

of Brazil's whispers that Bahia's leading families had intermixed so much with the *gente de cor* during the heyday of slavery, the Bahians seized the conflict as a way to demonstrate their commitment to continued progress on the European model."³² In this way, European immigration became the deliberate substitute for either developing the sertão and/or letting the northern poor move southwards.

As a result, scientific racism helped create the mother of all dual labor markets. "The highly elastic supply of labor from overseas meant that output could expand at a rapid pace in Brazil's advanced sector without raising the wages of workers in the rest of the economy."³³ By 1889 the British consul in Pernambuco reported to London "that labor there was cheaper than anywhere in the world except in Asia."³⁴ As Celso Furtado famously argued, the Nordeste, following the pattern of previous export booms and busts in Brazilian history, regressed on a diet of super-cheap labor. As in Victorian India or late Qing China, the glut of labor-power created massive disincentives to productivity-raising capital investment (the usinas being a partial exception). "This economic 'involution,' as Furtado called it, was the opposite of development because each historical export boom until coffee (brazilwood, sugar, gold, and contemporaneous with coffee, rubber) led to retrogression, not to sustained growth."³⁵

Ecological Decline

Since the emergence of the great *fazendas de gado* in the late seventeenth century, the ecology and economy of the sertão repeatedly have been reshaped by El Niño droughts. The "Leather Age" of the eighteenth century, when fazendeiros made legendary fortunes selling their longhorned cattle and *carne do Ceará* (dried beef) to coastal sugar plantations and the gold mines of Minas Gerais, was brought to an end by the terrible drought of 1791-93, which decimated the semi-wild herds. Some of the big fazendeiros clung to their feudal domains, while others moved to the coast and became absentee landlords, but even more let their cattle ranges be broken up into impoverished shards.³⁶ The ecology of the sertão was ill-suited to the pressures of many small, marginal ranches. "As a matter of fact," Kenneth Webb has argued, "the sertão is not really very good for cattle," but was adapted to this use when the herds were forced out of the zona da mata by the sugar boom. The productivity of the sertão with its scant forage was notoriously low.

"The carrying capacity of the land was determined not by how many head of cattle were supported by one hectare of *caatinga*, but rather how many hectares of land were required by one beef critter."³⁷ A typical ranch of 1,000 hectares, for example, might sustain only 50 scrawny cattle; and even the biggest fazendas (10,000 hectares or more) rarely pastured herds larger than 1,000.³⁸

In the early nineteenth century, large numbers of subsistence farmers and laborers as well as fugitive slaves, mostly from the adjacent *agreste* of Pernambuco or Bahia, began to move into the sertão for the first time. "Agriculture required little or no investment," writes Chandler in her study of the Ceará sertão of Inhamuns, "and although it was even more susceptible to the disastrous effects of droughts than cattle, recovery was much easier."³⁹ The vast northeast interior became a frontier safety valve for the social contradictions of the coastal slave economy. "The sertão absorbed the surplus population of the zona da mata during the stagnant periods of the sugar industry, and benefited from the labors and energies of those who, for economic, psychological, or whatever reason, could not integrate themselves into the famous *casa grande e senzala* sugar culture."⁴⁰ Between 1822 and 1850, the Empire officially supported this immigration by recognizing homestead claims on land formerly belonging to the sertão's fast-disappearing indigenous peoples.

As the greatest twentieth-century authority on Nordeste agriculture, José Guimarães Duque, has emphasized, most of the new settlers brought labor-intensive, midlatitude farming techniques ill-suited to the dry tropical climate and infertile soils of the sertão.⁴¹ This 650,000-square-kilometer region – Euclides da Cunha pointedly named his famous book *Os Sertões* rather than *O Sertão* – encompasses a stunning variety of landscapes and local climates. But only the fertile bottomlands along the rivers corresponded to the immigrants' experience and these were monopolized by the cattle fazendas, their orchards and loyal tenants. So the newcomers moved into the humid *serras* (uplands). These hilly soils gave good harvests for a year or two, but quickly lost their fertility. After tragic trial and error, they eventually adapted a semi-nomadic swidden style of agriculture: two years of cultivation followed by eight years of fallow and cattle-grazing.⁴² But population pressure eventually forced thousands into the dry sertão or *caatinga* – characterized by shallow rocky soils and spiny cacti – where ownership was unestablished or where they squatted at the pleasure of the big fazendeiros

