

CHAPTER 2

Revolution and Regulation, 1910–1928

The epic revolution of 1910–1917 swept away the Díaz regime and along with it the conviction that whatever was good for the oligarchy was good for Mexico. Conflicts between villagers and landowners accentuated revolutionary violence in some areas, though access to forests rarely figured as a major source of the hostilities. Revolutionary warfare devastated thousands of families and hundreds of townships. By most estimates, a million people lost their lives or were displaced.¹ The revolution brought extreme hardship to some regional economies, while the business environment in others survived nearly unscathed, as the heaviest fighting occurred primarily on the central plateaus and unforested plains. After the guns had gone (mostly) silent, the nation's new leaders used the scale of destruction and violence as one justification to rebalance the relationship between the government and the governed. Historians have long recognized that postrevolutionary governments promised land reform, state support for labor unions, the expansion of education, anticlericalism, and the nationalization of key industries, but they have paid less attention to another fundamental aspect of this project. The postrevolutionary state staked its authority to dispose of the nation's natural resources (including water, soil, forests, and eventually minerals and hydrocarbons) on the basis of its capacity to manage them rationally.² Political leaders of the 1920s intended not only to assert sovereignty over Mexico's natural resources, but also to control their use through the application of scientific and ultimately conservationist concepts.

Armed with the revolutionary imperative of rational management, a newly empowered cadre of experts argued that the conservationist project should begin with the forest products that could help reconstruct the nation's economy after nearly a decade of warfare. As Miguel Ángel de Quevedo observed, "High levels of development would result from the use of scientific knowledge and ever more perfected techniques for the exploitation of natural resources."³ Nevertheless, experts like Quevedo

continued to worry that uncontrolled logging and deforestation would harm society by changing the hydrological regime.⁴ The revolution had also caused a spike in rural-to-urban migration, making forests more critical than ever in public-health initiatives because, as Quevedo argued, woods had the capacity to act as “veritable filters of the unhealthy atmosphere.”⁵

The revolution had changed the political calculus in other ways as well. Conflicts over forestlands may have played only a tiny role in the war, but the instability of the revolutionary years accentuated existing tensions in the woodlands and sparked some new ones. In Michoacán, the relative anarchy of the 1910s allowed some villagers to occupy lands they claimed as their own, but it also allowed timber companies to intensify existing operations and expand into new areas. These sorts of agrarian conflicts surfaced less frequently in northern states like Chihuahua, where unrest exacerbated tensions between foreign-owned logging companies and their largely Mexican workforce. Scientists could do little more than watch these encounters unfold, since the revolution battered and eventually destroyed the tiny forest service they had pieced together in the early 1900s.

Once the violence subsided, in 1917, it became clear that the rationalizing logic of natural-resource management conflicted with postrevolutionary initiatives such as agrarian reform. How could forests be used conservatively in the national interest when land reform delivered them to villagers who neither understood nor necessarily benefited from the precepts of scientific management? Resolving this dilemma lay at the heart of postrevolutionary forestry. Scientists initially suggested that agrarian reform should not include the woodlands at all. When that proved politically untenable, they proposed a series of measures, ultimately compiled in the 1926 forestry code, that required land reform beneficiaries (indeed all peasant producers) to form producers cooperatives governed by scientific principles. The law strove to achieve a Solomonic compromise that allowed rural people access to forest resources provided that they adopted modern practices subject to expert scrutiny. As in the case of India explored by the historian Ramachandra Guha, Mexican scientific management not only aimed to preserve ecosystems but also to allow scientific conservationism “to reorder both nature and customary use in its own image.”⁶

The law had little initial impact. Forestry officials struggled to implement the new regulations, and few rural people even knew that they existed. For the rural poor, agrarian reform and the chance to acquire their own lands mattered far more than learning the finer points about forestry regulations. But the legislation provided a glimpse of bigger things to

come. It envisioned the means for land reform beneficiaries to work their own woods and even contemplated making them the central actors in the development process, but it also included paternalist oversight measures that gave forestry experts significant new authority. It represented a first step in a process that ultimately created bureaucratic forms that poor rural people neither welcomed nor fully comprehended until it was too late to preserve a major element of their revolutionary patrimony.⁷

REVOLUTIONARY LANDSCAPES

The successive waves of warfare that overtook Mexico between 1911 and 1915 did not originate with a cataclysmic popular uprising or middle-class revolt against the injustices of the Díaz dictatorship, much less against the export-oriented economic strategy that gave foreigners such a visible role in Mexico's most lucrative industries. The revolution began as a relatively narrow political competition between the aging dictator and a younger generation of ambitious politicians who drew much of their support from downwardly mobile sectors of the middle class. The proximate cause of the political crisis was the contested presidential election of 1910, which allowed the landowner Francisco I. Madero to threaten Díaz's political supremacy for the first time in a generation. Faced with electoral fraud and his own brief imprisonment, Madero called for an armed revolt that eventually inspired brief rebellions led by Pascual Orozco in Chihuahua and Emiliano Zapata in the south-central state of Morelos. The northern uprising succeeded almost before it began. A trio of highly visible military setbacks culminating with the siege of Ciudad Juárez in May 1911 convinced Díaz to turn power over to a caretaker administration and head into exile.

Up to this point, the revolution did not substantively differ from the sort of minor uprisings (also called "revolutions") that had removed dozens of unpopular presidents from office in the preceding century. Following that well-worn script, Madero took office in November 1911 and began making some modest political reforms. Yet his own presidential campaign in 1910 had awakened expectations for more thoroughgoing change among urban and rural workers, the educated but poor professional classes, and some members of the elite. Unable to mediate among these demands, Madero soon proved to be a giant with lead feet. He failed to win the allegiance of most landowners and military officers, and he alienated his former allies, Orozco and Zapata. In early 1913 the army chief of staff Victoriano

Huerta capitalized on Madero's growing unpopularity to carry out a military coup, during which the president and vice president were summarily executed. The assassination converted Madero into a martyr despite his travails as president. Three governors from Mexico's far north, along with the Zapatistas in Morelos, refused to recognize Huerta's administration. Invoking both the memory of Madero and moral principle (agrarian justice in the case of Zapata; the rule of law for the northerners), a new round of revolutionary violence gradually took on a life of its own. Northerners such as Pancho Villa joined together as the so-called constitutionalist faction of revolutionaries led by the landowner Venustiano Carranza. Aided by Zapata's peasant army in Morelos, the constitutionalist forces overran the federal army and forced Huerta into exile in July 1914. At that point, the fissures that had always existed within the revolutionary coalition grew wider, and the lack of a common enemy drove the former constitutionalist allies into outright warfare against each other. For the next year, the victors squared off in the final and most deadly stage of the war. The end came with startling suddenness in the summer of 1915, as Carranza and his allies managed to subdue (though not completely obliterate) the armies of Zapata and Villa. Carranza had effectively won the war by that fall.

Military commanders struggled to channel popular discontent into useable military manpower, and most revolutionary factions (apart from the Zapatistas) sought to place limits on spontaneous uprisings. Nevertheless, the revolution clearly drew much of its strength from the discontent of workers and peasants. Most villagers resented the dispossession of their lands during the Porfiriato, and they expected revolutionaries to do something about it.⁸ Both urban and rural workers suffered from Díaz's anti-unionism, which they blamed for making their livelihoods more precarious during the economic downturn in the final years of the Porfiriato.⁹ In some instances, workers resented how the foreign corporations treated them, occasionally lending a nationalist element to the litany of popular-class complaints against the prerevolutionary order.¹⁰

Social tension also rippled through the woodlands. Foreign companies had secured the most lucrative concessions in the southern mahogany zones and the commercial forests of the central and northern states, and they reaped impressive profits while some Mexican entrepreneurs languished. While mahogany lumberjacks endured a form of debt peonage that approached slavery, workers in the pine-oak forests of the center and north teetered between gratitude for having jobs and resentment at doing backbreaking work at the behest of Gringos. The booming market for wood

products also led timber companies to encroach on village woodlots and dispossess communal property, forcing the rural people into more precarious forms of subsistence agriculture or into the labor market. The loss of woodlands was a common theme in agrarian revolts such as the one in Morelos. The Plan of Ayala, which served as the Zapatista manifesto, traced villagers' anger to hacienda landowners' usurpation of "lands, woods, and waters" [*los terrenos, montes y aguas*]. The Zapatistas succeeded in redistributing land while they controlled Morelos, albeit temporarily, but it is not clear what they did about forests.¹¹ In San Luis Potosí, where the Cedillo family declared their affinity with Zapatismo and mobilized peasants to fight in the revolution, a small ad hoc land reform did return the communal woodlands that villagers had lost during the Porfiriato.¹²

