

The Political Life of Infrastructure and How Nations Are Rewired

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Abstract

Infrastructure is often described as neutral: rails, roads, power, water, and systems that enable growth without shaping the moral and political character of a nation. This paper explores the opposite. Using Mexico's Porfirian-era infrastructural transformation as a case study, it examines how railroads, electricity, major civil works, and foreign capital compressed distance, reorganized markets, centralized authority, and imported ideological frameworks that redefined progress itself. It argues that infrastructure operates not merely as physical support, but as a governing system that redistributes power, reorganizes legitimacy, and encodes political outcomes long after regimes change.

At the same time, this is not an abstract or detached account. The argument presented here was learned gradually: through living, studying, and working in and adjacent to Mexico, and through sustained conversations with educated Mexicans holding widely differing views on past leaders, national identity, modernization, and inequality. These perspectives reveal how infrastructure is experienced not only as a history or policy, but as a lived inheritance: shaping how people explain success and failure, how they interpret privilege and precarity, and how they attempt to balance structural inequality while facing the daily demands of earning a living, advancing professionally, or preserving what their families' labor once secured. The paper therefore treats infrastructure as both a material system and a narrative force: one that informs how societies justify hierarchy, rationalize exclusion, and understand their own political present.

The central claim is simple: infrastructure does not merely support society. It changes what citizens expect, what elites justify, and what the state can enforce. Steel and stone may age, but the assumptions built into the physical systems, and the conversations they provoke, can outlast the systems themselves. By tracking how infrastructural networks produced centralized authority, technocratic governance, elite continuity, and enduring asymmetries of influence, the paper shows how modernization becomes self-reinforcing, how opposition can remain structurally powerful without mass support, and why nations often reproduce inequality even after revolutionary rupture.

I. Orientation: Distance Before Infrastructure

Before the introduction of railroads, distance between people and locations defeated human ingenuity everywhere in the world. Paul Valéry, the French poet, joked that “Napoleon moved no faster than Julius Caesar.” In Western Europe, people traveled on horseback or in coaches, covering approximately sixty miles every twenty-four hours. Slow by today’s standards, but this pace was inconceivable in mountainous Mexico where stagecoach or wagon trips—over the two hundred miles separating Veracruz from Mexico City—took sixteen days in the dry season, and up to a month during rainy season. At the time, this was the most important overland route in the country. By the time people reached Mexico City, it still took several months to distribute goods to the most distant provinces.

Under such conditions, distance was not merely a measure of space. It functioned as friction, delay, and cost—an unlegislated tax imposed on ordinary life. When the movement of people and goods was slow, everything that depended on movement slowed with it. Education traveled slowly. Commerce moved cautiously. Medical care, governance, and news followed the same rhythms as the road itself. A nation could possess ambition, talent, and resources, yet struggle to turn them into durable outcomes if its systems could not move with any reliability or speed.

It is tempting to read these accounts as a quaint travel story into the past, a prelude to inevitable progress. But they describe something more fundamental. They establish the baseline condition against which later transformation would be experienced. When daily life is governed by delay and physical risk, the first encounter with infrastructure is not abstract or ideological. In the mind and body, it is felt as relief. And once relief is felt, expectations begin to shift. Infrastructure does not simply change logistics; it changes what people believe is possible, what they come to accept as normal, and what they begin to expect from the state.

What follows, then, is not a nostalgic account of technological progress. It is an examination of how infrastructure reshapes geography, concentrates power, and alters how nations come to understand themselves.

II. Compression of Space: Railroads and the Collapse of Distance

There were less than four hundred miles of railroads in Mexico prior to Porfirio Díaz. By 1911, more than eleven thousand miles of track had been laid. Deep ravines and rugged terrain once considered impassable became blanketed by railways. For comparison, just over two thousand miles of track have been added to the network since the Díaz regime. This doesn't account for modernization, rehabilitation, and conversion of older narrow-gauge lines to standard gauge or the Tren Maya project, launched under President Andrés Manuel López Obrador (AMLO), which added approximately 1,554 kilometers (966 miles) of track to the Mexican railway system.

Landscape paintings of Mexican highways from the nineteenth century reveal the atrocious conditions people faced along these journeys. Roads appeared as vaguely defined strips, barely distinguishable from the hillsides they traversed. Water-filled potholes and large stones turned routes into obstacle courses. Horsemen were depicted mid-struggle, steadying their mounts sunk up to the hocks in water. Carriages lurched from side to side, wheels were often stuck in the mud, and for the most part, peasants traveled nearby on foot. Paintings depict them tugging at the halter of their mules, dragging unyielding carts.

During this time, a trip from the capital to Veracruz started at four in the morning, just to reach the first posting house before sunset. Antonio García Cubas, a nineteenth century politician who made the trip several times, said that passengers were crammed together like packages and were even called "cargo" by the stagecoach company manager. The trip through cobblestone streets set out briskly, but the moment it hit the capital's outskirts, it slowed down to glacier speeds that would be maintained for the rest of the journey.

