

A stylized, grey-toned graphic of a tree with a thick trunk and several branches, set against a light grey circular background. The tree is positioned on the right side of the page, partially overlapping the title text.

Between Horizontality and Verticality: Infrastructures and Geographical Imaginaries in Post-Colonial Peru

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ABSTRACT

This article analyzes the different geographical imaginaries that emerged in Peru after independence and how they were shaped and molded by the infrastructures that were imposed upon complex landscapes. I argue that horizontal geographical conceptions of the Peruvian territory were reinforced by the development of “communication” infrastructures, specifically road building, which depicted the Andean Mountain chain as an obstacle towards national integration. Conversely, from the middle of the twentieth onwards, vertical depictions of Peruvian geography emerged, fueled by the construction of large-scale hydroelectric plants, which depended on the very complexity of Andean topography which made the construction of other types of infrastructures difficult. In this vertical conception, the complexity of the Andes not only had to be “conquered,” but also skillfully “harnessed.” Both horizontal and vertical imaginaries of Peruvian geography coexisted, furthering the notion that Peruvian geography presented both a problem and a possibility for the pursuit of national development.

Keywords: infrastructure; geography; Peru; roads; hydroelectricity.

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Geographical landscapes shape imaginaries regarding the advantages or challenges that a nation faces in achieving political and economic progress. In the case of Peru, intellectuals and statesmen have tended to describe the country's underdevelopment in geographical deterministic terms. Ever since independence, it was Peru's geographic complexity – along with its racial make-up, inextricably linked to geographic location – that had been considered the main obstacle to achieving national integration and stable government. This “complexity” referred mainly to the Andes, a mountain chain that fragments Peru into three main geographic zones: the *costa*, *sierra* and *selva*. Each zone, disconnected from one another, did not permit the creation of a political and economic cohesive nation state.

How to integrate Peru's diverse geography and peoples? From the mid-nineteenth century onwards, the Peruvian state considered that one way to achieve this goal was through physical and technological means, in other words, in expanding various types of infrastructures. Although infrastructural expansion took many forms, priority was given first to railroads, and with the advent of the automobile, road building. For much of this period roads came to be seen as a solution to the country's fragmentation: if roads could only spread through the Peruvian countryside, civilization and trade would spread nationwide, and Peru's economic, ethnic, and political problems would, in time, disappear.

While the importance of roads remained paramount through most of the twentieth century, from the Great Depression (1929) onwards Peruvian statesmen realized that for “true” development to take place – and in twentieth century Latin America this still meant industrialization – the “conquering” of the Andes as external nature was only part of the solution.² After state sponsored scientific expeditions were dispatched to study the potential for the building of hydroelectric power plants, it became quite clear that the combination of rivers and high altitudes presented an opportunity that could be taken advantage of by the Peruvian state. A new perception thus emerged: the Andes as a possibility, not simply a problem.

² For the concept of external nature, see Neil Smith, *Uneven Development: Nature, Capital, and the Production of Space* (New York: Blackwell, 1984).

This article seeks to explore the dynamism of Peruvian geographical discourses, a dynamism characterized by the evolution of new infrastructures. Intellectual conceptions of Peruvian geography stress the difficulties that it presented for the formation of a nation state and the achievement of economic progress. They neglect, however, that such difficulties greatly depended on available technologies, technologies that allowed intellectuals to recast and rethink Andean imaginaries. Nowhere is this case clearer than in the comparison between roads and hydroelectric development. Road builders, because of the very nature of their infrastructure, found Peru's geography to be extremely challenging. This can be described as a *horizontal* view of Peruvian geography, in which roads had to "break" through the Andean Mountain chain. On the other hand, the builders of hydroelectric plants, eager to exploit Andean hydraulic potentials, considered that their infrastructure depended on "harnessing" Peru's wild topography, celebrating its *vertical* nature. Thus, as the twentieth century moved forward, Peruvian geography – while not abandoning the challenges that it presented – acquired new economic and political potential.