In Mexico's southernmost state of Chiapas, revolutionary unrest broke the hegemony of logging companies that extracted mahogany by forcing lumberjacks into debt and sending them into prison-like logging camps known as *monterías*. Constitutionalist troops in the "Usumacinta Brigade" marched into the Lacandón forest in 1913 and traveled from settlement to settlement confiscating cattle and other goods, and leaving the sawmills in ashes. They organized unions in at least a few camps, but most workers just slipped away once the soldiers canceled their contracts. As one woodcutter later told the historian Jan de Vos, "I left that hell because the revolution freed me. General Luis Felipe Domínguez arrived in 1913, and we all left with him. The revolutionaries carried our tormenters [*verdugos*] away in chains."¹³ The soldiers did not reach every lumber camp, and the mighty mahogany interests tried to reconstitute the system of debt peonage as soon as the army was gone. But the incursion cost the timber interests most of their capital and their aura of omnipotence, and the companies never really recovered.¹⁴

The revolution also brought some short-lived changes to the forest itself. Warfare created demand for fuel, shelter, and matériel that only the forest could offer. For example, the woods south of Mexico City changed hands from federal forces to the constitutionalists to Zapatistas, and back again, and soldiers often used them to take cover. The army tried to flush out the rebels by setting fires that succeeded in doing little more than destroying a few stands of timber and driving the revolutionaries deeper into the mountains.¹⁵ The constitutionalist army, including the female *soldaderas* who accompanied it, felled trees to build temporary shelter and gathered branches and debris to use for firewood. Quevedo witnessed one makeshift

logging operation as Carranza's army built fortifications outside of Veracruz in 1914. He complained that troops "finished off" the trees the French foresters had planted to stabilize the artificial dune (built as a windbreak) on the outskirts of town. Without trees to fix the soil, the dune began to erode and had to be rebuilt and replanted after the revolution.¹⁶ Moreover, all revolutionary factions needed wood for the railroads. Not only were ties needed to rebuild rail lines destroyed by retreating armies, but many military units (including Villa's entire army) lacked access to coal and needed wood to fuel the locomotives on which they so heavily depended.¹⁷

The revolution also ravaged the incipient forest bureaucracy. The Porfirian forest service continued to function as normally as possible until early 1913, when Quevedo responded to Huerta's military coup by arming students at the forestry school and the wardens posted in six states and the Federal District. When Quevedo complained that Huerta's federal troops had illegally cleared the trees around the schoolhouse in a failed attempt to deprive Maderista loyalists of cover, the army responded by arresting him and destroying the schoolhouse. Soon afterward, the French foresters left Mexico to avoid the unrest and because their own nation was girding for war in Europe. Their departure left only a handful of Mexican forestry experts in the country.¹⁸ Huerta's antagonism drove many of the remaining foresters to join the constitutionalists. They never saw action against the federal army, but two wardens did scout for the constitutionalist forces in Xochimilco as they battled Emiliano Zapata's army for control of Mexico City.¹⁹

It is difficult to estimate the overall toll that the revolution took on the forest ecosystem, though it probably was not that great. While the logistics of warfare meant the destruction of isolated stands of timber, the broader atmosphere of violence and insecurity produced what one observer called "obligatory production bans" (*vedas obligadas*) on a much larger scale. Logging operations and the expansion of the cattle frontier came to a halt in the most intensely timbered regions, as companies mothballed their operations and workers abandoned their saws. Nearly all logging stopped in Morelos, the Federal District, Veracruz, and parts of Chihuahua between 1915 and 1918 or later, allowing the forest a moment of recovery.²⁰ In Oaxaca the revolution interrupted plans to found a major logging corporation. The North American H. S. Beattie had applied for an immense forest concession in 1910 and was raising capital for a major new enterprise until the unrest scared investors away.²¹ As in so many other aspects, the revo-

lution had an uneven implication for forests and those who lived in them. In the timbering heartlands of Chihuahua and Michoacán, for example, the revolution reverberated in strikingly different ways.

DISCONTENT IN THE WOODS

No fewer than two thousand men earned wages as lumberjacks and sawyers at the eve of the revolution in Chihuahua, compared to a few hundred in Michoacán. As a result, the revolution accentuated labor issues in Chihuahua rather than agrarian tensions as in Michoacán. Even so, conflicts over the woodlands did underlay many broader tensions. Some agrarian conflicts in Michoacán had roots in commercial forestry, for example. As one military leader explained, logging companies had convinced so many indigenous communities to lease their common lands that it deprived people “of the one resource they possessed in order to subsist.”²² Similarly, the growth of the great landed estates in Chihuahua meant that timber workers who lost their jobs in the 1905 economic downturn could not reasonably expect to buy their own land on which to make a living. As with salaried workers elsewhere in the country, the loss of employment often forced former timber workers to take marginal jobs and made them more willing to join the relatively well-paid ranks of revolutionary armies.

Revolutionaries found it difficult to recruit followers in Michoacán.²³ Although columns of several hundred men did take up arms during the conflict, pitched battles and social dislocation occurred less frequently there than in other parts of the country. Social contention in the woodlands usually took the form of sporadic confrontations between villagers and landowners over access to village woodlots. The indigenous residents of San Ángel Zurumucapio, near Uruapan, for example, had complained as early as 1907 that the neighboring hacienda of Jucutácato had illegally occupied its lands with the connivance of the local prefect. The absentee hacienda owners responded the following year by having the local leader Agapito Motuto conscripted into the army. Once the revolution loosened local authorities’ grip on the area, the villagers turned the tables. They torched the hacienda’s blacksmith shop in retribution for collecting wood for charcoal from Zurumucapio’s former commons. A few years later, they invaded the hacienda’s own woodlots, ran off the field hands, and began cutting trees to make their own charcoal.²⁴

Similar events elsewhere in the state suggests that rural folk saw in Madero’s “revolutionary” movement the opportunity to roll back the worst

effects of forest commodification. The villagers around Lake Pátzcuaro, for example, seethed at the dispossession of communal woodlands during the Porfiriato. As Madero's revolution flared in the north, they seized the hated timber merchants Rafael and Antonio Ibarrola and considered lynching them before their resolve flagged. A few months later, a fiesta in nearby Pichátaro turned ugly when indigenous villagers confronted the manager of the town's foreign-owned timber company. At first the locals demanded money, then an altercation broke out and they shot the manager with the only shotgun in town. A similar act of insubordination occurred nearby, when villagers who heard a false rumor that Madero planned to divide up the land decided to take matters into their own hands. They invaded the Hacienda de la Orilla, a property owned by the French Mirabeau-Rothschild consortium that had dispossessed several villages along the coast, and began cutting woods and grazing their livestock as if the company had never been there—or perhaps to ensure that it would not return.²⁵ On the other side of the state as well, rural people invaded or repossessed lands they had lost to encroaching timber interests. The rising value of timber sent the villagers of Senguío into their communal woods in 1915, much to the displeasure of the administrators of the neighboring Chincua hacienda that claimed to own the property. Hacienda administrators jailed seven indigenous loggers (all from the same family, it seems) and sent their own work gangs into the woods.²⁶

Most timber companies continued to operate in Michoacán for the duration of the revolutionary decade, and a few even took advantage of the growing anarchy to increase the scope of their logging.²⁷ The state inspector of forests reported in 1911, for example, that logging crews had made “excessive cuts” on indigenous lands, far above legal limits and in violation of their rental agreements.²⁸ Though not mentioned by name, one of these companies was no doubt the *Compañía Industrial Maderera*, owned by the North American Santiago Slade, which continued to produce lumber and railroad ties in the Meseta Purépecha during the early 1910s.²⁹ As Slade moved crews onto new lands further to the north, lumberjacks repeatedly tangled with the locals. Slade's employees had already earned a reputation as thugs, but some villagers nonetheless tried to mount an armed resistance during the Huerta dictatorship of 1912–1914. They harassed logging crews and pelted their camps with stones. Slade responded by organizing a militia that won Huerta's formal blessing to help keep “order” in the countryside. Company guards ranged widely in the Meseta Purépecha and threatened to kill anyone who stood against the dictatorship or Slade's

company. According to one report, they burned the village of Copándaro to the ground. But as Huerta's government slowly lost its grip on the nation, Slade found that his own position also became increasingly precarious. He abandoned the countryside altogether in 1913, when a local revolutionary rallied villagers in Cherán and launched a frontal assault on the timber company's installations.³⁰

