new societies modeled on their homelands.<sup>23</sup> But by the mid-nineteenth century, the relationship of settler colonialism and environment was changing. Many of the places that resembled "home" had been claimed and occupied. The settler colonial "explosion" that James Belich vividly describes in *Replenishing the Earth* took place in new kinds of environments—places that were, on the whole, drier than earlier zones

of expansion.<sup>24</sup> There is both a racial and an environmental dimension to this story, but the two have generally been treated separately.

Settlers are not like other migrants. They carry their sovereignty with them and seek to create self-sustaining societies in new lands. The ultimate aim of settler colonialism is not the exploitation of the Indigenous population, but its effacement and replacement.<sup>25</sup> Government policies were designed to effect this outcome even where Indigenous populations remained large, as in South Africa. Effacement could be discursive as well as physical—a failure to register the presence of Indigenous people, or an act of counting and mapping them out of existence.<sup>26</sup> This is certainly the case in South Africa, where whites were always a minority amid a Black majority. In the nineteenth century, white settlers had expected Indigenous peoples to fall away and vanish before the onslaught of white civilization, as had supposedly happened in North America and Australia. Even as it became apparent that demographic realities would be something quite different, the hope that South Africa could become a white man's land like Australia or North America survived and eventually formed the basis of "Grand Apartheid."

Making the settler presence appear natural and perpetual implied certain gender and generational as well as racial relations. A "white man's land" required not just white men, but white women and children. As Lorenzo Veracini notes, it goes almost without saying that the archetypical "pioneer," whether in North America, Australia, or southern Africa, was a white man with a white wife and white offspring to whom he could bequeath the land he claimed for himself.<sup>27</sup> A "white man's land" required whites *on* the land. This remained true even as cities swelled and "pioneers" began to be seen as part of national pasts rather than the present. In 1927, the American geographer (and future Johns Hopkins University president) Isaiah Bowman suggested that the white world remained interested in "the land question" because, among other things, "There is . . . the feeling that our kind of people ought to occupy the land of which we are possessed."<sup>28</sup>

But by the late nineteenth century, much of the land available for settlement posed a problem for this possession-by-occupation. These new lands were dry—drier than the lands settlers had come from. Aridity was simultaneously a blessing and a curse. It meant lower population densities of Indigenous peoples, and it meant that even at subtropical latitudes settlers could escape the ravages of some lethal diseases. But aridity also imposed harsh limits on white settlement. These so-called drylands are classified today using a ratio of mean annual precipitation to mean annual potential evapotranspiration. But their other major feature, which would

have been most noticeable to people at a time when it was difficult to measure evapotranspiration, is the extreme variability of precipitation. The inherent ecological variability of drylands, now understood through the concept of “disequilibrium ecology,” posed a challenge for white settlers who were accustomed to more predictable climates. It also posed a challenge for an emerging class of scientific authorities whose expertise rested on “repetition, standardization, and predictability.”<sup>29</sup>

Settler colonial concepts of what lands were or were not suitable for settlement were fluid and shifting.<sup>30</sup> Extensive propaganda and exuberant optimism supported early waves of expansion into the drylands. The US Great Plains—the famous “Great American Desert” of Zebulon Pike’s 1806 explorations—were transformed into “Nature’s great flower garden where Eden might have been.”<sup>31</sup> American land speculators shaped and reflected popular opinion when they insisted in the mid-nineteenth century that “rain follows the plow.”<sup>32</sup> In Australia, a geographer who suggested in the 1910s that the continent was too arid to support extensive white settlement faced such a popular backlash that he eventually left the country.<sup>33</sup>