"The windows had to be sealed because of the immense quantity of fine, yellowish dust from the road that dried up your tongue, blinded you and penetrated every pore in your body," wrote García Cubas. "You

were panic-stricken whenever the heavy vehicle struck a hole or rut. At such times, the coach swayed sharply to one side obligating the passengers to immediately lean the other way as a counterweight. Often that maneuver was for naught, and the carriage overturned... and the passengers, if they emerged at all, suffered a broken arm, a sunken rib or a cut face."

Considering the conditions, only the desperate or foolhardy traveled in the rainy season. Every few miles, the driver would pause and order the passengers to get out and help push the coach through knee-deep mud. When conditions were impassable, the coach stayed put for a day or so, until the sun dried the road enough to continue. "In view of so many calamities," noted García Cubas, "it is no wonder that our forebears felt obligated to draw up their wills and make their confessions before setting out on any journey no matter how short."

Testimonies from early travel give one deep appreciation for the impact of trains in Mexico. While the railway connection between Mexico City and Veracruz existed before Díaz, under his rule the journey was cut down to thirteen hours. The journey between Mexico City and the Texas border was reduced from weeks to just a few days. Beyond the improvements in passenger service, the railroads' impact on freight was substantial. Trains between Mexico City and Veracruz cut the cost per ton carried to a tenth, and the total weight of cargo between the two cities rose by 500 percent within a year of the line opening. Gains between the capital and other provincial cities were even more impressive.

What changed was not only speed, but perception. When a journey goes from weeks to days, or from sixteen days to thirteen hours, distance no longer feels like fate and begins to feel navigable. Time becomes something that can be purchased, planned, and controlled. The social meaning of "far" changes. Places that were once considered remote or exotic become reachable. The periphery becomes a supply zone. The capital becomes a magnet. People begin to live as if the country itself is smaller than it is, because functionally, it becomes smaller.

This is where modernization first enters the mind and body, not as ideology but as a sense of relief. Dust gives way to timetables. Fear gives way to predictability. Once that relief is felt and internalized, it becomes psychologically difficult to question the system that produced it. People will defend the infrastructure that eased their suffering even if it quietly reorganizes power, advantage, and access around them.

Railroads did not simply improve travel times. They changed how society related to time, and in doing so, rewrote the economic and political logic of the nation.

III. Economic Acceleration and Uneven Benefit: What Cheaper Transport Actually Does

The railroad created one of the basic foundations for accelerated growth. Transportation costs in mining, agriculture, and industry plummeted within a few short years. Before railways, only silver and gold justified high freight expenses; but with trains, the exploitation of distant deposits of nonprecious metals became instantly profitable. Cattle no longer had to be herded to Mexico City, opening the greatest urban market to distant haciendas. Sugar, tobacco, and coffee were able to compete in foreign markets. Factories achieved major cost savings with lower transportation expenses. For example, the cost of shipping a ton of cotton textile goods from Mexico City to Querétaro, about a hundred miles north, fell from approximately \$61 in 1877 to \$3 by 1910.

But like most of the great initiatives undertaken by the Díaz regime, the benefits of railways favored wealthy Mexicans and foreigners. Until 1908, when the government bought them out, the lines were mainly built and owned by Americans and the British. Profits from railway operations were low, ranging from 1.5 percent to 3.6 percent a year. Foreign owners were less concerned with the return on their investment; they were more interested in penetrating internal markets and mining regions. The Díaz government obliged them by reducing tariffs by 50 percent on all goods destined for export and import that made use of the railways. Minerals sold abroad received railroad subsidies, while food products produced and consumed by poorer Mexicans had to pay full freight costs. Necessities like corn and beans barely kept pace with the demands of the growing population, and their prices rose during the Porfiriato.

Hacienda and plantation owners also received an economic windfall from the railroads. Taking advantage of the lower transportation costs to raise their production of coffee, sugar, tobacco, and other commodities destined for foreign markets, their new reach caused land values to soar. By anticipating new railroad construction, the great estate owners were able to acquire properties within easy access of future train lines—well before the prices rose. At the time, these properties were mostly owned by Indians and poorer mestizos, but the wealthy landowners could count on the support of the Díaz regime in any agrarian dispute. The government enforced the Reform laws of the Juárez era, which called for the conversion of communal Indian lands into properties owned by individuals. Peasants were unable to compete with wealthy bidders for control of these parcels. In other cases, so-called vacant public lands were sold by the government to rich hacienda and plantation owners at discounted prices. Before this time, these properties were occupied for generations by Indians and mestizos, who never held legal deeds. Thus, the railways stimulated the concentration of agrarian landownership that had before been a hallmark of the Porfirian era.

People like stories of infrastructure as a public good. But in practice, infrastructure is also a machine for concentrating advantage. Lower transport costs do not just help "the economy." They change who gets to profit from them and, ultimately, who wins.