After the major revolutionary battles had come to an end, in 1915, banditry posed a new challenge to logging operations in Michoacán. The first attack came in 1914, when outlaws ransacked the "timber hacienda" of San Joaquín Jaripeo, in the district of Zinapécuaro, not far from the state capital. They overran the hacienda again three years later, destroying the sawmill and selling off or slaughtering the estate's cattle. Even after the armed bandits disappeared, in 1920, the owner found that the combination of high taxes and unrepaired railways made it impossible to commence work again. He also had to contend with villagers, some of whom had probably ridden with the bandits, who filed a petition for a land reform parcel. Local agrarians threatened to occupy the hacienda and log its wood on their own accord. In a 1921 letter to the Ministry of Government, a lawyer for the landowners desperately resorted to the discourse of conservation in a bid to head off impending land invasion. If "ill-intentioned or merely foolish people" take possession of the hacienda, he wrote, "they could irreparably damage these woods, which have always been worked in a prudent manner subject to the rules governing the best forestry practices."³¹

The link between "banditry," timber operations, and popular mobilization was hazy in Jaripeo and indeed in most of the state, but there can be little question that both landowners and rural people tried to use the turmoil to gain some sort of advantage in the woodlands. Lumbermen such as Santiago Slade quickened the pace of logging, while villagers in the Meseta Purépecha invaded lands they considered their own. Yet Michoacán's relative quietude during the revolutionary decade ensured that only a handful of such episodes took place. The revolution burned far more brightly in Chihuahua, where first Pascual Orozco and later Pancho Villa formed huge popular armies. Rather than lead to massive land invasions, the revolution accentuated labor conflicts in Chihuahua's forest sector and ultimately dealt an irreparable blow to the state's largest timber conglomerate.

The Madera Lumber Company, owned by Fred Stark Pearson, had invested heavily in its Chihuahua operations beginning in 1908, and continued to plow funds into the two big sawmills until the revolution encroached on Madera, in 1912.³² The owners tried desperately to keep the saws spin-

ning because the price of wood climbed briskly in these years, rising 63 percent between 1912 and 1914 at the point of embarkation in Manzanillo. The company also received a substantial order for packing crates from the Armour Corporation in late 1913 and the first half of 1914, on top of the never-ending demand for railroad ties and mining timbers.³³ The owners also had their investments to protect. The Madera Lumber Company sunk around 30 million dollars into real estate, railroads, and the two huge sawmills between 1909 and 1918, and the foreman wanted to avoid making layoffs that might ignite protests in these costly plants.³⁴ He felt that out-of-work sawyers would most likely join the revolutionaries and “create serious depredations,” such as cannibalizing equipment or torching the mills. Even so, the company briefly closed two times in 1911, then for a longer period in 1912–13, and once again in late 1914.³⁵

The owners believed that the best way to keep the operation afloat was to ensure that the North American workers, numbering a thousand before 1911 and five hundred thereafter, were as content and compliant as possible. The company cultivated a paternalist bond with its North American and Mexican skilled workers, by building schools, churches, medical and recreational facilities (including a bullring and cock pit), and quality housing inside the city limits.³⁶ Foremen preferred to hire married North American workers willing to settle their families in the company town, because they believe it ensured a stable workforce. When revolutionaries appeared in the region in 1912, administrators gave up on that idea and paid to move workers’ families to El Paso and out of harm’s way, although they expected the men to remain behind and tend the machinery. When all else failed, managers could resort to paying for military protection. Once the revolutionaries established control of Chihuahua, the manager asked the rebel commanders Pascual Orozco and José Inés Salazar to maintain order in the mill, though he would have preferred for a detachment of U.S. troops to do the job. Conditions changed again in 1913, and the manager had no qualms about asking Victoriano Huerta, the newly installed dictator, to post federal soldiers at the mill. A few months later, he asked revolutionary troops aligned with Pancho Villa to provide protection against local bandits.³⁷

The fact that company managers fretted so much about security arrangements suggests not only a fear of banditry and looting—though local children did like to shoot out the mill’s windows with slingshots—but also a deep mistrust of their own Mexican workers. Some of these misgivings must have derived from the preferential treatment that North Americans



Figure 2.1. Company housing in “American Town,” ca. 1910. Photograph by Gertrude Fitzgerald. Special Collections Department, University of Texas at El Paso Library, Gertrude Fitzgerald Photographs, PH025.

received in comparison to their Mexican counterparts. While the company built modern housing for all skilled employees in Madera and Pearson, it segregated workers into two settlements, one called American Town, which was home to a clubhouse as well as most of the schools and medical facilities, and the other called Mexican Town, which had few amenities and housing the company referred to as “cottages.” Only the most skilled Mexicans had access to even this diminished level of company housing; the rest had to fend for themselves.³⁸ Such corporate chauvinism cropped up repeatedly. When Villistas began to force Madera Lumber Company to accept revolutionary scrip in 1912, for example, managers apparently demanded that their Mexican workers accept it for their wages even though North American workers continued to receive their pay in gold.³⁹ Mexicans’ resentment of such double standards helped to prompt a walkout at the Madera plant in 1912, though the workers’ primary complaint was that the company allowed Chinese merchants to hold a monopoly of food and dry goods stores in town.⁴⁰

Reports in 1911 and 1913 routinely mentioned that unskilled workers at the Madera mill felt “ill sentiment” toward foreign managers. As the *El Paso Times-Democrat* quipped, the company’s Mexican workforce harbored “a constitutional hate for all Americans.”⁴¹ Whether workers in fact resented North Americans in general or the Madera Lumber Company in particular

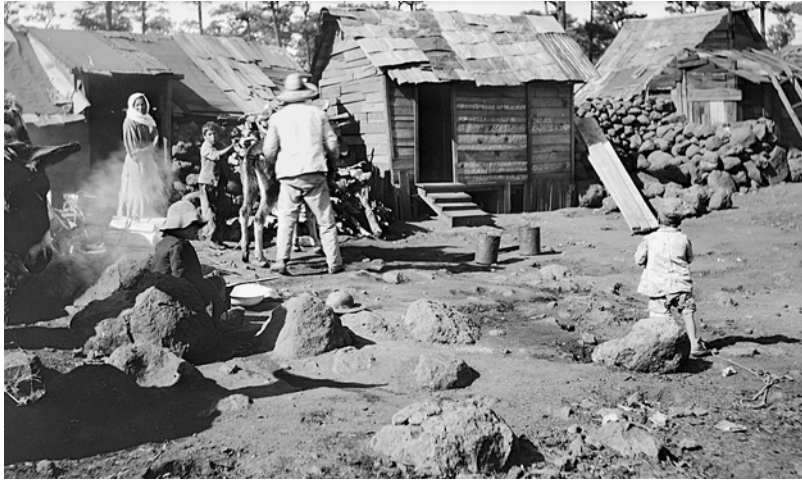


Figure 2.2. Housing in “Mexican Town,” ca. 1910. Photograph by Gertrude Fitzgerald. University of Texas at El Paso Library Special Collections Department, Gertrude Fitzgerald Photographs, PH025.

is an open question. American administrators at the mills believed that the primary source of Mexican workers’ bitterness was the recurring *closure* of the sawmills, which threw the sawyers out of work and left them with no alternative but to enlist in one army or another. On the other hand, Pablo Orozco’s revolutionary faction recruited many of the Mexican workers at the Madera plant in February 1912, though the mill continued to operate with a skeleton crew of North Americans.⁴² Some Mexicans continued to sympathize with Orozco and his “red flaggers” even after he rebelled against the Madero government the following year. Whatever the case, some workers at the mill apparently believed that Orozco sympathized with their grievances against the Americans.⁴³

A striking incident in 1913 revealed the extent of some workers’ discontent. The company suspended operations when revolutionaries arrived in town in July, and the foreman invited a small group of Villistas to move into the newly vacated houses in Mexican Town. Apparently, he thought the Villistas could protect the plant against the depredations of Orozco’s men. Perhaps the fact that the mayor (*presidente municipal*) of Madera was a Villista also played into his decision. On 15 August, a detachment of eighty federal soldiers who opposed the Villistas occupied the town and killed the mayor, prompting the revolutionaries encamped near the mill to slip into the woods during an unexpected downpour that afternoon.



Figure 2.3. Villistas arrive in Pearson (now Mata Ortiz) in 1913, under a banner that reads “Welcome Back, Brave Boys.” Photograph by Gertrude Fitzgerald. University of Texas at El Paso Library Special Collections Department, Gertrude Fitzgerald Photographs, PH025.