In Donald Worster’s memorable phrasing, the world’s arid lands were seen in the nineteenth century as an “instrument of world economic dominance.” In the context of a settler society, this was a project to “induce settlement in an empty land, to fabricate an empire *de novo* out of yeoman farmers, miners, and manufacturers.”<sup>34</sup> Worster’s study is an American one, but it had variants in other aspiring white men’s lands. Belich tells a global version of this story, though its environmental context is only implied by the repeated expansion and contraction of white settlement into marginal lands that followed wet and dry phases. Belich is not an environmental historian, and much of what drives his narrative are the material realities of gold reefs, export markets, British capital investment, and economic booms and busts. But the effects of what amount to many individual experiences—of drought, of losing one’s home, of financial ruin—matter well beyond the aggregated economic data they generate. The stories people told about their experiences mattered. Economic busts and droughts did more than contract the zone of white settlement; they generated existential fears that were both climatic and racial in nature.

A fear for one’s continued existence denotes something more emotionally powerful than a concern with competition from Black or Asian laborers, or the financial setbacks that result from drought or global recession. Such existential fears emerged as settler colonialism began to hit limits. In her transnational history of global white identity, Marilyn Lake quotes the alarm sounded by the liberal Australian politician Charles Pearson in the

1880s: that the white race, confined as it was to the temperate zones, was running out of room to expand, and would lose its dominant position as it was “thrust aside” by “the black and yellow races.”<sup>35</sup> In his study of white supremacy in the British world, Bill Schwarz argues that ordinary white citizens expressed such fears differently from elites; they often voiced the unspeakable, articulating sentiments and ideas “on the anxious margins of the public domain.”<sup>36</sup> Those sentiments and ideas took on a particular cast in the drylands. Robert Wooding, writing about built and unbuilt water engineering schemes in Australia, argues that white citizens’ interest in such schemes rose and fell in tandem with drought conditions. Popular sentiment could swing from wild optimism about the potential of technology to conquer nature to “apocalyptic visions of decline and despair.”<sup>37</sup> These “blueprints of distress” were racial and environmental, but they are rarely explored as both.<sup>38</sup>

The vision of an agrarian frontier that offered independence and prosperity to white men of modest means remained seductive even as it was proved false in one economic bust or catastrophic drought after another. The search for technological solutions that would push past environmental limits and secure white dominance has to be understood not just as a search for profit, but as a response to these existential fears. If irrigation, controlled by the state and other powerful actors, would usher in the economic dominance Worster writes about, Schwarz’s scheme and its counterparts around the world promised something quite different: the transformation of the drylands by increasing and stabilizing their rainfall. Men did not have to appeal to the government for rain. They did not have to pay for it, or mortgage their land to a bank to get it. Rain was a democratic source of water that would allow all white men to prosper. Its leveling function was particularly important in South Africa, where drought had created a large class of “poor whites” whose low standard of living blurred racial hierarchies and undermined the myth of white superiority.

For settlers in southern Africa’s dryland environments, precipitation was the most important feature of climate. And so the story of the quest to redeem the Kalahari is also a story of grappling with climate knowledge. Climatology and meteorology have lately garnered a lot of attention from historians. Much of this work has the express intent of excavating the origins and history of our contemporary understandings of climate and climate change, and it has been extremely important in this respect.<sup>39</sup> Historians who explore popular ideas about climate that lay outside the scientific mainstream tend to focus on time periods prior to the twentieth century, before new kinds of observation technologies offered scientists access to more accurate understandings of climate and its universal



drivers.<sup>40</sup> Those who rejected this new form of knowledge are portrayed as “kooks and cranks,” their ideas representing “detours and dead ends.”<sup>41</sup> South Africa’s scientific elite would have agreed. They labeled those who challenged their authority on the issue of climate change as backward, ignorant of science, or just plain stubborn.<sup>42</sup>