What the railroads made possible, then, was not growth alone but selectivity. Reduced transport costs did not flow evenly through the economy; they followed existing gradients of power, capital, and legal access. The same system that made new forms of production viable also determined who could take advantage of them. Infrastructure did not operate as a neutral platform. It never does. It acted as a multiplier for those already positioned to use it.

The scale of these changes makes it impossible to dismiss them as incremental. When the cost of moving cotton collapses from sixty-one dollars to three, an entirely new competitive landscape emerges. Some producers gain access to distant markets; others are priced out of their own. Some goods receive subsidies; others bear the full cost of transport. Some households absorb rising food prices while others expand production for export. No improvement is equally distributed. It is used differently by different classes of people. On the surface, railways reduced friction, but they also reordered outcomes.

By the end of the Porfiriato, a durable pattern had taken shape: one that would repeat itself across regions and eras. Infrastructure made land legible, valuable, and extractable. Legal systems followed, converting historical occupation into formal title and deeds. Ambiguity is rarely resolved in favor of continuity, but in

favor of consolidation. Those with capital, foresight, and political access formalized and appropriated what had long been cared for by others.

This dynamic is uncomfortable not because it is uniquely Mexican, but because it is broadly recognizable. Whoever controls the dominant networks—rails, highways, grids, or fiber—sets the terms of participation. Infrastructure does not distribute benefits evenly by default. It amplifies existing hierarchies unless deliberately constrained.

IV. Centralization of Power: Mexico City as the Beneficiary of the Network

It's safe to say that the railroad boom reinforced Mexico City's hegemony over the rest of the nation. The Díaz government was able to quickly dispatch troops by train to quell disturbances in even the most remote regions and provinces, while the city remained the preferential residence of the wealthy. Absentee ownership became prominent because the railways made their properties more accessible, enabling them to put bailiffs and managers in charge of running their rural estates, mines, and factories. Railways brought prosperity throughout several regions in the country, but Mexico City was the recipient of most of the capital, especially money from abroad. By 1910, foreign investment totaled 3.4 billion pesos, and more than half of it funneled into public utilities, factories, and commerce in Mexico City.

This is where infrastructure stops being economics and becomes governance. When troops can be dispatched by train (or unmarked cars), the state's reach expands faster than local autonomy can respond. When absentee ownership becomes normal, wealth becomes physically absent but legally omnipresent. Regions become managed territories rather than lived communities.

In this arrangement, power no longer needs proximity. Authority travels along the same lines as freight and capital, arriving where agreed upon, withdrawing when convenient. Decision-making concentrates in the capital, while consequences are distributed outward. The daily life of the provinces is shaped by choices made elsewhere, enforced through networks they do not control but cannot escape.

What emerges is a geography of dependence. Local economies orient themselves toward extraction and transit rather than self-determination. Production answers to distant markets. Labor answers to remote owners. Power rests with foreign powers. Even resistance must contend with a system designed to move faster than it can organize. Infrastructure, once framed as connection, becomes a mechanism of alignment.

By the time this logic hits home (if it ever does), it feels natural. The capital appears indispensable. The regions appear peripheral. The network presents itself as neutral, even benevolent, while quietly encoding hierarchy into its routes, schedules, and points of control. Governance no longer announces itself as rule. It operates as the stewards of flow. And once governance takes this form, reversing it becomes less a matter of politics than of structure—and vice versa.

V. Energy as the Second Consolidator: Electricity and Industrial Gravity

Mexico City was also the main beneficiary of another great technological invention from the nineteenth century industrial revolution: electricity. Before electricity, factories were largely located near hydraulic power, that is, near rivers and streams for water mills. However, electrical energy led to industrial concentration in cities. In the country's north, for example, Monterrey emerged in the late 1800s as an

important center for industry. But the Díaz regime obtained agreements with foreign-owned generating companies to provide electricity to Mexico City at half the price charged elsewhere in the country. By 1889, the Federal District, including the capital and its outlying communities, generated more than half of the nation's electricity. Compared to other urban centers, this advantage made the Mexico City region a stronger magnet for factories.

What electricity changed was not movement, but permanence. Rail made distance negotiable. Electricity made location decisive. Once energy could be transmitted, controlled, and priced differently, industrial geography ceased to be a matter of natural endowment and became an outcome of policy. Factories did not merely prefer cities; they became dependent on them.

Electricity anchors production in place. When power is cheaper in the capital and more expensive elsewhere, the effect compounds. Factories cluster where energy is reliable and affordable. Employment follows those factories. Housing follows employment. Political influence follows population density. Over time, the city stops functioning as a node among many and begins to operate as a gravitational field.

In retrospect, the half-price electricity agreements are very telling. They aren't announced as political decisions. They appear buried in technical, contractual, mundane language that few (if any) read, much less understand. Yet a methodological reading can be analyzed against history's prior outcomes and considered long after the original agreements fade from memory. Once transport, energy, and capital converge in a single location, decentralization becomes structurally difficult, regardless of stated political intent. What on the surface looks like economic progress is, in fact, engineered weight. Electricity doesn't simply illuminate the world. It fixes into place as the center around which the rest of a nation is forced to orbit.