The difference between the geographical conceptions – the horizontal and vertical – had profound implications for the different economic models that the Peruvian state would follow. Vertical conceptions of Peruvian geography – long stressed by scholars who had studied Inca ability to integrate different altitudinal zones into their empire – emphasized the need to promote an Industrial Revolution via the development of hydraulic sources of power. This verticality, offered, I believe, an alternative spatial conceptualization to Peru's long standing export economic model, in part made possible by competing horizontal notions of Peruvian geography that depicted the Andes as a space to be "conquered" through the technologies of road building.

Histories regarding the link between Peruvian geography and infrastructure are not abundant. Importance has been placed on the development of transport infrastructure, although most studies have focused on the nineteenth century.³ This

³ Carlos Contreras, "La economía del transporte en el Perú, 1800-1914." *Apuntes. Revista De Ciencias Sociales*, 66 (2010), pp. 59-81; Carlos Contreras and Marcos Cueto, "Caminos, Ciencia y Estado en el Perú, 1850-1930," *Historia, Ciências, Saúde* 15, no. 3 (2008): 635-655; Paul Gootenberg, *Imagining Development: Economic Ideas During Peru's "Fictitious Prosperity" of Guano, 1840-1880* (Berkeley: University of California Press, 1993); and Guido Pennano, "Desarrollo Regional y ferrocarriles en el Perú," *Apuntes* 5, no. 9 (1979): pp. 131-51. For an anthropological perspective, see: Penny Harvey and Hannah Knox, *Roads: An Anthropology of Infrastructure and Expertise*. Ithaca: Cornell University Press. 2015.

article seeks to build upon such histories by analyzing the development of intellectual trends within the field of geography in the twentieth century, how such trends subsequently permeated political discourses, and finally, how they found tangible expression in concrete infrastructural projects.

To analyze the tension between the two competing conceptions of Peru's territory, the article begins by offering a brief overview of railroad construction in the nineteenth century. The intellectual and political conceptions of roads will follow, which will be illustrated by the case study of road construction during the governments of Óscar Benavides (1933-1939) and Manuel Pardo (1939-1945). Finally, hydroelectric discourses will be studied, culminating in the construction of Peru's largest hydroelectric project, the Mantaro Hydroelectric Plant, built under various Peruvian governments.

THE LEGACY OF THE NINETEENTH CENTURY AND THE RAILROAD

After the Wars of Independence, Peru emerged a shattered country. The country's old commercial links to Spain had been severed; its treasury was empty and political infighting remained the norm for the following decades. Under these circumstances it proved impossible to develop a coherent national project that would unify an ethnically and geographically diverse country. Only by mid-century, with the advent of the guano boom, could Peruvian elites reimagine their national reality.

The export of guano inaugurated an era of unprecedented prosperity, and between 1840 and 1880 Peru exported over ten million tons with a value totaling 600 million dollars. Shortly thereafter, the economy collapsed. The "Age of Guano" came to be seen as a classic case of "boom and bust," the bust often attributed to the shortsightedness of the Peruvian elite. However, many in the Peruvian elite were aware of the precarious nature of this prosperity and sought to reinvest the riches of guano into more sustainable projects.⁴ The most famous of these initiatives were railroads. The "Age of Guano" therefore, also became synonymous with the era of the

⁴ Gootenberg, *Imagining Development*, p. 11.

“railroad frenzy” and Peru joined the ranks of other Latin American countries which had begun to expand their infrastructure.⁵

As the Peruvian state embarked on this new infrastructural mission, it became clear that the construction of railroads, because of the country’s topography, would be no easy task. Indeed, at the same time the tracks were being laid, naturalists such as Antonio Raimondi were also busy mapping the nation’s main geographical landmarks and constructing an imaginary which would dominate the outlook of republican elites in the future. In time, Peru’s political geography was becoming increasingly uniformized by works such as Mariano Felipe Paz Soldán’s *Diccionario geográfico estadístico del Perú*, which sought to rationally order the various towns, provinces, and economic activities of the country in an alphabetical manner. In this period, the construction of the railroad and the elaboration of Peruvian geography were taking place simultaneously⁶.