But establishing this knowledge was slow work. Paul Edwards has noted that understanding the workings of the global climate is “one of the hardest challenges science has ever tackled.”<sup>43</sup> Scientists understood the general pattern of global atmospheric circulation by the mid-nineteenth century. But it took another hundred years to connect that understanding to weather patterns on the ground. And indeed, it is striking to read the accounts of South Africa’s meteorologists, irrigation engineers, and agronomists in the early twentieth century and to realize how little they understood about the drivers of the country’s weather and climate. In 1914 the chief meteorologist told a commission on drought and rainfall that the country’s rain came entirely from the Indian Ocean. It was a popular novelist and former magistrate who suggested that north-south shifts in the Intertropical Convergence Zone also played a role, reflecting a major component of our current understandings of climatic seasonality. But, he added, he also suspected that telegraph poles and lightning conductors were one cause of reduced rainfall because they caused “a leakage upwards of the electricity stored in the earth.”<sup>44</sup>

South Africa’s experts might have disdained the scientific pretensions of such popular intellectuals. But they could not tell farmers why the rains failed, or predict when it might happen again. They could not even offer an accurate picture of past rainy seasons. The government’s meteorological stations used methods of recordkeeping suited to Northern Europe rather than to the drylands of the Southern Hemisphere. Their annual records began in January, reflecting the Gregorian calendar year rather than an austral summer rain cycle that commenced in September or October. The figures were given as monthly totals, though the entire month’s rain might have fallen in just three hours. There were just a handful of stations scattered over an enormous country where just a couple of miles could separate a location that got no rain and one that received a flood-inducing deluge. Many farmers had better rainfall records than their government experts did. In short, official expertise hit its limits when faced with the variability of arid landscapes. There was nothing predictable about South Africa’s climate. But here, as elsewhere, nineteenth-century scientists had labored mightily to identify patterns in its rainfall.<sup>45</sup>

Diana Davis has demonstrated how our contemporary discourses about arid lands—particularly ideas about “desertification” and its purported

links to “deforestation”—have colonial roots. But from the start, state knowledge of arid lands was contested. In the absence of useful expert knowledge, white and Black farmers alike fell back on their own ways of understanding the world and its weather. As we will see, these ideas were not exclusively local nor global; they were entanglements of both. White farmers drew on personal experience and the experiences of those around them—including Black farmers, although it is extraordinarily difficult to trace these influences in the sources. But they also found inspiration in their fellow whites colonizing arid lands elsewhere in the world, repeating what they had heard about California, Australia, or even Soviet expansion into Central Asia. The more educated among them engaged with the world of scientists, selectively drawing from climate theories that matched local knowledge derived from experience. Nineteenth-century climate science was dynamic, and offered a buffet of possible theories. In his early work, the geographer Alexander von Humboldt had proposed that lakes helped to generate rainfall. Almost a century later, another German geographer, Eduard Brückner, sought to understand the relationship between land-based moisture and rain. Prominent US foresters suggested well into the twentieth century that forests might increase rainfall by releasing vapor into the air. These were people whom South Africa’s scientific elites and government technocrats also read. But educated farmers and government experts drew differently on their work. They did so, interestingly, in the “multiscalar” ways that Deborah Coen has identified as typical of the origins of modern climatology, but which have been overlooked by many scholars: by combining spatial scales that were global and local, in which scientists and others with “wide-ranging claims to climate expertise” interacted.<sup>46</sup>

Transforming an “empty” arid land into a greened land for white men required technology, in southern Africa and elsewhere in the world. The question was what kind of technology, and what kind of transformation. State visions tended to focus on the centralized control of water, in the form of storage dams and irrigation schemes.<sup>47</sup> But in the early twentieth century, popular visions were rather different. The North American idea that “rain follows the plow”—that white agriculture on the Great Plains was improving its climate—appealed because it promised white farmers prosperity with autonomy, a way to avoid becoming ensnared in debt and reliance on the state. The idea of increasing rainfall was a seductive one. The geographer Bowman, assessing the limits settler expansion was facing by the 1920s, lamented the willingness of Australia’s politicians and public to believe that arid lands could be densely settled by white farmers. “The hard fact remains that no amount of political ardor can increase the

rainfall. The semi-arid and arid interior of Australia will not yield to aspiration merely. Its climate takes no account of votes. . . . Money cannot invoke clouds and rain!”<sup>48</sup>