whose gunmen might remove them at will.⁴³

After the termination of legal squatting in 1850, most new immigrants to the sertão simply became *parceiros* (sharecroppers) on fazenda land. Although the backlands were still popularly identified with the picturesque figure of the free-ranging *vaqueiro*, the great majority of the population by midcentury were threadbare subsistence farmers, *parceiros* or migratory *agregados* (day-laborers). "In the mid-nineteenth century," estimates Levine, "certainly less than 5% and probably less than 1% of the rural population owned land."⁴⁴ These poor *sertanejos*, unlike the slaves of the zona de mata, were nominally free men, but access to land and water was as tenuous as the life of a laborer confronted by the *capangas* of an angry landowner. The most powerful fazendeiro in each rural município typically held the rank of "coronel" in the old imperial Guardia Nacional, and the system of boss-controlled voting and elite violence, which originated in the coastal sugar plantations then spread to the fazendas, became known as *coronelismo*. It was the "essential partner to economic exploitation, allowing landlords to squeeze the maximum possible surplus from their work-force, eliciting submissiveness and crushing any resistance or attempts to challenge their monopoly over the land."⁴⁵ As Hamilton Monteiro has emphasized, high levels of routine violence – whether between squatters and fazendeiros or between competing elite *parentelas* – organized and directed the relations of production in the Victorian sertão.⁴⁶

The slow deterioration of the landscape under the pressure of overgrazing – visible since the late eighteenth century – was accelerated by the slash-and-burn agriculture of the rural poor who cultivated maize, beans and manioc. "In the caatinga especially, impermeable, crystalline rock formations are common, which slope towards the rivers, facilitating rapid run-off, soil erosion, silting up of rivers and evaporation."⁴⁷ Poverty became synonymous with the lack of water and clear title to the land. A small number of big fazendas, the enduring centers of oligarchical power, monopolized the perennial water sources and were usually well protected from drought, but the rest of the population in the *semi-arido* was pitifully dependent upon the erratic rainfall. Every year the sertanejo made a desperate wager with a devil we know as El Niño.

The lives of all the dwellers of the backlands were inescapably linked to the fluctuations of the seasons, but none so closely, hence so vulnerable, as the small subsistence farmer. In November and December he would burn off the dry stalks remaining from the previous season, preparing to plant his beans, corn, and manioc in the ashes of the previous crop; if the land had yielded poorly the past year, he might move to a new location. When the first rains arrived, usually in January, he would plant his seeds and hope for their continuance.

In seasons of relatively light rainfall, those able to plant in the *baixos* [pockets of rich soil in streambeds] were better off than those on the higher ground, but they ran the risk of losing their crops to flash floods which might sweep down the creekbeds without warning with heavy local showers upstream. If heavy showers came before the seedlings had taken firm hold, they would be washed out; frequently, plants sprouted only to wither as the rains stopped. In such cases, the farmer would plant again, and if necessary, a third or fourth time. Exhibiting astonishing tenacity and patience, he would plant time and time again, reserving only a minimal stock of seed for food until the harvest.