The president who initiated the era of railroad building in Peru was the controversial General José Balta. Spending great amounts of money and hiring foreign engineers such as the American Henry Meiggs – who came to be known as the “Yankee Pizarro” – the Balta administration covered Peru in railroads. Although in presidential speeches there is little direct mention of geography, geographical elements underline much of the political discourses of the time. Several decades before the arrival of the German political geographer Friedrich Ratzel, who described the state as a “living organism” which expanded and contracted according to its demographic and economic vitality, Peruvian statesmen were already seeing the state as body which needed to “come to life.” Balta insisted that “the Republic, similar to the human body, needed arteries, which represented by rail tracks, would cross its territory so as to give way to civilization, commerce and industry, as well as to strengthen the links between distant regions.”⁷ This “revitalizing heat of steam” was to be the driving force behind the state and its nation building project.

⁵ The most analogous case is Mexico. See: John Coatsworth, *Growth Against Development: The Economic Impact of Railroads in Porfirian Mexico* (DeKalb: Northern Illinois University Press, 1981).

⁶ Benjamin S. Orlove, “Putting Race in Its Place: Order in Colonial and Postcolonial Peruvian Geography.” *Social Research* 60, no. 2, (1993): p. 306-307

⁷ Archives of Congress, Presidential speech by José Balta to Congress, 28 July 1870. https://www.congreso.gob.pe/participacion/museo/congreso/mensajes/mensaje_nacion_congreso_28_julio_1870

But although the railroad frenzy began with Balta, the politician who best represented the modernizing aspirations of the Peruvian elite and imagined the “utopias” that the locomotive would lead to was Peru’s first civilian president, Manuel Pardo. Although generally critical of Balta, Pardo continued Balta’s public works program, as he too had been a staunch promoter of railroads for the past two decades. Pardo, as a key figure of Peru’s emerging modern liberal elite, saw railways as a way to promote development, as he passionately claimed that railroads would galvanize provincial exports and create internal markets, all of which would culminate in an industrial revolution.⁸ Despite his enthusiasm, however, even Pardo had to admit that Peruvian geography was less than cooperative with the state in this regard, especially as the cost of the railroad frenzy were becoming clearer. When addressing congress in the last year of his presidency, Pardo conceded that the budget for railroads was exceedingly high, yet simply justified this by stating in a matter of fact way that this was not surprising, as “these works had been executed on the Andes.”⁹

This period represented Republican Peru’s first interaction with its geography when it came to the building of complex infrastructures. Yet, despite the railroads crisscrossing the Andes, they did not solve the emerging challenge of Peruvian geography.¹⁰ Indeed, railroads not only failed to create a coherent national unit, but they also failed to bring about the promised economic prosperity, as railroads destroyed regional development by restructuring commerce with an outward oriented model, and outcome that Pardo failed to foresee.¹¹ Worse still, they did not replace regional economies with new ones, as “railroads did not as yet link economically significant zones and thus did not bring new exports into line.”¹²

But another reason for this failure could be found in Peru’s geography itself, as the railroads were among the most expensive built in the entire continent. Even if they were considered engineering feats of their time – the Peruvian Central Railway being the most well-known example – their high construction and maintenance costs meant that trade by horse and mule remained more profitable. Even if this had

⁸ Gootenberg, *Imagining Development*, 71-89.

⁹ Archives of Congress, Presidential speech by Manuel Pardo y Lavalle to Congress, 28 July 1870.

https://www.congreso.gob.pe/participacion/museo/congreso/mensajes/mensaje_nacion_congreso_28_julio_1872

¹⁰ Gootenberg, *Imagining Development*, 104.