Aspirations cannot generate rain. But aspirations matter to history. The dream that technology could supersede the limits imposed by climate and demography, could enable the expansion of white men’s lands into the world’s deserts, and could engineer a society where white poverty was unknown generated racial-environmental imaginaries that had lasting consequences. David McDermott Hughes writes about white farmers in postindependence Zimbabwe who built dam reservoirs and other water features on their farms as a means of asserting belonging and ownership in a land dominated by Black Zimbabweans. But he also argues that this focus on changing the landscape allowed them to “imagine the natives away.” Similarly, Jeremy Foster argues that in the years after the formation of the Union of South Africa, whites used the landscape to imagine an all-white territory, thereby engaging in the “imaginative erasure” of Black South Africans. By the time Schwarz’s scheme was being debated, Foster argues that this vision of South Africa as “white” despite its Black majority “had become an integral part of the white worldview.”<sup>49</sup>

## **Histories of the Future**

The Kalahari Thirstland Redemption Scheme was about futures both feared and desired. Historians don’t spend a lot of time thinking about how their subjects imagined the time the historians themselves inhabit. To use Reinhart Koselleck’s terminology, our work tends to prioritize “spaces of experience” over “horizons of expectation.”<sup>50</sup> Even when we acknowledge the contingent nature of historical change, this focus on experience over expectation builds a kind of teleology into our stories. It privileges the past expectations of the powerful and, especially, of the state and its agents: those historical actors who had the greatest capacity to transform their expectations into experience, to bring forth the future they imagined.<sup>51</sup> Turning our lens toward the futures that failed to materialize allows us to see what otherwise remains hidden. People’s fears and desires come into focus, as does the spectrum of the possible as they understood it. This necessarily shifts our understanding of how they understood their present.<sup>52</sup> It also shifts our understanding of our own present, which looks less natural and inevitable when we recapture the diversity of historical people’s expectations for their future.

The past is littered with these alternative futures, the apparent dead ends of history. But their historical effects can be difficult to identify,

in part because the act of imagining an undesirable future can itself set in motion a series of actions designed to avoid its realization. For this reason, as one essay on future scenarios observes, “Predictions that today appear implausible may . . . have been the most important of all.”<sup>53</sup> Visions that were taken seriously by people at the time can seem highly improbable in hindsight. Ideas and proposals that were written off by experts as the work of isolated “kooks and cranks”—and which often appear that way to us today— may have had relevance and popular support at the time.

Focusing on these forms of future-making shifts the framing of high modernist schemes away from the elitist and institutional perspectives that dominate the study of so many built projects. Pivoting toward projects that were imagined but not built—the many “unrealized utopian projects of high modernism,” in Philipp Lehmann’s phrasing—expands our conceptual field to include those past “horizons of expectation.”<sup>54</sup> The fact that the Kalahari Scheme was not proposed by a government agency or employee and was never built allows us access to worlds obscured in the stories of the state-sponsored schemes that were constructed. The public enthusiasm for engineering the climate and “redeeming” the Kalahari reveals white citizens’ fears and aspirations for South Africa in the decades between the creation of the Union of South Africa in 1910 and the consolidation of apartheid half a century later. There were multiple imagined paths toward a “white man’s land.” As a result, the eventual outcome of a society structured around a particular kind of segregation looks less inevitable, and the grand ambitions of apartheid in the 1960s and 1970s become more comprehensible.