At intervals, the rain would fail completely, or hold off so long as to make a successful harvest impossible. Only then would the stubborn backlands farmers leave their homes and move toward the better-watered hills, the coast, or, as a last resort, to the towns and cities like "... so many errant ants hunting food wherever they could find it, crossing and recrossing the roads and on them meeting others in similar condition." In the towns they would seek work, or failing that, surrender their pride and beg, but only until such time as they could safely return to their plots of ground.⁴⁸

The drought-famine of 1825, which killed 30,000 in Ceará alone, exposed the full ecological precariousness of the sertão's hybrid cattle and subsistence farming economy in the absence of systems of water storage and irrigation.⁴⁹ It caused "such widespread mortality and human dislocation," according to Cunniff, "as to alter radically the settlement and economic patterns of the region." In effect, it revealed that the biological endowments of the sertão were being dangerously mined out. "Cattle were grazed beyond the areas of natural pasture, into the previously shunned arid land and onto the wooded hills, where they came into conflict with the similarly expanding agriculture of the slopes." What cattle on the overstocked ranges did not eat up was quickly stripped away as firewood or fodder by squatters. The infinite network of cattle trails worn into the sterile, friable soil accelerated erosion. In the classic pattern, as the sparsely wooded hillsides were denuded, runoff increased while water tables and springflows declined. It

was evident both to the sertanejos themselves as well as the occasional foreign visitor that they were desertifying parts of the backlands and probably altering the climate as well. Some dreamed of a vast irrigation network of wells, dams and reservoirs; others envisioned reforestation "as the route back to the mythical once-verdant sertão."⁵⁰

But there was no source of investment to stabilize or reverse the sertão's ecological decline. The backward cattle industry, little changed since the seventeenth century, supported the autocratic power of the local *coroneis* but failed to generate an accumulable surplus for irrigation works had such inclinations towards improvement existed amongst the sertão's oligarchs. Even on the great fazendas, hydraulic engineering consisted simply of shallow wells (*cacimbas*) in creek beds that were dug by hand every May as the surface waters dried up. The few small reservoirs actually built during the nineteenth century were so unusual as to become objects of local awe.⁵¹

As discussed earlier, the capacity of any layer of government to sponsor irrigation works was constrained by what might be called "triple peripheralization": the underdevelopment of the Brazilian financial system vis-à-vis British capital; the Nordeste's declining economic and political position vis-à-vis Sao Paulo; and the sertão's marginality within state politics vis-à-vis the plantation elites of the coast. Politicians endlessly proposed irrigation schemes, but none were built. Ironically, the State's impotence to develop the sertão was inverted by the littoral elite into the racist caricature of the indolent, backward sertanejo.

The Cotton Boom

The socio-ecological crisis in the backlands was temporarily hidden from view (as in India and Egypt) by the cotton boom that accompanied the US Civil War. The abdication of the irrigation debate, as Cunniff points out, had ultimately fatal consequences. "Ironically, the most prosperous period in the history of the sertão was to compound the errors and continue the trends of the previous years; the relative affluence of the 1860s was in large part responsible for the horrors of the 1870s."⁵² A drought-resistant variety of arboreal cotton was introduced in the sertão and exports to English textile mills from the port of Recife increased from 165,265 kilos in 1845 to nearly 8 million kilos in 1871.⁵³ Prices almost doubled from 885 reis in 1861 to 1,600 reis in 1863, and "the cotton boom at its zenith

Table 12.2
Rise and Fall of the Sertão Cotton Boom

	Pernambuco		Ceará	
	Kilos Exported	Price	Kilos Exported	
1860	1.3 million	—	0.8 million	—
1862	2.8 million	—	0.7 million	—
1864	8.4 million	1.00	1.0 million	1.00
1866	18.2 million	.62	2.1 million	.74
1869	15.2 million	.71	—	.49
1871	16.8 million	—	7.3 million	.35
1873	15.2 million	.47	5.1 million	.35
1875	11.1 million	.35	5.8 million	—
1877	2.6 million	—	0.6 million	.24

Price: 1864=1.00

Source: Adapted from data in Cunniff, Table II-1, p. 81 and Johnson, *Sharecroppers of the Sertão*, Table 1, p. 20.

reached into nearly every corner of the sertão."⁵⁴ The mirage of prosperity was reinforced by the remarkable absence of drought between 1845 and 1869.