At that point, the *federales* turned ugly. Though nominally under the command of Col. Federico Córdova, their real leader was a close ally of Orozco, Marcelo Caraveo. The soldiers—some of whom appear to have been former mill workers—rode through Mexican Town and murdered an “old, hard-working” black employee named John Henry Thomas. Some of Caraveo’s federal soldiers knew the mill well enough to recognize the paymaster, Edward Hayes, whom they cornered and ordered to declare his political allegiances. We do not know what Hayes said, but Caraveo shot him on the spot and rifled his pockets for money. Afterward, the soldiers sought out the manager and lectured him about American meddling in Mexico and his company’s ill-conceived dalliance with Villa.⁴⁴

As soon as the federals left, bearing 2,000 dollars in pilfered cash and merchandise, the foreman loaded the remaining employees onto a train and headed for Ciudad Juárez, on the U.S. border. The passengers included 75 North Americans and a similar number of Chinese, as well as 150 “loyal” Mexican employees who preferred to leave the area.⁴⁵ The owners did try to reopen the plant one last time, in 1915, but they quickly shuttered it and left it idle until it burned to the ground, in 1919. Not until 1922 did the company rebuild, this time a substantially smaller plant, and begin work again. The huge plant in Pearson did remain open in the interim and

briefly flourished in 1917 and 1918, when three shifts of workers produced four million board feet of lumber per month, mostly in the form of railroad ties for Mexican railroads and the U.S. market. At its peak, the Pearson plant had a total of 3,500 employees working in the sawmill and nearby lumber camps. The town boasted a market, supermarket, post office, ice-making plant, butcher shop, hotel, hospital, school, 72 houses for salaried employees, and 85 houses for workers. But in late 1918 it, too, succumbed to economic pressures and closed for good.⁴⁶

The events in Madera were minor episodes in the revolution, and those in Michoacán barely registered at the national level. Nevertheless, they epitomized the sorts of social stresses that the revolution brought into sharp relief. Clashes between foreign employers and workers in Chihuahua or between timbermen and indigenous communities in Michoacán mirrored the simmering conflicts that burst into the open in factories and rural landscapes throughout the nation. By the time that Carranza's armies returned in triumph from the decisive battles against Villa in 1915, issues such as foreign economic influence, agrarian disputes, and workers' rights had become fully part of "the Revolution." Now the nation's new paladins had no alternative but to address them.

THE POLITICAL ECOLOGY OF LAND REFORM

In the fall of 1916, Venustiano Carranza—the staunchly nationalist but politically moderate leader of the constitutionalist faction that won the revolution—convened a constitutional convention packed with his allies and charged it with formulating a document that reflected the nation's changed political circumstances. Ever the believer in incremental change, Carranza proposed a draft constitution that made no dramatic additions to the nation's existing laws nor did it promise significant new rights to citizens. To many of the idealistic delegates who attended the convention, Carranza's draft was a half measure that did not fulfill the "promises of the revolution." Few could agree on precisely what these promises entailed, but they recognized that something needed to be done about labor tensions and disquiet over land tenure. Carranza's own generals—including his right-hand man Alvaro Obregón—had forged an alliance with unionized workers during the revolution, and Carranza himself had signed a largely symbolic decree in 1915 that promised to restore land to dispossessed villages. Many delegates had a heightened sense of nationalism, not only because they believed that Díaz had offered too many sweetheart deals

to foreign investors, but because the U.S. army had once again entered Mexican soil in pursuit of Villa for his raid on Columbus, New Mexico, in March 1916.

The delegates' accentuated sense of sovereignty and revolutionary obligation to the popular classes encouraged them to pass a series of measures that radically curbed the privileges of groups construed as antirevolutionary, such as foreigners and the clergy, while bestowing a host of new rights on all citizens, and on the popular classes in particular. In its final form, the constitution of 1917 guaranteed free and secular education, national healthcare, and the right of workers to unionize. Its signature provision was Article 27, which rejected the idea that individuals had an inalienable right to property and declared that land and natural resources "ultimately pertain to the Nation," which had the right to dispose of them in the public interest. It also placed limits on foreign ownership of minerals, petroleum, and property near the seashore. Perhaps most notably, Article 27 established the legal foundation for the land reform that became the defining characteristic of Mexican rural politics until 1992. As much a declaration of principles as one of legislative intent, Article 27 articulated a revolutionary vision of social redemption.

The delegates did not dwell on the plight of Indians, because they preferred to use ethnically neutral terms that addressed the landless poor as a class. Nevertheless, they understood that native people faced particular challenges. The national and international press routinely described Zapatistas and other agrarian revolutionaries as "Indians," thereby associating indigeneity with the question of land reform. One of the nation's foremost public intellectuals, Manuel Gamio, had added his voice to the discussion in a series of newspaper editorials and in a book, *Forjando Patria* (Forging the Nation, 1916), that challenged the stereotype of indigenous people as violent savages. He contended that the nation could only progress by embracing its indigenous heritage and bringing native people into the social mainstream. Gamio rejected the essentialist orthodoxy that Indians' inherent inferiority or biological deficiency were to blame for their economic marginalization and pointed instead to centuries of racism and official neglect. In his view, anthropologists had a patriotic duty to bring about "the redemption of the indigenous class" through an "ethnic fusion" with dominant, mestizo culture.⁴⁷ Gamio modeled his vision during a six-year archeological project in the Valley of Teotihuacan. In addition to investigating the spectacular pre-Hispanic ruins, he carried out ethnographic research on the living Nahua people who farmed in the shadows of the great pyra-

mids; he even provided the Nahua with irrigation technology and showed them how their ancestors had used the land. Gamio's advocacy helped to kindle the *indigenista* movement of the 1920s, which placed native culture on the national agenda. Intellectuals revived traditional handicrafts that had languished for generations, and they reframed archaeology as a study in the nation's cultural heritage. Eventually, political leaders established a government bureau to deliver social services to indigenous people.⁴⁸ Although land reform was not an explicit part of the *indigenista* program, it bolstered the position of native leaders and progressive schoolteachers, many of whom seized the opportunity to file petitions for ejido land grants in the nation's most socially marginalized regions.

Article 27 also articulated another postrevolutionary aspiration: the nationalist push to wrest natural resources from foreign hands and rationalize their use. The law gave the federal government the authority to adjudicate disputed boundary lines and vested it with broad authority to regulate the use of minerals, petroleum, water, and forests. Its guiding spirit was that the state should impinge on private property "in the public interest" in order to administer "the utilization of natural resources . . . to conserve them and ensure a more equitable distribution of public wealth." In essence, it directed the government to sustainably manage resource use on behalf of the commonweal.

It was no coincidence that Article 27 married the revolutionary principle of social justice with the state management of resources. Miguel Ángel de Quevedo had insisted for years that the federal government needed to take charge of resource extraction, and he later claimed to have played a role in injecting these ideals into the constitution. According to his memoirs, Quevedo managed to bend Carranza's ear while the president was his guest in his country house soon after the convention had begun its deliberations in Aguascalientes. Quevedo claimed that he convinced Carranza to ask his two most loyal supporters to include the goal of conservation in Article 27.⁴⁹ No other sources attest to Quevedo's behind-the-scenes intervention, though it appears that one of President Carranza's staunchest allies did give a boost to the conservationist plank while the article was being reviewed for final ratification.⁵⁰

Article 27 is probably best known as the constitutional basis for the 1917–1991 agrarian reform. During the revolution, several military leaders had pledged to help villagers recover the property illegally taken from them during the Porfiriato. The constitutionalists had even made some symbolic land grants in revolutionary hotspots such as Chihuahua and Morelos (the

homeland of Zapatismo). With the promulgation of the constitution in February 1917, a steady trickle of requests began to appear from elsewhere as well, particularly from villages that competed against haciendas for agricultural land in central Mexico.⁵¹ Most agrarian organizing had to be done at the local or, at best, state level because President Carranza covertly discouraged land reform, and his successor Alvaro Obregón (1920–1924) viewed it as a stopgap measure to defuse social tension until he could “modernize” the countryside by creating a class of smallholders tied to regional and national markets.⁵²

Requests for land grants kept coming nonetheless. In 1922 the federal legislature promulgated a uniform land reform code that established two pathways of agrarian reform. In the first instance, indigenous communities could request the *restauración* (restitution) of their commons if they could fully document that an outside party had illegally appropriated their commons. Most indigenous people preferred this route because it vindicated their claims of landowner malfeasance and awarded them direct possession of the land. Very few petitions for restitution succeeded, however, because villagers could rarely produce unimpeachable evidence of illegal dispossession, and in any case land reform bureaucrats preferred to follow the second route—the more administratively streamlined process of *dotación*, through which the state granted a parcel of land known as an ejido to villagers. Several technical aspects of the *dotación* process made it less appealing to rural people, however. In the first place, villagers did not technically own ejidal land; instead, the state granted them permanent usufruct rights of land that technically belonged to the nation. That meant that land reform beneficiaries (*ejidatarios*) could neither sell nor use the land as collateral for credit. Villagers also disliked the fact that ejidos were created by nationalizing hacienda property and turning it over to villagers without any public declaration of hacienda owners’ wrongdoing. On the contrary, it created the appearance that the state alone had the moral authority to bequeath landed wealth to rural people.⁵³