### **Redeeming South Africa’s White Minority**

In 1920, Ernest Schwarz published a book outlining his scheme. Its title—*The Kalahari; or, Thirstland Redemption*—reflected more than his penchant for dramatic flourish.<sup>55</sup> It rooted his high-modernist project firmly within older racial and environmental imaginaries. “Thirstland”—a direct translation of the Afrikaans “Dorsland”—was a local term for the arid lands that stretched north of the early zones of white settlement.<sup>56</sup> Schwarz rejected the term “reclamation”—used by the US government to describe its aspirations for arid lands—in favor of “redemption.” The term had religious undertones, but it also had both an environmental and a racial meaning in the United States. “Redemption” referred to restoring fertility to exhausted or waste land, and it continued to be used in the US South even after “reclamation” came into common usage in the late

nineteenth century.<sup>57</sup> It was also used by American whites to describe the restoration of white rule in the postbellum South. In Schwarz's imagined future, both the dry lands of southern Africa and its white population would be redeemed.

Historians have written extensively about the danger white poverty posed to racial hierarchies in South Africa. "Poor whites" jeopardized the supposed prestige of whites in the eyes of nonwhites, and the class differences they revealed undermined the myth of the unity of the *Volk*, or Afrikaner nation. Schwarz tapped into the fears of many farmers—less acknowledged by historians who have written about white poverty—that they were themselves one drought away from becoming poor whites. "There is hardly a farm in South Africa which is secure," he wrote, arguing that most white farmers were kept solvent through artificial pricing and other government interventions that were in turn funded by the profits from the previous century's mineral discoveries. This was a false independence and a precarious prosperity. "South Africa cannot go on living on the mines, as we are doing today," Schwarz insisted—invoking a concern, widely discussed in the 1920s, that the diamond pipes and gold seams would be exhausted in the not so distant future.<sup>58</sup>

The image of whites abandoning or being driven from the countryside reinforced a sense that South Africa's status as a "white man's land" was tenuous. White landlessness, whether seen as a cause or as an effect of poverty, portended a time when whites would no longer, in Bowman's phrasing, "occupy the land of which we are possessed." The vast historiography that seeks to explain the origins of segregation and apartheid has not sufficiently acknowledged the importance of a white countryside to a "white man's land." This is the result of an economic and urban bias in the scholarship. A liberal British interpretation that laid responsibility for apartheid at the feet of racist Afrikaner nationalists gave way in the 1970s to an economic argument that linked both segregation and apartheid to modern capitalism. Later, a cautionary note was sounded: if race could constrain as well as empower the actions of capitalists—as it surely did—it could not simply have been a tool wielded by the economic elite. Jeremy Krikler, in his call to incorporate the "primacy of the politics of white supremacy" into explanations for segregation and apartheid, encourages us to see the world as whites saw it in the first half of the twentieth century, however odious that perspective might be to us today.

For whites, racial supremacy in South Africa—unlike in the South of the USA—was always challenged by the facts of demography: whites were a



minority in a land conquered from black people. And we should not underestimate the power of this sense of being in the minority to animate policy and responses to developments.<sup>59</sup>

White workers, Krikler notes, framed their opposition to employers' policies in terms of how those policies would affect the country's white population. They spoke of "the right of existence of the White Population of South Africa."<sup>60</sup> Invoking perceived threats to "white civilization" was a strategy to get the attention of the powerful, but it also reveals that people understood racial demographics as an existential problem.

In the context of South Africa, "history from below" has meant an effort to recover the most marginalized and silenced voices: those of Black South Africans. The result, as Neil Roos notes, is that the white community has been treated as monolithic and that, with very few exceptions, elite voices have continued to stand in for everyone's voices. Roos calls for greater attention to "the culture and history of ordinary white people in a society where power and society were racialized, and for whom 'being white' was central to identity and everyday experience." Whites were not divided into those who supported state efforts to create a racial state and those vanishingly few who opposed it. Rather, there were multiple ways in which "ordinary whites related to the production, organization, and maintenance of a racist society." As Roos notes, white South Africans could be "part of the rural poor, the 'army of the unemployed,' or even the 'aristocrats of labor,'" and yet could simultaneously be "elites, bound to segregated society by the privileges of whiteness, however contested its terms often were."<sup>61</sup> To the extent that historians have looked at how such ordinary whites helped to create and perpetuate a racist state, they have largely focused on urban whites.<sup>62</sup> But rural whites had their own relationship to their racist society. They lived in a world saturated by anxiety and fear—of demographic "replacement" or "swamping," but also—and relatedly—of climatic apocalypse. For them, a countryside emptied of white farmers represented the death of civilization itself.<sup>63</sup>