But high cotton prices were only a magnet that attracted yet more "landless, directionless subsistence farmers" to the backlands. The labor required during the short vegetative cycle of cotton did not amortize the annual subsistence cost of slaves, so it was usually cultivated by free labor.⁵⁵ "Although it is evident that some larger landholders turned to cotton, it was essentially the crop of the poor, who had no previous agricultural investment to hinder their plunge into its culture." As workers deserted the plantations of Pernambuco for the cotton frontier of Ceará's Cariri valley, the sugar barons complained bitterly about the growing labor shortage.⁵⁶ By 1876 the poorest stratum of the sertão social order, the landless *agregados*, comprised fully 40 percent of the population of Ceará (epicenter of the 1877 drought).⁵⁷

Although it should have been evident after Appomattox that high-quality US cotton would soon flood the world market, the Cotton Supply Association of Manchester, whose overriding interest (as we saw in Berar) was a permanently overstocked buyer's market in raw cotton, fiercely lobbied Brazilians to bring even more acreage under cultivation. Before long, however, the return of short-

staple Southern cotton drove down the price of the varieties that Manchester had promoted so zealously in Egypt, India and Brazil. Desperate sertanejos tried to compensate by producing yet more cotton. But as cotton patches blossomed in the most remote corners of the sertão, the producers were caught in a vise between falling world market prices and high, rigid costs of overland transport to the nearest river ports. Unlike India, the Nordeste lacked a railroad infrastructure, and unlike China, which also suffered from transportation bottlenecks, it lacked a huge domestic market to encourage value-added cotton handicrafts. The only hope for saving the sertão's cotton industry was a crash program of railroad and road construction in the interior. As Cunliffe explains, the imperial government toyed in the late 1860s with a plan to build a railroad from Ceará's capital of Fortaleza to the major cotton center of Uruburetama, but the project was abandoned in 1868 after the completion of a only few kilometers of track. As with irrigation, there was neither state capacity nor obvious foreign interest to take up the challenge of developing the sertão.⁵⁸

By 1869, when a new drought devastated subsistence crops in many parts of the backlands, the same British cotton buyers who had orchestrated the boom a decade before were rejecting the Nordeste's "inferior," "poorly processed" cotton shipments. The sertanejos – once again pariahs – had nowhere to turn. "From subsistence farmers and herdsmen, a large proportion of backlanders had been converted into the marginal commercial farmers and agricultural laborers existing in an extremely precarious economic state, more vulnerable than ever to sudden crisis by virtue of the fact that their traditional ties to the large landholders had been greatly weakened or broken."⁵⁹ As in north China, the commercialization of agriculture in the sertão had less to do with seedlings of rural capitalism than with increased social and ecological marginality.

To make matters worse, the overextension of cotton cultivation during the 1860s had been matched by the expansion of the cattle population: from 1.2 million in Ceará in 1860 to 2 million in 1876. Like the pauper cotton-growers, the fazendeiros had recklessly increased the size of their herds, despite legislation attempting to stabilize land/cattle ratios, to compensate for falling beef and leather prices. Soil degradation and erosion were accelerated. Moreover the combined pressure of cotton and cattle on the soil left less room for traditional subsistence crops, and Cunliffe finds indications that the Nordeste "was entering a

period of famine even before the great drought devastated the area." The epidemiological evidence includes the appearance of beriberi in Ceará and Paraíba in 1872 – attributed to the sertanejos' increasing dependence on cheap, poorly milled rice imported from India – as well as outbreaks of smallpox, cholera and yellow fever.⁶⁰

The international shockwaves from the collapse of the US railroad boom, which inaugurated the depression of 1873–79, reached the sertão in 1874. "The most drastic deflation in the memory of man," it depressed even further the prices of the agricultural exports that were now the faltering livelihood of agregados as well as fazendeiros. The small trickle of domestic credit, inadequate even in boom times, dried up completely. "By the end of the year the majority of banks [in the Nordeste] suspended loans. In 1875 the Banco Maua begged for a moratorium, while the Banco Nacional stopped payments and the director of the Banco Alemão committed suicide. There was no way to control the ensuing panic."⁶¹