In principle, the *dotación* process began with a formal petition signed by every male head of household who wished to be enrolled as a potential beneficiary. In practice, the final list of ejido beneficiaries sometimes included outsiders or people who had only recently settled in the area, and it might exclude longtime residents who had run afoul of local power brokers. The petition might refer to a specific plot of land, though in later years most villagers left the selection of an appropriate parcel up to the land reform bureaucracy. Wherever possible, the government formed

ejidos on existing federal property, but that was rarely the case, and most land reform parcels were cobbled together by expropriating portions of one or more private properties, whose owners received indemnities ranging from undesirable government bonds to generous cash settlements. Most landowners regarded the land reform as confiscatory, and a significant minority tried to head off the process by dividing their properties into parcels too small to be subject to expropriation. Others sent gunmen to persuade neighboring villagers that it would be unwise to file a land reform petition.⁵⁴ If the proper documents arrived on the governor's desk (or after 1936, at the Land Reform Administration in Mexico City), and the authorities determined they had merit, they would order a preliminary land survey and grant beneficiaries provisional possession—another point at which landowners sometimes put up a fight. The paperwork ultimately came before the president, who made the final determination about whether to establish a permanent ejido. By then, months or years might have passed since the villagers filed the original petition. The final step involved making a definitive map of the ejido and walking the boundary lines in the presence of the men officially enrolled as ejido beneficiaries. Assuming they concurred with the survey (they sometimes didn't), the villagers received definitive possession of the land and elected an administrative team to handle finances, the apportionment of plots, and other such administrative tasks.

Mexican scientists contemplated the land reform program with a deepening sense of dread. Quevedo and his followers believed that rural people lacked the education and comprehension (or as they typically put it, the "*cultura*") to properly manage the nation's precious forest resources. Scientific consensus in the 1920s attributed a full 80 percent of deforestation to rural people's misguided use of the woodlands, and experts despaired of rural people's "primitive" and "criminal" use of the forests.⁵⁵ They regarded it as unwise and in a sense perverse to allow peasants to request forestlands through the land reform. As Quevedo complained in a speech in 1924, the agrarian movement "completely ignored the healthy principles of forest economy, and rather than encourage conservation and the well-being of rural pueblos and their forest resources, [had] promoted their destruction."⁵⁶ Scientists had no faith in the agrarian reform bureaucracy, which they accused of a "lack of oversight" for having turned over great stands of timber to "ill-prepared communities."⁵⁷ Without the guidance of experts, these scientists concluded, land reform beneficiaries would finish off their woods within a matter of years.

In contrast to the disordered world of peasant production on ejidos, most experts pinned their hopes on the predictable world of highly capitalized logging operations. As Salvador Guerrero, the head of the forest service, wrote in 1922, land reform officials should refrain from breaking up the largest timber holdings because “great stands or stretches [of forest] under the dominion of a single proprietor” were the only ones that could be “submitted to a standardized plan of exploitation.” He recognized that logging companies had ravaged the timberlands in the past, and that the foreign-owned companies in the north had performed particularly badly by making substantial clear-cuts and leaving behind nothing but bare ground, which threatened to cripple the region’s climate. Nevertheless, he believed that large-scale property owners could be compelled to adopt a “strict conservationist regimen” through the judicious application of legal sanctions and economic enticements.⁵⁸ Other scientists saw a similar potential in railroad companies, which had “powerful means to put our forest resources to work” if only they began to manage the resources more carefully. While railroad companies had certainly contributed to the “ruin” of many forests in the past, proper legislation would ensure that they, like the great timber companies, would make efficient and easily supervised stewards of the woodlands.⁵⁹

Yet land reform marched forward regardless of such sentiments, and scientists concluded that the most viable approach was to reform peasant practices. As a first line of action, Mexican forestry officials began to lay down the precepts for what would eventually become known as community forestry, by teaching rural people to respect and care for the land that the state had put under their care. As the distinguished naturalist Ángel Roldán argued in 1929, foresters needed to “raise the consciousness” of rural people—particularly indigenous ones—and teach them to conserve the forest “in a measured and sober” way. At that point, it would be easy to convince rural folk that well-managed woods represented “the fruit of their own abnegation and care,” on which their well-being depended.⁶⁰ In the words of another forestry expert, teaching rural people to make a living through the rational use of their forest wealth would fulfill the “basic ideal” of the Mexican Revolution by ensuring the “social and economic improvement of the peasant class.”⁶¹ A key problem, however, was the lack of a means to get this conservationist message across to the public.

In 1921 Quevedo, along with Julio Riquilme and other members of the nation’s intellectual elite, founded the Sociedad Forestal Mexicana. By 1923

the society had 130 members. It functioned both as a professional association and as an advocacy group even though most of its funds derived from a modest government subsidy.⁶² Its first order of business was to propose a regulatory framework. Writing in the inaugural issue of the society's journal, *México Forestal*, Quevedo argued that "reasonable people [*personas sensatas*] and all manner of cultivated institutions are preoccupied by the grave dangers posed by deforestation and therefore energetically solicit that the government enact measures to put an end to the disorganized and ruinous exploitation of forest resources."⁶³ Quevedo had once mused about the virtues of extreme sanctions such as colonial-era laws that punished unauthorized logging with death, but in 1922 he made the more measured proposal that all watersheds and public lands unsuited for agriculture should be designated as forest preserves and that logging on private-property village commons should be closely regulated.⁶⁴

Officials at various levels had made piecemeal conservationist decrees since the end of the revolution. Agriculture officials sent state governors a circular in 1922 warning that "logging great extensions of forest" threatened to exhaust natural resources, kill off natural springs and result in the "degradation of the land, which will become wastelands [*eriales*] or even deserts." Later that year, Obregón established two modest forest reserves. In 1923 the Department of Agriculture invoked Article 27 to demand that timber companies file environmental impact studies of the land they intended to log. Few did so.⁶⁵

The legislative outline that Quevedo and his associates originally proposed in the pages of *México Forestal* eventually became the Forest Code of 1926, whose goal was "to regularize the conservation, restoration, propagation, and utilization of forest vegetation."⁶⁶ The law (and its enabling legislation, or *reglamentación*, which passed the following year) authorized the creation of a national forest service and regulated nearly every aspect of logging. It also made provisions to protect forests in important watersheds and granted the forest service oversight of logging on public, private, communal, or ejidal land. The heart of the legislation called for a radical change in the way that villagers harvested and sold their timber by requiring people who belonged to ejidos and native communities to form producers cooperatives and obtain a scientific management plan from the forest service. The cooperatives would negotiate timber sales directly with sawmills, bypassing the speculators known as *contratistas*, whom most experts considered little better than con men. As one official wrote in 1930,

the *contratistas* used the “ignorance” of rural people as a “rich vein” to tap; he accused the middlemen of making a fortune by paying next to nothing for the wood and labor they extracted from villagers.⁶⁷

Private landholders received far greater latitude than did *ejidos* and indigenous communities. They faced none of the requirements to form special organizations for producers, nor were they subject to the same degree of scrutiny by the authorities. Nevertheless, the law did place far greater restrictions on private property than did most other laws in the Americas at the time. It required landowners to file a complete management plan with the forest service before putting their woods into production and stipulated that the largest commercial operations should hire a full-time forester charged with developing a ten-year management plan.⁶⁸ Private owners, like villagers, needed to obtain a complete set of logging permits, known as *guías forestales*, attesting to the legal provenance of logs, sawn lumber, and other forest products transported on roads and railways.

The *guías* were a singularly efficient means to oversee compliance with forestry regulations. Rather than attempting to police logging operations at the point of production, it was far easier to inspect wood as mule trains (and later, trucks) crawled along the roads or as workers loaded logs onto railroad cars. The 1926 law therefore included a series of measures allowing for thorough inspections of forest products shipments. No timber, lumber, or pine resin could be moved without a complete set of logging licenses, transshipment permits, and purchase orders from the logging concern, all of which had to be filled out in sextuplet and handed over to the proper authorities at various points in the production process. These documents could only be granted by senior officials (initially, the local representatives of the secretary of agriculture, and by the 1940s, the federal authorities in Mexico City).⁶⁹ Without necessarily meaning to, the 1926 law and its successors elevated the forest guides into nearly totemic documents with the power to imbue any shipment of timber with at least the appearance of legality.