VI. Monumental Engineering and the Illusion of Mastery: Drainage, Spectacle, and Technological Confidence

While trains and electricity alone could not mold the capital into a city that reflected Porfirio Díaz's notions of greatness and modernization, the impact of these new technological breakthroughs was magnified by other favors that the regime lavished upon Mexico City. Under Díaz, the capital received more than 80 percent of all government investment in infrastructure projects for the nation. This included capital earmarked for asphaltting the streets, increasing the supply of water, telegraphs, public buildings, and schools. The most ambitious and expensive of these projects was a new drainage system.

Flooding is a perennial feature of the urban Mexican landscape. During the Díaz regime, Mexico City still relied on the drainage project engineered by Enrico Martínez in the early 1600s. That once grandiose tunnel-and-canal system was incapable of protecting Mexico City. Every rainy season disrupted urban life for days, sometimes weeks. The waters settled into immense puddles and churned unpaved streets into bogs. Traffic came to a halt. Consequently, sales plunged in downtown stores. In the late nineteenth century, Mexico City was still being described as a fetid Venice, with streets that were transformed into canals by heavy rains.

Díaz was confident he could solve the drainage issue. If railways and telegraphs could conquer the mountainous isolation of the country, surely modern technology could tame the waters that made life in the

capital so vexing. The new drainage systems, built between 1886 and 1900, cost \$16 million, and became the most monumental construction work of the Porfirian era in Mexico City.

As he had done with the railways and electric lines, Díaz entrusted the project to foreigners. The British firm of S. Pearson and Son, Ltd. (builder of the Blackwall Tunnel under the Thames and the East River Tunnel in New York) was hired as the prime contractor. However, draining Mexico City would be a far more arduous task than either of those enterprises combined. After several false starts resulting in cave-ins and underpowered water pumps, the British company completed a thirty-mile canal and six-mile tunnel that disgorged the capital's excess waters and sewage into rivers flowing eastward to the Gulf of Mexico.

In March 1900, Díaz and his entire cabinet, along with the diplomatic corps, presided over the inaugurating ceremony of the new drainage system. Artillery salvos, fireworks, and church bells echoed through the city. Once Díaz gave the order to open the canal locks, he and his large party of dignitaries boarded a train to the northern terminus of the drainage system, some thirty-six miles away, to witness the black waters cascading out of the Valley of Mexico. The project was hailed as "an eternal pedestal to the glory of the country... which will bear witness for future generations that at the end of the nineteenth century Mexico had monuments it could display with pride to the civilized countries of the Old World."

Drainage is where infrastructure hits home. Flooding is not merely an inconvenience. It is public exposure. It interrupts commerce, immobilizes the city, and transforms daily life into a spectacle of dysfunction. Streets become canals. Homes become precarious. The capital appears unmanaged, vulnerable, and faintly embarrassing to inhabit. In this sense, drainage is never just an engineering problem. It is an existential one.

For Díaz, the stakes were unmistakable. A modern capital could not periodically dissolve into mud and sewage. If railways and telegraphs demonstrated that Mexico could conquer distance, drainage would prove that it could master its own terrain. Control over water becomes a proxy for control over the city itself, and by extension, for the credibility of the state.

The scale and symbolism of the project reflected Díaz's ambition. At sixteen million dollars, the drainage system was the most monumental construction effort of the Porfirian era in Mexico City. Like the railways and electrical systems before it, Díaz entrusted the work to foreign engineers whose reputations carried international weight. The choice at the time was not incidental, nor is the choice to continue it. Expertise imported from abroad served both technical and symbolic ends, reinforcing the image of Mexico as a nation aligned with modern engineering standards rather than colonial improvisation.

The project's history followed a familiar arc that history reveals across lines of demarcation. There are often false starts and structural failures. There are cave-ins and underpowered pumps. Each setback is inherent in human systems, past and present. And each delay heightens the political pressure to succeed in preserving the system itself. When any system is completed, celebrations are staged accordingly. Artillery salvos, fireworks, church bells... a procession of dignitaries traveling by train to witness the waters expelled from the Valley of Mexico. Engineering is not presented as maintenance. It is presented to the world as triumph.

VII. The Golden Era for Whom: Elite Cosmopolitanism and Ideological Importation

The Porfiriato was unquestionably the golden era for the Mexico City elite. Not even the splendors of the aristocratic society in the late colonial period could rival life under Don Porfirio. Despite all their wealth, the creole nobility of the Bourbon days was still beholden to Spanish rule and subject to the contempt of bureaucrats born in the mother country. However, Mexico's new aristocrats were masters in their own nation. They had a government of which they could be proud. Steamships and telegraphy accelerated and multiplied their contacts with the Old World, and they became more cosmopolitan than rich Mexicans had ever been before them. They disdained the heritage of Spain, a nation, at the time, considered to be in utter decline, politically and economically. Spain was too immersed in rigid Roman Catholicism. They instead identified themselves with the upper-class society of France, Britain, and Germany. Science and technology combined with a secular spirit heralded a twentieth century of unparalleled opportunities for humankind. From these European nations, the Porfirian aristocrats of Mexico City also absorbed new ideologies, including positivism and social Darwinism, to justify their monopoly of wealth and power.