The provincial governments, meanwhile, were wrestling with public debts they could no longer finance. At the edge of default, several provinces, led by Pernambuco, imposed onerous taxes on foodstuffs sold at regional fairs. This despised legislation fatefully coincided with simultaneous efforts by the imperial government to introduce the metric system and reinforce conscription (a measure that was widely feared as an attempt to "enslave" freedmen). The resulting explosion was known as the Quebraquilos ("smashing the kilos") revolt. Throughout the agreste and sertão regions of Paraíba, Pernambuco, Rio Grande do Norte and Alagoas, armed crowds systematically destroyed decimal weights and measures and burned tax records.⁶² The revolt was finally crushed by imperial troops, forcing many rebellious sertanejos to flee into the hills where they became *cangaceiros* preying on the fazendas and towns.⁶³ Thus, on the eve of the Grande Seca, local government in the Nordeste was bankrupt, malnutrition and beriberi were widespread, rioting had broken out in some of the towns, the poor were pillaging fazendas, and banditry was the only growth sector in the economy.

The Irrigation Charade

Large northern landowners, needless to say, welcomed the emergence of this overstocked labor-supply without realizing that they were, in effect, embracing their own underdevelopment. Indeed, as we have seen, they protested violently

against anything, like Conselheiro's saintly and autarchic city of Canudos, that appeared to threaten their abundance of labor. Elsewhere such a surfeit of immiseration might have produced a social revolution, but the northeastern littoral had the vastness of the sertão as a social safety-valve. Indeed, from the 1870s onward, the Nordeste was effectively capitalized on the fluxes of labor between the backlands and the coast. Potentially explosive accumulations of poor and unemployed laborers in the littoral were diverted into the subsistence economy of the sertão, then periodically regurgitated towards the coast by drought. The sertão, in effect, provided welfare for the poor, while drought guaranteed that desperate laborers would always be available to depress wages on the coast. Even in the Ceará sertão, virtually depopulated by the great secas of the 1870s and 1890s, local oligarchs as we have seen were able to find profit as labor contractors for Pará and Amazonas.

Thus while the coroneis had the most avid interest in "drought relief" (which they largely intercepted), they were little disposed toward any real development or ecological stabilization of the sertão. The all-out national mobilization to destroy Canudos was in stark contrast to official apathy over the fate of sertanejos in the four successive El Niño droughts between 1888 and 1902. The great domestic debate of the 1890s, symptomatically, was not over arresting the decline of the Nordeste, but between Paulistas who urged more state spending in the southeast and the opposition, which wanted to bolster Brazil's international credit after the milreis lost half of its value to runaway inflation between 1892 and 1897. The Rothschilds rescued the government in 1898 with a £10 million loan in return for a surcharge on import duties and a deflationary budget that left no spare change for public works.⁶⁴

The economic and political hegemonies, respectively, of the British and the Paulistas, plus the northeastern oligarchs' deepening investment in their own underdevelopment, thus explains much of the structural context of the century-long burlesque of "irrigating the sertão." In the wake of successive El Niños, national commissions and visiting foreign irrigation experts drew up sweeping, never-implemented plans for stabilizing agriculture and human settlement in the backlands. The few hydraulic projects that were actually built, beginning with the Acude Quixada reservoir in Ceará in 1899, "stored water which benefited large landowners and protected their cattle by providing pasture and watering facilities

but ... left most of the low-income agricultural population untouched."⁶⁵ Only 500 hectares of the sertão had actually been irrigated by 1941, and twenty-seven years later, when a military dictatorship worried about possible Guevarist *focos* in the Nordeste hired Israeli consultants to conduct the first comprehensive irrigation survey, conditions of life for millions of drought-stricken and immiserated sertanejos were little different from the days when Conselheiro and Cícero first preached Apocalypse on the backroads of Ceará.⁶⁶