After white minority rule ended in 1994, historians began to reassess how whites developed racial thinking and practiced racism. Two puzzles emerged from this reassessment. The first is that the racial theories of experts were largely irrelevant to policies or popular views. The second is that outside of a handful of intellectual elites—many of them, as Keith Breckenridge notes, virtual pariahs in settler society—whites talked surprisingly little about race. In short, for a society engineered so thoroughly around race, the engineers' views seemed to matter little, and

race seemed almost to not require discussion. Saul Dubow suggests that this is because “racist assumptions were so prevalent in the common-sense thinking” of the time.<sup>64</sup> Yet by virtue of its absence in the historical record, there has been little exploration of this “common-sense thinking.” How precisely did race figure into the quotidian perceptions of white South Africans?

Cognitive dissonance was part of everyday life and language in South Africa. As J. M. Coetzee put it, “Blindness to the color black is built into the South African pastoral.”<sup>65</sup> Whites wrote about “farmers” and meant only white farmers, or about “people” and meant only white people, despite the Black majority around them, often even on their own farms. In the gallons of ink devoted to discussing and debating Schwarz’s scheme in letters to editors and government officials, in articles in newspapers and farming journals—many of which referenced the views of whites who were not the sort to write for publication—and in government reports and self-published pamphlets and books, the existence of Africans is scarcely acknowledged. This is not unique to the sources around Schwarz; it was built into the everyday linguistic conventions of white South Africans. But the structure of the Schwarz archive, built as it is around whites’ fears of their own annihilation and their aspiration to live in a country of white men, systematically erases not just the voices of Black people but their very existence. How does one deal with this erasure? How does one responsibly write a book about it?

This book takes discursive erasure as both a problem to be investigated and a feature of whites’ horizon of expectation. It asks how a place like southern Africa—where 99 percent of the land is classified as drylands or hyperarid,<sup>66</sup> and where Black people outnumbered whites by a ratio of three to one—could conceivably be imagined as a lushly greened land of white yeoman farmers. It is a book about white people’s ideas, but those ideas are not divorced from politics and economics. The future is not a neutral space: imagining it is a way of testing, apprehending, and wielding one’s own power.

### **Toward a History of Popular Racial-Environmental Imaginaries**

The Kalahari Thirstland Redemption was not just a river engineering scheme. It was a path to a future that looked radically different from the present: a humid climate instead of a dry one, an economy dominated by agriculture instead of mining, a white population that was predominantly rural rather than urban, a country whose territory extended hundreds of miles beyond its present borders instead of being confined within them,

and a society whose demographic balance looked more like the settler colonies of North America and Australia than like the tropical African colonies to the north.

Schwarz's particular genius was his ability to read popular sentiment—to understand the deepest fears and aspirations of white society in all their complexity. British South Africans insisted that the minority status of the white population was an existential threat, and that the country needed to draw hundreds of thousands of immigrants from Northern Europe. Afrikaner nationalists argued that the problem of white poverty was the true existential threat, and demanded that it be solved before the borders were opened to white immigration. Farmers and their sympathizers insisted that agriculture had to remain the “backbone” of the country and its economy, even as capitalists invested in mining and engaged in large-scale land speculation, and manufacturing and cities boomed. Techno-enthusiasts embraced large irrigation schemes, while others claimed that they were economic boondoggles that trapped white farmers in systems of debt and state surveillance, or even that they were contrary to the will of God. A handful of paternalistic liberals insisted that “natives” needed protection and opportunities to prosper, while most whites clamored for more cheap labor and insisted that Black South Africans had competitive advantages that whites lacked. Some farmers embraced the “modern” farming methods promoted by agricultural experts, while others insisted that the methods were too costly to be economic, and challenged expert claims that traditional farming practices caused environmental harm.