When material systems cross the line into mental systems, we see the rise of an elite class that is newly sovereign and newly confident. The shift is not only that they have amassed wealth. It is that they feel entitled to it, and they have a story that makes that entitlement sound like destiny.

Spain was rejected not simply because it was declining, but because it reflected an identity that no longer flattered this emerging class. To align with France, Britain, and Germany was to align with science, industry, and progress itself. These were not just cultural preferences. They were signals of belonging. By adopting the intellectual frameworks circulating in those societies, the Porfirian elite could explain why Mexico should be governed by those who most closely resembled Europe in education, outlook, and temperament.

Positivism and social Darwinism made sense in the eyes of the elite and most scholars of the period. They offered a way to translate hierarchy into inevitability and inequality into evidence. If societies evolved, then leadership by a select few could be framed as developmental necessity rather than political choice. This in turn influenced the managers and bureaucrats charged with designing and upholding systems that supported these theories. Throughout modern history, when progress follows natural laws, society behaves as if exclusion requires no apology. Governance becomes a matter of management rather than representation.

What makes this moment so consequential is not simply the adoption of foreign ideas, but the confidence with which they were internalized. The elite no longer saw themselves as provisional stewards of a fragile nation. They saw themselves as its natural operators. The nation of Mexico became a system to be optimized, not a society to be negotiated with.

This is the point at which self-image escapes the private sphere. Elite identity becomes policy. It shapes education, labor regimes, and the language of reform. It settles into newspapers, speeches, and institutions until it feels like common sense. And once it feels like common sense, it no longer needs enforcement from above alone. It is repeated, defended, and normalized even by those most constrained by it.

Modernization does not arrive overnight. It arrives bundled with assumptions about worth, capacity, and belonging. Alongside railways, power plants, and drainage canals become hierarchies of value that outlast

the regime that built it. In so doing, these systems quietly organize political life long after the monuments of earlier regimes begin to age.

VIII. Technocracy and Moral Authority

This ideological combination transformed Mexico through science and technology and appealed to a dictator bent on modernizing his country's economic and social structure. His closest advisers called themselves "*científicos*" ("the scientific ones") and were precursors to today's so-called technocrats who hold power not just in Mexico, but across both modern society and developing nations. The new philosophy was used to defend the concentration of wealth in a small minority. Mexico's version of positivism became the philosophical basis for an authoritarian system that proclaimed the need to keep the poverty-stricken majority harnessed until a distant future when it could rise from its backwardness. The ideology of the Díaz regime was a throwback to the early colonial era, when the Church and white colonists defended their exploitation of Indian labor and property by asserting that the natives required a lengthy tutelage to raise them to European levels.

Here's the quiet power about technocracy: it makes governance sound like maintenance. The *científicos* do not think of themselves as tyrants. They think of themselves as specialists and experts in their field. They speak in the language of development, fitness, preparation, "tools," and evolution. The poor are not oppressed (they are just "not ready" for what's coming). The system is not unjust (it is just "early" in its development). That framing is powerful because it turns deprivation into a stage of progress instead of a consequence of policy.

The concept of technocracy produces an intriguing riddle worthy of consideration. How is it that in contemporary Mexico, one of the central political forces in Congress today is the PAN (Partido Acción Nacional) – despite being the smallest party in the country by formal membership? How does a party with fewer than two hundred thousand registered members secure second place in Congress, position itself as the principal voice of opposition, and routinely mobilize votes at a scale far exceeding its base? Especially when contrasted with Morena, the governing party, which claims approximately twelve million supporters, or even with emerging movements that have not yet achieved party status but already command broader popular engagement.

This asymmetry cannot be explained by electoral arithmetic alone. It is not a matter of turnout mechanics or coalition luck. It is structural, historical, and deeply tied to the technocratic lineage that took shape in Mexico after the Revolution.

To understand this, one has to return nearly ninety years, to the post-revolutionary period in which the PAN was founded – not as a mass party, but as a *loyal opposition*. Its purpose was not to win power immediately, but to stabilize the system given institutional voice to a particular segment of society that had lost direct control after the fall of the Porfirian order. In that sense, the PAN is a future-facing story for the Porfirian elite and a past story for modern society. It is also a precise example of how complex systems preserve influence even when popular legitimacy recedes.

At the center of this story stands Manuel Gómez Morín. By all accounts, he was Mexico's first true post-revolutionary technocrat, though the term didn't exist at the time. Positivism still framed elite discourse. He was, in many ways, the technocrat's technocrat. His career is not merely illustrious; it is foundational.