Although the 1926 law had a number of provisions intended to increase the efficiency of commercial logging and thus to aid in the overall conservation of resources, it unintentionally created barriers to villagers’ entry into the timber market. To take one seemingly prosaic example, the law prohibited the use of hatchets for cutting commercial timber because hand tools left more debris and hence wasted more wood than saws. (Villagers could use hatchets to collect wood for domestic use, however).⁷⁰ This modernizing and seemingly commonsense requirement aimed to maximize

the usable wood from each tree. Yet most villagers owned hatchets and felt comfortable using them; saws were expensive and more specialized tools, and few rural people could justify the expense of buying a second implement to cut wood.⁷¹ Even though forest wardens only sporadically enforced this provision, its main effect was to criminalize the most common peasant logging practice and to lower the value of ejidal timber by effectively making it contraband.

Despite its complexity and lack of grounding in the social realities of rural society, the 1926 Forestry Code made it possible for land reform beneficiaries to use their woods and sell the products of their labor on the open market. It set down the principle that the good of the nation demanded the protection of forest ecosystems, including those on private property. It even required commercial interests to abide by scientific norms in the woodlands. Yet in codifying a distinction between peasant and commercial production, the law's authors created an unbridgeable distinction between community forestry and industrial production. Policy makers tacitly assumed that peasant production would always remain artisanal and small-scale, whereas commercial production would drive the economy in a scientific and rationally sensible way. Commercial producers had mere paperwork to contend with, while the rural people, who for the most part worked on lands they received through the agrarian reform, needed to establish cooperatives that would ultimately determine who had the right to work collectively owned forests.⁷²

LAND REFORM IN THE SIERRA TARAHUMARA

The revolution lingered in Chihuahua longer than in other parts of the country. Pancho Villa finally surrendered in 1920, the same year that the first postrevolutionary elections brought Ignacio C. Enríquez into office as governor. He inherited a state beset by economic chaos and political uncertainty, and he responded by establishing over two hundred ejidos and a handful of homestead-like “colonies” divided out of huge Porfirian estates such as the Terrazas hacienda.⁷³ Enríquez and his immediate successors took a pragmatic approach to agrarian reform, which they regarded as a means to build political clientele in the countryside. Yet the redistribution of land did meet the demands of villagers, many of whom were revolutionary veterans who formed agrarian leagues between 1919 and 1923 to request ejidos in the prime agricultural zones of central Chihuahua.⁷⁴ Nineteenth-century military colonies (*presidios*) such as Namiquipa and

Cuchillo Parado also demanded the restitution of territory they had lost to the swelling cattle haciendas of the Porfiriato.⁷⁵ Enríquez's openness to agrarian demands combined with officials' fear that a revived Villismo might invigorate the military rebellions led by Adolfo de la Huerta in 1923 or Gonzalo Escobar in 1929 to make Chihuahua one of the primary sites of land reform before Lázaro Cárdenas's 1934–1940 presidency.

Agrarian reform had a very different face in the Sierra Tarahumara, where few indigenous communities in the highlands requested ejidos. In some cases, mestizo settlers (chabochis) filed the paperwork and used the land reform process to appropriate resources and labor from native people. Most of the mestizos who settled in Rarámuri rancherías had arrived either as lumberjacks or miners, so they had at least some knowledge of the booming demand for wood products in the late 1910s and 1920s. Railroads continued to consume the majority of national timber production in the mid-1920s. Not only did trains use wood as fuel throughout much of Chihuahua, but rebuilding track created a yawning demand for wood. According to one forester, railroads required 8 million–10 million ties per year in the 1920s, accounting for around 1 million cubic meters of wood, enough to build a line from Denver to Chicago.⁷⁶ The Pearson-owned North Western Railroad line used 50,000 ties to rebuild after the revolution, plus an unknown additional amount of wood to restore 45 bridges destroyed in the fighting.⁷⁷ Even the big Madera Lumber Company sawmills could not satisfy this market, opening the door once again to the Rarámuri woodcutters who had made railroad ties by hand ever since the early 1900s.

Land reform provided one opportunity to gain a toehold in the buoyant timber industry. Mestizos requested ejidos on behalf of Rarámuri communities in at least a dozen cases, without telling of the locals what they were doing. The anthropologist Françoise Vatant points out that mestizo families living near the dispersed Rarámuri rancherías filed land reform petitions and elected themselves into ejidal offices specifically so they could lease “their” ejido's timber rights to logging companies.⁷⁸ Indeed, most of the thirty petitions that the state land reform commission received between 1917 and 1924 from indigenous communities in the Sierra Tarahumara appear suspicious. It cannot be a coincidence that ten Rarámuri rancherías in the heart of the forestlands requested ejidos over a two-month period in 1922, including four petitions filed on the same day.⁷⁹ Some villagers only learned about the existence of such petitions when they learned that they had been granted an ejido! That is what happened in the hamlet of Roche-

áchi, whose leaders refused in 1927 to take possession of a huge property that its members had supposedly requested seven years previously. The village elders told the officials that they “didn’t have an agrarian problem” [*no tenían el problema de tierras*] and wanted nothing to do with the federal authorities who suddenly appeared bearing documents and maps.⁸⁰ Yet the fraudulent land reform processes succeeded often enough to bring a score of indigenous communities—and their resources—more fully into the orbit of mestizo timber dealers and the federal land reform and forest bureaucracies.

The timber trade had bridged indigenous and mestizo populations for over a generation, but the advent of land reform tended to favor the mestizo side more. One example of this dynamic can be seen in the growing influence of San Juanito, a predominantly mestizo town nestled among Rarámuri rancherías fifteen kilometers outside the district seat of Bocoyna. The first settlers arrived to this town in the gently sloping sierras of southwestern Chihuahua in 1884, looking for work at the new, steam-powered sawmill that produced wood for local railroads and mines. The town grew along with the northern economy and had reached perhaps a thousand inhabitants by 1920. The town had two mills by that time, one belonging to Casimiro Almeida Fierro’s *Compañía Industrial Mercantil*, and the other to the future timber magnate Juan González Ugarte. While both of these timber conglomerates had access to concession lands north of Bocoyna and apparently sent (mestizo) lumberjacks to fell trees and transport them back via the railroad, the sawmills themselves were small and undercapitalized operations compared to the huge plant in Madera. Most of the men who worked in San Juanito were mestizos who continually shifted between work in the lumberyards, railroads, and sawmills.⁸¹

In the early 1920s, the *Compañía Industrial Mercantil* bought a 30,000 acre tract of land outside San Juanito from the Chihuahua Timberland Company. The new corporation immediately started to ramp up the production of lumber but stumbled when it tried to enter the far larger market for railroad ties. Even though the company ignored timber regulations and made a series of clearcuts of what a pliant forester characterized as “decrepit” larger trees on its property, the *Compañía Mercantil* could not compete with the cheaper ties from nearby indigenous communities. As they had done for decades, work gangs of ten or twenty Rarámuri men logged trees on communal lands and sculpted them into ties using hatchets. They carried their wares to San Juanito, where lumber companies bought them for twenty centavos each, a seventh the price of the going rate. Despite

the absurdly low prices, some Rarámuri men hauled ties thirty or forty kilometers to the San Juanito railhead—a trade that remained a viable business for Rarámuri men as late as the 1960s.⁸²

In 1921 a number of villagers living on the outskirts of San Juanito petitioned for an ejido land grant, and five years later the government approved a relatively modest parcel of 5,100 hectares. Although subsequent observers referred to the new ejido as a “Tarahumara settlement,” mestizos figured among its members and ran it as their own fiefdom. They also maintained a tolerably good relationship with the *Compañía Industrial Mercantil*, where some of them almost certainly had worked at one time or another. Indeed, the company did not bother to protest the loss of 1,000 hectares of timberland to the new ejido—a far cry from its usual resistance to any loss of territory to the land reform. Perhaps the fact that the ejido accounted for a tiny, semi-deforested fraction of the company’s land made it easier to swallow the loss. Whatever the case, the company seems to have cared less about the actual ownership of the land than about keeping up with railroads’ appetite for construction material, and its administrators soon purchased as many handmade ties as San Juanito could provide. They also bought rough-hewn ties from the approximately 2,500 Rarámuri people who lived on the company’s own land. One local forester marveled at the indigenous men’s skill in making between six and ten ties per day using nothing more than a hatchet, though he grumbled that they lost too many days of work to their “feckless” custom of gathering together for the ritual drinking of *tesgüino*.⁸³ In this, he completely misunderstood indigenous men’s motivations. It seems clear that the natives traded in railroad ties precisely in order to preserve enough economic and cultural autonomy to celebrate *tesgüinadas* and other customs, without which they would probably not have engaged with the timber economy at all.