Remarkably, Schwarz took these divergent social imaginaries and forged them into a coherent whole. His scheme would solve the problems of white poverty and white minority status. It would restore agriculture to its rightful place and produce wealth to diversify the economy. It would radically reshape the landscape, but would do so using simple technology to restore a past equilibrium that had been lost through geological happenstance; at one point Schwarz suggested that a mere pile of logs would be sufficient to turn the Chobe River inland. It would render white farms profitable without compromising Black subsistence. It would create a white countryside without depriving farmers of their cheap Black labor force, which would remain conveniently available yet not an integral part of the white nation. And it would allow a modernization of farming that protected white farmers' independence from the forces of capitalist exploitation. Most of Schwarz's supporters did not embrace every aspect of his scheme; they picked and chose from this package based on what most spoke to their concerns or to their assessment of the problem. And no one asked too many questions about the

place of Black labor in a white man's country. Indeed, the uncertainty over the project's feasibility was its strength, lending it a "mobile and mutable" quality.<sup>67</sup>

Overarching everything was a shared sense that the racial order would have to be based on some form of racial separation that resulted in a country that was white. As historians have noted, segregation was a fuzzy concept in the first half of the twentieth century, meaning different things to different people. But, like the apartheid system that grew out of and superseded it, segregation is a spatial concept. Space is racialized in a segregated society. White leaders and intellectuals across the political spectrum recognized that segregation, meant to make white supremacy a reality, required more land: more for Africans, who sought to leave reserves that could not sustain them; more for "land hungry" whites—decommissioned soldiers, young people—who wanted to farm but found the cost of entry prohibitive; and more for "poor whites" who lacked skills to fill jobs in the cities.<sup>68</sup> When Schwarz suggested creating conditions for denser agrarian settlement in South Africa and opening new lands to white settlement beyond South Africa's borders, he was not completely out of step with mainstream thinking. Politicians and agronomists alike advocated for "closer settlement" of whites in rural areas. South West Africa (now Namibia), granted to South Africa as a class C mandated territory in 1919, was seen by successive South African governments as a possible solution to its problem of poor and landless whites.<sup>69</sup> Prior to 1923, many hoped that Southern Rhodesia (now Zimbabwe), also a white settler colony, would be incorporated into South Africa. And from the earliest negotiations over creating the Union of South Africa until the 1940s, the possibility was left on the table that the "high commission territories" of the Bechuanaland Protectorate, Swaziland, and Basutoland—modern-day Botswana, Eswatini, and Lesotho—would be incorporated into South Africa.

Schwarz suggested that the Kalahari was the perfect laboratory for segregation, a place where "natives" and whites could remain apart. "The country is so vast," he assured readers, that southern Africa's Black residents "need not come in contact with the white settlements at all."<sup>70</sup> Schwarz was not just promising his fellow white South Africans a world in which their position as the dominant race was beyond question; he was conjuring a future in which whites could simply ignore the existence of the Indigenous majority. In short, South African whites would enjoy the same luxury as many of their counterparts in North America and Australia. They would get the kind of settler society that seemed to have faded from historical possibility by the twentieth century. But it would require a wetter climate to make this world a reality.