In 1921, at the age of twenty-four, Gómez Morín was already a high-ranking member of government. He was sent to New York as a financial representative of the Mexican state, tasked with negotiating Mexico's foreign debt with private bank holders. This was not a ceremonial role. After the Revolution, Mexico was widely regarded as ungovernable. Creditors wanted nothing to do with the country. Yet this twenty-four-year-old lawyer led the negotiations successfully. He brought credibility where there was none. He stabilized relationships others could not even initiate.

This is important because it establishes the pattern that would define his life. Gómez Morín was not a populist. He was not a revolutionary in the romantic sense. He was a systems architect: someone who believed that institutions, if properly designed and rigorously defended, could outlast political chaos.

He was deeply embedded in the consolidation of the state that emerged from the Revolution, even as he would later challenge its direction. He was part of the intellectual elite of his generation that initially aligned with the revolutionary project. He helped shape the National University, which he would later lead. He worked in the Ministry of Finance. He worked in the Ministry of Foreign Relations. He was one of the founders of the Mexican central bank and helped write its constitutional mandate.

Yet here, the contradictions begin to illuminate the theory that infrastructure shapes more than the landscape. It shapes society. Poets and prophets would say that infrastructure shapes destinies.

At the time, the central bank—like many around the world—functioned not merely as a regulatory institution but as a commercial bank. Gómez Morín opposed this structure. He believed it violated the logic of institutional separation and long-term stability. When his objections were dismissed, he resigned. He had similar arguments and outcomes when he served as Rector of the National University. Despite holding positions of immense influence, he repeatedly walked away when institutional integrity was compromised.

Even his relationship to power was paradoxical. He was the founder of the principal opposition party, yet he remained closely linked to the revolutionary government in its formative years. He advised presidents. He debated candidates. In a conversation with José Vasconcelos—himself a towering intellectual figure, presidential hopeful, and ultimately the creator of the Ministry of Education and its philosophy that Mexicans should be educated to the highest degree possible, including an education rich in philosophy and literature. Regardless, Gómez Morín reportedly concluded that the timing for Vasconcelos was wrong. Not for Vasconcelos's intellect, but for the nation's capacity to be governed under those conditions. This was not cynicism in the standard definition of the word. It was systems thinking.

Gómez Morín's worldview was shaped by geography as much as ideology. Born in Chihuahua in 1897, he grew up in the far north, closer to American cultural and institutional norms than to the centralized power of Mexico City. His early education took place in Protestant schools, exposing him to a different conception of discipline, legality, and civic order. His father died before he turned one. His mother, industrious and determined, raised him alone. When the Revolution erupted in 1910, the violence forced them south, to

Guanajuato, where he received a Catholic education. From there, he moved to Mexico City to study law at the National University.

This trajectory shaped his worldview. It spans the radical north, the conservative center, and the bureaucratic capital. It explains why Gómez Morín never fully belonged to any single political tribe. He was always slightly out of phase. He practiced law his entire life, maintaining the same office in Mexico City for his entire career, even while occupying the highest institutional roles. He was obsessed with legal coherence. Mexico follows Roman law, not common law, and Gómez Morín believed deeply in doing things by the book. He read philosophy. He read economics. He believed that politics should submit to logic, not the other way around.

It is from this disposition that the PAN emerges. The party was not designed to mobilize the masses. It was designed to preserve institutional memory, legal rigor, and technocratic discipline in a political environment dominated by revolutionary legitimacy rather than administrative competence. For decades, it functioned as the loyal opposition to the PRI: not to overthrow it, but to constrain it. When the PRI finally lost power in 2000, it was the PAN that inherited the state, not because it had mass support, but because it had institutional readiness.

This is the key to the modern riddle. The PAN does not operate like a popular party. It does not require millions of members to exert influence. Its power is infrastructural. It is embedded in legal frameworks, professional networks, educational institutions, and administrative norms that trace their lineage back to Gómez Morín and his generation. It speaks the language of governance fluently because it helped write that language.

In complex systems, influence does not always correlate with numbers. Sometimes it correlates with position. The PAN's enduring presence in Congress, despite minimal popular affiliation, is not an anomaly. It is the expected outcome of a system designed to privilege institutional continuity over mass participation. Every society compresses its history into moments of tragedy and triumph. But the path between those moments is rarely accidental. It is engineered. And once engineered, it becomes predictable.

IX. Intellectual Loyalty and the Pendulum of Power

There is a recurring pattern in the history of systems that becomes visible only when ideology is set aside and structure is examined. One illustrative case comes from early twentieth-century Europe. Vladimir Lenin severed relationships with other intellectuals of his era over disagreements buried on the second page of their shared manifesto. Reading those disputes decades later, the arguments appear almost indistinguishable. The positions overlapped. The goals were aligned. And yet, at the time, they were treated as irreconcilable. What was at stake was not belief, but fidelity to structure: to procedure, sequencing, and internal consistency. This is the same logic infrastructure follows: once a system is built, disagreements over its internal rules matter more than slogans that justified its creation in the first place.