Soon after San Juanito received its ejido, the residents received permission to make intensive cuts on their new property. Native people did most of the logging (as well as the hauling and other menial tasks), while the mestizos typically worked for wages in the sawmills.⁸⁴ The scramble to produce railroad ties destroyed the remaining forests on San Juanito’s ejidal lands between 1928 and the mid-1940s, even though it received a supplemental grant of more woodland in 1936. Clear-cutting did much of the damage, and the woodcutters’ selection of trees only made matters worse. Railroad ties needed to be made from the heartwood (core) of a tree, so native loggers preferred to fell relatively small, younger trees that had yet to reproduce and left older and less reproductive trees standing. As a

result, the forest virtually ceased to regenerate.⁸⁵ Ironically, that did not put an end to the timber business. Neighboring Rarámuri communities soon started to complain that people from San Juanito invaded their territory, illegally chopped down trees, then hauled them off to the sawmill. Foresters must have known something about this trade because they continued to issue logging and transportation permits to the San Juanito ejido for decades to come, even though the community had just “a few meager stands” of timber remaining on its own land. Forestry officials justified the fraudulent traffic in sawlogs because, as they said, most members of the ejido were Indians and “there are no agricultural lands or alternative sources of employment in this region.”⁸⁶

The land reform was not the only way for outsiders to acquire indigenous land. The forest service bureaucracy offered unscrupulous officials another avenue into Rarámuri territory. One particularly notorious official was Santiago Brooks, a North American who arrived in Chihuahua sometime after the revolution, probably to take a job in the timber industry. By the mid-1920s, he was working as a federal forest warden in Chihuahua and Sinaloa. His job acquainted him with the landscape of the Sierra Tarahumara, as well as with the regulatory routines of the forest bureaucracy. In 1927 he made a formal request for the rights to federal lands (a former concession that had expired) in Urique, some four days by horse from Creel, where he was stationed. He proposed to fell only “defective woods and decrepit trees” and agreed to pay a fee of one peso per cord for logs and fifty cents for branches and debris (*desperdicios*, known in forestry parlance as “slash”), for a total of one hundred cords per month. He concluded his petition by appealing to authorities’ conservationist sensibilities, reasoning that his “culling” (*aseo*) of the forest would end “the continual forest fires that occur in those distant lands.” His petition arrived at the desk of his supervisor in Chihuahua City, who quickly passed it along to his superior in Mexico City with a favorable recommendation. The entire approval process took less than a week.⁸⁷

Within a month after Brooks began work, the mayor of Urique wrote the Ministry of Agriculture complaining that Brooks had fined the “La Fortuna” mining company 3,000 pesos for unauthorized logging on his claim. Brooks still held his position as a forest warden at the time, and he used his authority to confiscate 150 cords of wood that the company’s woodsmen had felled on his property for shipment to the mine. His actions left the workers with nothing to show for their labor and forced the mine to suspend operations until it could find an alternative source of wood. The

Urique authorities implied that Brooks had taken advantage of the situation to hire the mine's woodcutters on the spot; if so, he would have been in an ideal position to negotiate with them, since they had just lost a few days' labor. The mayor pitched his own complaint in terms of conservation and nationalism. He accused Brooks of "making a considerable clear-cut [*destrozo*] of precious woods," including sabino, fir, and acacia. He drove his point home, stating, "It is a shame that our Forestry officials authorize or encourage individuals from foreign countries like the aforementioned Mr. Brooks [*sic*] to kill off [*matar*] our Forest wealth without any rational or human, much less patriotic, consideration."⁸⁸

Brooks's transparent effort to corner the labor and timber markets near Urique forced the secretary of agriculture to fire him as a warden. His allies in the government did not revoke his logging permit, however, and dismissed the municipal authorities' complaint by suggesting that they harbored "an indirect interest" in the federal lands he had leased. In fact, the federal authorities continued to renew Brooks's logging permits even after Mexico City officials started grumbling about "excessive extraction" on his land. Brooks continued to run a logging operation in the sierras that exported wood to El Paso, Texas, until the early 1930s, when he sold his rights to the ubiquitous, Mexican-owned *Compañía Industrial Mercantil*.⁸⁹

The early stages of land reform in the Sierra Tarahumara and the concomitant expansion of the forest bureaucracy diminished the Rarámuri people's ability to control their own resources, in part because it blurred the line between insiders and outsiders and between forestry officials and opportunists. Nowhere was this clearer than in Cusárare, one of the largest Rarámuri communities in the sierras and one destined to become a significant timber producer in the decades to come. Village leaders requested an ejido in 1922, probably at the behest of agents from a local timber company. The authorities took quick action and approved a substantial 30,777-hectare grant, yet the residents found it impossible to work their own lands. The timber companies sent their own crews to fell the trees and only hired indigenous people to build logging roads. Daniel Galicia, the forester assigned by the secretary of agriculture to conduct management studies (*estudios dasonómicos*), issue logging permits, and manage forests in the region, soon established himself as the intermediary between indigenous land reform beneficiaries and the timber magnate Juan González Ugarte. The forester convinced the company to withdraw its lumberjacks so he could set up a "model" forestry operation in Cusárare, in a bid to demonstrate that native men would make good lumberjacks. His detractors accused him of pocket-

ing all the profits from the new operation, however. Galicia also opened the town's only general store and sometimes paid the Rarámuri sawmill workers in scrip that could only be redeemed there.⁹⁰ In Cusárare, as in most of the Sierra Tarahumara, these sorts of irregularities dogged the land reform from its earliest days, calling into question whether it would ever fulfill the "promises of the revolution."

AGRARIAN CONTENTION IN MICHOACÁN

Politically astute indigenous men numbered among the earliest and most tenacious leaders of Michoacán's agrarian movement. Individuals such as Primo Tapia and Ernesto Prado in the northwest and Jesús Aguilar on the opposite end of the state encouraged people in scores of indigenous communities to petition for ejidos. They spearheaded the often conflictive struggle to occupy parcels of land carved from the very haciendas that had once dominated the social and agricultural landscape. Even in the politically conservative Uruapan area, Purépecha villagers filed petitions for ejidos, although they rarely got involved in the agrarian conflicts that roiled most of the state in the 1920s. Mestizo communities soon joined the agrarian movement as well, some of them led by politically committed schoolteachers and local intellectuals who regarded land reform as an instrument of class struggle.⁹¹ The social breadth and ideologically driven character of Michoacán's agrarian movement made it difficult for outsiders to follow the Chihuahuan pattern and use land reform to capture indigenous forestlands. On the contrary, most timber interests in Michoacán tried to derail the land reform process by any means possible, from murdering agrarian leaders to suborning the surveyors sent to plot the boundaries of ejido land grants. They also relied on their control of the market. All the major companies maintained networks of agents (*contratistas*) who arranged long-term timber leases with ejidos and indigenous communities or established themselves as the sole buyers of wood that a given village produced.

Even so, the agrarian reform raised unprecedented questions about who would ultimately control the forests in Michoacán. In the northeastern highlands around Zitácuaro, for example, the American-owned ASARCO mining concern required substantial amounts of wood for mineshafts and fuel, and indigenous men from the surrounding communities often took jobs as woodcutters on lands that ASARCO owned or rented. When villagers in the township of El Rosario learned that they would soon be granted some of the company's prime forest reserves, they began to demand pay-

ment for the logs cut on their soon-to-be property. The company balked at what its manager called “the theft of wood from our lots in Rosario by the Indians who live there” and apparently increased the pace of wood cutting on the parcel in question. Villagers responded with a brief takeover of the company’s sawmill.⁹² Elsewhere, would-be ejidatarios brought lawsuits or petitioned authorities to keep landowners from logging on territory they hoped would one day be granted to them as ejidos.⁹³ Failing that, they sometimes took more direct action and drove company lumberjacks out of the woods.⁹⁴

Villagers complained that landowners and logging companies preemptively clear-cut any land that they suspected the government had slated for redistribution. The representatives of one indigenous community denounced the loggers (whom they called “Spanish brigands”) who suddenly appeared in nearby woods that would “quite probably” be included in their ejido grant.⁹⁵ Another set of villagers explained that the owner of a parcel targeted for redistribution had sent woodcutters into the sierras to cut everything in sight, leaving the beneficiaries with nothing but “completely denuded fields.”⁹⁶ In the uncertain context of shifting occupancy and preemptive logging, Michoacán’s forests became a weapon in the social struggle that gripped the highlands for decades to come.