## Outline of the Book

Schwarz was born and educated in London amid two revolutions. The first was a transformation in scientific understandings of the planet's geological and climatic past; the second was a "settler revolution" that drew large numbers of Europeans and their descendants into the world's arid lands. Chapters 1 and 2 situate the Kalahari Thirstland Redemption Scheme in this global context. Chapter 1 explores how these two revolutions came together to shape Schwarz's life and career. Late nineteenth-century explorers and would-be farmers encountered a variety of arid landscapes containing dry river and lake beds, signs of water-based erosion, and marine fossils. This evidence of previously wetter conditions raised urgent questions about the climatic past and future. Chapter 2 explores the formation of a cosmopolitan narrative about the importance of surface water in the regulation of climate. By the time Schwarz arrived in South Africa in 1896, white settlers and some geographers had married emerging scientific ideas to their own experiential knowledge. They argued that the world's arid environments were desiccated ones whose water had drained away, and that restoring that surface water would also restore the rainfall. In South West Africa, German colonist farmers and officials, influenced by these ideas, argued that creating a viable settler colony would require river diversion and climate engineering. They proposed the precursors to Schwarz's scheme.

Chapters 3 and 4 examine the local dimension of these transnational ideas about aridity and rain. Public support for Schwarz's scheme rested primarily on its promise of increased rainfall. Chapter 3 looks at the vernacular climate ideas of white South Africans, who generally believed that rainfall was declining, and asks why experts devoted so much energy to trying to refute this belief. Conversations about climate are also conversations about the future—our own continued existence in the world—and about morality and responsibility. They reflect larger concerns about the nature of social and political orders. Chapter 4 focuses on how white fears for their continued existence in a majority-Black country intersected with the climate-change fears discussed in chapter 3. The specter of a countryside emptied of white people generated a "back to the land" movement that sought to increase white immigration and "redeem" the poor white population. But the quest to place large numbers of whites on the land foundered on the economic and ecological limitations imposed by aridity and rainfall variability.

Chapter 5 brings together the environmental and racial ideas explored



in earlier chapters by examining the role of water in engineering a white man's country. Public enthusiasm for the Kalahari scheme reflected not just vernacular environmental knowledge but also a pervasive faith in the power of science and technology to solve any problem, and an assumption that it was the job of the state to secure the prosperity of white farmers. White citizens flooded government offices with ambitious and occasionally fantastical schemes to move water across the landscape and engineer white agrarian prosperity—demonstrating not just faith in technology but a belief that the natural world was inherently hostile to the project of settler colonialism, and that a radical remaking of the environment was the only means to secure white safety and power.

Chapter 6 turns to the debate over the Kalahari Thirstland Redemption Scheme in the 1920s. It weaves together the threads explored in the previous chapters—fantasies about the Kalahari and its hinterland, popular beliefs about arid environments and climate change, fear of the African majority, and a utopian faith in technology—to show why there was such deep and lasting support for Schwarz's scheme. Public calls for a government investigation of the scheme were answered in 1925; but a highly critical report, and Schwarz's sudden death shortly thereafter, did little to dampen public enthusiasm. Chapter 7 considers the reasons for this sustained enthusiasm in the two decades after the government's initial investigation. It shows how popular constructions of white innocence and popular ideas about the requirements of a white man's land were partially incorporated into expert thinking and government policy as the country moved toward more radical forms of segregation.

Schwarz's scheme was never built. But by the 1960s, some aspects of the world he had promised his supporters had become reality. Chapter 8 concludes the book by linking the social and environmental engineering projects of "Grand Apartheid" both within and beyond South Africa to the popular ideas about racial and environmental futures that had been mobilized under the banner of Kalahari Redemption. In the epilogue, I consider what new evidence has concluded about the climate of the early twentieth century. And I examine the parallels between Schwarz's South Africa and the rise of climate skepticism, geoenvironmental enthusiasm, and resurgent white nationalism today. The story of Schwarz's unbuilt scheme is a story of how popular ideas and populist demands reoriented political and scientific elites' understanding of possible and desirable futures. It is a story of how fears of racial "replacement" and suspicion of experts resulted in concessions to rural whites at the expense of the Black

majority—and about the origins of popular support for racial partition that took distinct forms under Grand Apartheid in the 1960s. And it is a story of how an increasingly racist state came to embrace technology as a solution to ecological problems that had their origins in political and economic inequalities—and how, in the process, it further entrenched those inequalities. It is a cautionary tale for our time.