Historically, the left tends to dismantle systems from within, arguing over precision, intent, and doctrinal purity. These fractures are often academic, almost surgical. What makes this pattern more revealing is what happens a few decades later: the same structural instincts, once detached from their original context, reappear on the far right. Foucault's pendulum behaves as pendulums do. They swing. Like with physical

systems, human viewpoints harden not because people change fundamentally, but because history repositions them.

In that sense, individuals and movements often have far more in common than they are willing to admit. What differs isn't always belief as much as it is timing. That brings us back to Manuel Gómez Morín. What defined him was not ideological loyalty, but a deeper, more exacting commitment: loyalty to the law, to the letter of the law, and to whether it was being carried out honestly in practice. That was the real schism. Not left versus right, but sincerity versus performance.

This is what makes his career so difficult to classify. Gómez Morín served as legal representative for the Soviet Union in Mexico. As an undersecretary in the Ministry of Finance, he introduced Mexico's income tax for the first time: an institution that today's libertarian and right-wing movements rail against as an assault on individual freedom and private accumulation. Yet Gómez Morín was not a classic right-wing thinker. He was obsessed with the revolutionary constitution itself. His concern was not whether a policy sounded progressive or conservative, but whether it was intellectually defensible and constitutionally grounded.

His break with the revolutionary government did not come because he rejected its ideals, but because he recognized that its leaders no longer believed their own rhetoric. They spoke one language and governed in another. Gómez Morín, fundamentally an academic, refused that split. He was willing to walk away—again and again—when institutions abandoned their stated purpose.

This is where the pattern becomes clear. Gómez Morín was prepared to pursue paths that appeared contradictory so long as they could be justified logically and carried out honestly. That willingness produces what looks, from the outside, like ideological inconsistency: a tapestry of left- and right-leaning positions woven together by a single thread. For Gómez Morín, that thread was intellectual honesty.

More than being loyal to any party, Gómez Morín was loyal to the notion of coherence over positivism, which is something he carried to the end of his life. Interestingly enough the most respected thinkers of the Revolutionary period were anti-positivists. Mexico was perhaps at the forefront of this movement due to the 1910 Revolution, but this movement is seen in other parts of the world. Artists like Diego Rivera, people like José Vasconcelos, and of course Manuel Gómez Morín embodied this shift of idealism. Later, humanism follows in response to Positivism but in parallel, is pragmatism.

That same spirit of coherence eventually became institutionalized in the PAN. His use of words like *técnica* was not accidental. It reflected a belief that governance should be carried out by those trained to execute the state's vision competently: by people who understood law, economics, and administration, and who would have to live with the consequences of their decisions. Not by violent generals. Not by opportunists. Not by those intoxicated by slogans they did not intend to honor.

In Gómez Morín's view, the state was not an arena for theatrical politics. It was a system meant to be run: carefully, rigorously, and in good faith. It is no surprise that good faith is a ruling precedent in both common and case law.

X. Scientific Racism and the Legitimation of Exclusion

Francisco Bulnes, an arch-reactionary legislator and prolific writer, contended that thousands of years of malnutrition had reduced the Indians to an intellectual and physical inferiority which they would never overcome. José Yves Limantour, Mexico's treasury minister and leader of the científicos, claimed that natural selection would ensure the survival of the fittest Indians and other poor. "The weak, the unprepared, those who lack the necessary tools to triumph in the evolutionary process, must perish and leave the field to the strongest," he said in a speech closing the National Scientific Congress in Mexico City in 1901.

At this moment, the language of governance crossed a critical threshold. Social hierarchy was no longer justified through tradition, religion, or conquest, but through the authority of science as a governing technology. Deprivation was no longer described as a condition produced by policy, land distribution, or labor systems, but as evidence of biological limitation. Poverty became proof. Suffering became diagnostic.

Bulnes takes deprivation and rebrands it as nature. His argument transformed malnutrition into destiny. Limantour took hierarchy and baptized it as selection. His formulation transformed political power into evolutionary necessity. Once suffering is reclassified or rebranded as evidence, the state no longer needs to argue morality. It only needs to manage outcomes. Together, this system completes a closed loop in which inequality explains itself. You could call it a systems boundary where those at the bottom were because they belong there, and those at the top govern because history—and now science—had selected them. That's a powerful and nearly irresistible metaphor and rhetoric for most people. It explains the inevitability of history repeating itself in different, albeit similar, ways.

Once framed this way, exclusion no longer requires overt violence or visible coercion. It can be administered through institutions, budgets, and administrative decisions. It can be debated calmly in Congress, presented at conferences, circulated in newspapers, and published in treatises without appearing cruel. The language of law does not sound like hatred. It sounded like inevitability. It is then legitimized as science. This is not a side effect of modernization or globalization. It was—and remains—one of its governing logics.