When forest communities did succeed in taking possession of their ejido parcels, sawmill owners turned to a technique that had served them well during the Porfiriato: *rentismo*, or the use of unconscionable rental contracts with a thirty-year duration that paid villagers a pittance for the logs and railroad ties extracted from their property. Lawyers working for family-owned lumber companies in Uruapan were particularly successful in wheedling rental agreements from indigenous people in Meseta Purépecha. Forest officials understood what was happening, but they hesitated to rescind the contracts because it might choke off the communities’ only secure source of income.⁹⁷ Lázaro Cárdenas tried to resolve the problem during his term as governor (1928–1932), when he ordered the Michoacán secretary of the interior to abrogate the contracts and mandated the creation of the Liga de Comunidades Indígenas de Bosques (League of Indigenous Communities of the Woodlands). Little progress was made, however, because the league never materialized and the government nullified only a handful of contracts. Cárdenas’s government passed a law in 1931 that ordered the restitution of 220,000 hectares of forests to twenty communities and charged villagers with forming producers cooperatives, but

contratistas somehow managed to sign new lease arrangements that once again kept villagers out of the timber trade.⁹⁸

The growth of Mexico City and other cities in the aftermath of revolution further aggravated agrarian tensions in Michoacán. Even in the nation's capital, most people cooked with charcoal made from oak, or sometimes from mesquite or needle bush (*Acacia farnesiana*). Mexico City consumed around 700 metric tons of charcoal per day in the mid-1930s, as well as 260 railroad cars' worth of firewood every month. About a third of these products came from Michoacán, though the majority still came from the small army of independent woodsmen who hiked firewood and handmade charcoal down from the hillsides outside of Mexico City. The easiest-to-reach stands of timber disappeared quickly as forests in the Federal District fell from 22,000 hectares in 1913 to 6,000 two decades later. The foreign-owned Suchi Lumber Company of Mexico State stepped in to meet some of this demand. It supplied around two-thirds of the city's fuel wood by the mid-1930s thanks to a workforce of 800 woodcutters who received "miserable wages" for their labor.⁹⁹ By that point, the eastern Sierra de Tlalpujahua of Michoacán had already come into the orbit of the capital's thirst for wood and charcoal. The developing markets opened new avenues for peasant subsistence and deepened existing conflicts between villagers and timber interests.

One indication of these new stresses was that formerly worthless slash left over from commercial logging around Ciudad Hidalgo suddenly became the object of contention between charcoal makers and the most powerful timber family of the region—much the same as what had transpired in Chihuahua two decades earlier. The "Pomposo Solís e Hijos" company had made a fortune selling ties during the Porfirian railroad boom, and after the revolution, it continued to employ scores of lumberjacks, who felled trees with hatchets, hauled them to the logging roads and railheads, from whence they were transported to the family's Ciudad Hidalgo sawmill. Workers received their salaries biweekly in scrip, which they were encouraged to use in a company store that added a 15–20 percent markup for its merchandise.¹⁰⁰ The Solís family's wealth translated into expanding political power as well. Its members controlled key municipal offices in the 1920s, and one son won an influential position in the state government in 1926. At that point, the family took steps to corner the charcoal market. Until then, the independent contractors had managed the trade by organizing crews of *carboneros* (charcoal men)—casual laborers and peasants typically

considered the most marginal group of forest workers—who collected the debris left behind by commercial loggers and fired it in earthen mounds. They delivered the finished product to the contractors, who sold it at the railheads around Ciudad Hidalgo. The Solís family broke the contractors' grip in one stroke by colluding with the railroads to refuse delivery from contractors. With these pesky middlemen out of the way, carboneros had no alternative but to sell their product directly to Solís e Hijos, who soon became one of the primary suppliers of the Mexico City market.¹⁰¹

The rising value of charcoal also prompted landowners to follow the familiar practice of preemptively clear-cutting disputed woodlands. For example, when the owner of the Chincua hacienda in the district of Senguío learned that the neighboring community of San Francisco de los Reyes had requested an ejido on his property, he contacted the local forester and received provisional license of dubious legality that authorized him to cut wood on the parcel in question. According to the soon-to-be ejidatarios, the hacienda owner had ordered his men to carry out the “irrational exploitation” of timber before they could occupy the land.¹⁰² The landowner countered that his logging crews never strayed onto the territory slated for redistribution. No matter where the truth lay, the episode demonstrated that the charcoal trade had led each side to value the oak trees they had once considered a nuisance species.

Yet another case involved Aputzio de Juárez, a predominantly Otomí community nestled in the hills that ripple along the outskirts of Zitácuaro. The village's impoverished land produced few crops, and most residents worked as day laborers on nearby haciendas. Writing to President Calles in 1927, a committee comprising mestizos and indigenous people explained that they had dutifully formed a cooperative the previous year, making them one of the first in the nation to do so. They began to work “most harmoniously to sell [their] products at a very good price and succeeding in that way to greatly improve [their] situation,” but a few months later the British manager of the Toluca-Zitácuaro Railroad unexpectedly refused to accept their logs and forced them to abandon the business.¹⁰³ The railroad manager had always accepted their charcoal and handmade ties before, but his attitude changed after they formed the cooperative. The villagers speculated that he had intended to hire them as lumberjacks and set himself up as a timber magnate. It turned out that the village's anger was misdirected, however. As the secretary of agriculture explained to the president's office (though apparently not to the community itself), the real problem was that the community's permission to cut wood had expired. If they wanted

to keep selling charcoal at the railhead, they only needed to solicit a new one.¹⁰⁴ There is no indication that they ever did so, and the producers cooperative that had once seemed so promising fell victim to the forest service bureaucracy.

THE LIMITS OF AUTHORITY

The experiences of ejidos and indigenous communities in Michoacán and Chihuahua suggested that a number of systematic problems vitiated the effectiveness of the postrevolutionary state's capacity to manage the forests. The ease with which outsiders twisted the land reform in Rarámuri territories to meet their own interests and the incipient corruption of ejidal authorities in both states accompanied the land reform at every turn. Ejidos in forestlands proved particularly susceptible to the intrigues of individuals who understood how bureaucracies worked or who had strong contacts with timber companies. The revolution had not dispensed with the *contratista* wood buyers for sawmills, many of whom actually found it easier to work with ejidos than with indigenous commonholders with questionable colonial-era titles. The corruption of some forestry officials merely exacerbated this situation. Forest wardens and local representatives of the federal agriculture bureaucracy had privileged knowledge, not only of the rapidly evolving legal landscape imposed by state formation, but of the real, forested landscape that postrevolutionary reconstruction and urbanization rendered increasingly valuable. Some, such as Chihuahua's Santiago Brooks, acted both as government officials and as *contratistas* at the same time.

The 1926 forestry code provided a modicum of shelter from these ills, particularly by making producers cooperatives the sole legal vendor of forest products produced on ejidos and common lands. In theory, such a measure should have ensured that villagers received the fair market value of their products and kept middlemen at bay. Yet the forestry bureaucracy lacked the personnel and expertise to implement these regulations, even if local officials had not developed a vocation for graft and corruption. Moreover, the law construed rural people as a threat to the forest whose behavior merited close scrutiny and, if possible, modification. It criminalized some peasant practices in the woodlands and, in so doing, created an incentive for rural people to ignore or subvert conservationist regulations. This situation did not present too much of a problem in the 1920s, when few local leaders understood the law and fewer still had any regular contact

with government foresters. But the officious treatment that the community of Aputzio received at the hands of forestry officials hinted at the way that these principles would function in the years to come. The red tape that kept the Aputzio charcoal makers from legally transporting their goods left them with three alternatives: they could give up on their bid to sell charcoal; or they could wait until they had completed the necessary paperwork (a lengthy process that ultimately required approval by a forestry bureaucracy already stretched thin); or they could follow the path of least resistance and sell their wares on the black market.

An increasing number of villagers chose the third route, which forestry officials coded as “clandestinity” (*clandestinaje*) or, more colorfully, as “piracy.” Only a few years after scientists had succeeded in translating their vision for the forestlands into law, it was clear that legislation alone could not govern Mexico’s increasingly politicized landscape. Political leaders initially shrugged off the problem. When Lázaro Cárdenas became president in 1934, however, he convinced Miguel Ángel de Quevedo, who had sketched out the legislation in the first place, to take control of the forest service. Together, the two men tried to resurrect the idea of village-based logging operations, as long as they took place under the watchful eye of professional foresters.