XI. Immigration as a Technological Fix: Borrowed Bodies, Borrowed Progress

Contempt for the Indians and other disadvantaged Mexicans was the prevailing view among the Porfirian elite. Andrés Molina Enríquez, an astute social commentator, published *The Great National Problems* in 1908. Since its publication, the book was considered the classic indictment of the Porfiriato, asserting that such contempt eventually translated into national self-loathing. "The opinion... in our country is that we are a people who know less, are less able, can do less and are worth less than... the other nations of the earth."

Throughout Mexico City, this sentiment was echoed in newspaper columns, political speeches, and pseudoscientific treatises circulating at the time. One government official claimed that a Mexican mason took eleven hours to lay five thousand bricks, while an American worker could handle five thousand bricks during the same amount of time. According to a growing number of Porfirian conservatives, the only solution to the nation's backwardness was to encourage foreign immigration. At the time, newspapers would survey employers for their opinions on the best immigrants. In Mexico City, industrialists favored Germans; in Veracruz, plantation owners preferred blacks; and Yucatán agriculturists wanted immigrants from India. At times it seemed that immigration was a panacea for all social ills, no matter how trivial. For the most

part, however, the Porfirian upper class wanted European and American immigrants. In 1910, there were still less than 120,000 foreigners living in the country, about half of them in Mexico City. By comparison, more than 33 million Europeans moved to the United States between 1820 and 1920.

This is where modernization turns into substitution. Rather than confronting how land, capital, transport, and policy had been structured to benefit a narrow elite, the Porfirian answer was to replace the people who were failing under that structure. Immigration was framed as a technical upgrade, as if productivity were a biological trait rather than a function of nutrition, wages, training, security, and time.

As it is in every time and age, language is revealing. Employers were invited to rank preferred immigrants the way one might select machinery or livestock. Germans here, Blacks there, Indians elsewhere. In this way, history reads less like a social policy and more like a procurement activity, which labor policy later cements. When people are reduced to interchangeable inputs in a model celebrated as progress, the inheritors of those systems are often unaware of the structural assumptions that govern their lives.

Comparing Mexico to the United States is also telling. The U.S. absorbed tens of millions of immigrants during the same period, but under radically different conditions of land availability, wages, a preference for skill-based outputs, and political inclusion. The Porfirian elite pointed to U.S. immigration as proof of modernity while overlooking the institutional conditions that made that scale of immigration viable there. Land regimes, wages, political inclusion, the American "melting pot" absorptive capacity theory. Ultimately, this looks like legitimacy. But the system was never designed around people and labor. That's why Mexico's people thought they were missing something essential, which is just another way of saying legitimacy is missing from the system.

By the end of the Porfiriato, all these contradictions had settled into place. Labor was not scarce. Effort was not lacking. What was absent was legitimacy. That deficit shaped the political settlement that followed the Revolution and continues to echo through Mexican public life well beyond 1920.

XII. Foreign Ownership as Proof of Civilization: When Control is Confused with Progress

For the Porfirian elite, the foreign community was a source of pride and incontrovertible evidence that Mexico was modernizing and whitening itself. As Juan Mateos, a conservative legislator, remarked in the Congress in 1890, it was a pleasure "to see that foreigners owned the banks, the credit institutions, the electric light companies, the telegraph, the railways and everything that signifies culture and progress in Mexico."

Ownership itself became evidence of civilization. Control was mistaken for competence, and dependency was reframed as advancement. By the early twentieth century, Mexico had achieved extraordinary infrastructural transformation. Yet the ideas that accompanied that transformation – about worth, capability, labor, and belonging – proved far more enduring than the infrastructural systems they built.

This is where the modern riddle becomes unavoidable for a systems architect. When a society learns to treat institutional position as legitimacy, influence stops tracking membership. Power accumulates in nodes that look small numerically but sit right inside the circuitry of law, finance, education, and administration. That is one reason an organization can be minor by headcount and major by consequence.

Gómez Morín is a good example of what happens after the visible ideology changes and the institutional machinery remains. He was Mexico's most formidable systems architect who insisted on coherence, on technique, on constitutional fidelity, and who built an opposition that doesn't need mass membership to exert structural force. He was the human version of rail and electricity all along: once a network exists, position matters more than volume.

If infrastructure is mistaken as neutral, the political code it installs looks like 'progress' rather than governance, which is why these patterns survive regime change. The return to scientific racism is not a return to the past. It is a return to the originating code that made technocracy feel morally ethical because on the outside infrastructure and new technology looks like progress. Nations do not export infrastructure alone. They export the ideologies that justified it. This is the glue holding society together. It is not from any single ideology, not even from any single regime. It is the systems architects. The people who design institutions, networks, fiscal instruments, legal mandates, and administrative techniques that move society in ways that can be foreseen, but never entirely modeled to account for the downstream effects of our never-ending quest for modernization. Because modernization does not end. It just changes its tooling. And every new tool, like the Olduvai stone chopping tool before it, carries an old philosophy inside it. That is why infrastructure is never neutral: it is the durable logic by which a society is governed, long after the concrete cures and the speeches are forgotten.

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