¹¹ Penanno, “Desarrollo Regional y ferrocarriles en el Perú,” 135.

¹² Gootenberg, *Imagining Development*, p. 110.

changed in the long term, in 1879 Peru entered the War of the Pacific, a debacle from which it did not recover until the beginning of the twentieth century.

At the dawn of the twentieth century, Peru still considered that railroads could be a harbinger for national integration, indeed, for overcoming the Andean “obstacle” and reaching the economically promising Amazon - a horizontal view of Peruvian geography. In the innumerable pamphlets that emerged during the Aristocratic Republic (1895-1919), railroads were still seen as the preferred infrastructure, precisely because of the country’s topography. Economist Alejandro Garland, outlining the economic opportunities of Peru early in the twentieth century, would say as much. “Peru's territory is so rugged and its population so sparse, it does not have good roads. Most of them are only horseshoe, some traced on the same paths along which the Incas built theirs for the traffic of pedestrians and llamas...The construction of a good highway in the Cordilleras costs a little less, if not more, than that of a railway, and as is natural, preference has invariably been given to the railway.”¹³

Those who still loyally followed the promise of locomotives traversing the Andes, came to consider Peru’s republican geography as a challenge, if not an outright problem. In part, this imaginary was the result of the academic and intellectual evolution of Peruvian geography itself, but it also showed how the difficulty of building a particular infrastructure determined the imaginary of a geographic region.

INFRASTRUCTURE AND PERUVIAN GEOGRAPHY IN THE XX CENTURY: HORIZONTALITY

While Garland still considered the railroad to be an apt infrastructural solution to Peru’s ills, by the 1920s the utopia of the railroads was replaced by the utopia of the automobile, more precisely, the truck. This endeavor began in earnest with the arrival of President Augusto Leguía in 1919, a representative of Peru’s new capitalist class. To achieve his ends however, he enacted a very non-capitalist mean, the infamous Highway Conscription Act of 1920, which required all males between 18 and 60 years of age to work without wages on road projects from six to twelve days a year. Most of these men, unsurprisingly, came from Peru’s Indigenous population. Although there

¹³ Alejandro Garland, *El Perú en 1906* (Lima: Imprenta la industria 1907), p. 235

was a boom in road construction, the law caused considerable resentment among many Peruvians. Again, Leguía's efforts failed to unify Peru or end its dependence on exports - which in any case was far from his goal - as he, unlike Pardo, did seek to exploit Peru's export potential.¹⁴

By the time of Leguía's arrival, what Benjamin Orlove called a "republican geography" had already been fully developed. Institutions such as the Sociedad Geográfica de Lima, had been publicizing through conferences and bulletins the work of local and foreign geographers. Likewise, geography began to be taught in schools in a clear attempt to build a national identity among Peruvians.¹⁵ In a popular textbook of the time, Oscar Miro Quesada's *Elementos de Geografía Científica del Perú* would already determine that the country was divided into three different regions, and that each region was distinct enough to potentially be a separate country. In this horizontal geographic order, the Andes - "very rugged...with steep hills, plateaus...called *punas*, and peaks so high that they are always covered with perpetual snow" - was the main obstacle to the integration of the country.¹⁶ This was particularly true when it came to the construction of transport or "communication" infrastructures - from the Spanish *comunicar*, which also means to connect -as German Stiglich would note in his very popular *Geografía Comentada del Perú*. In his entry regarding roads, Stiglich would lament that "It is always an inhumane, difficult, and expensive task to move from one point to another in Perú," for, "in the same valleys where there is traffic, one sees only one insignificant path along the slopes of the steep hills..." Under such geographic challenges, it was no surprise that "modest towns live isolated, sustaining themselves poorly with what their nearby smallholdings yield. If between town and town all communication is difficult, how difficult is it between the Sierra and the Coast!"¹⁷

With the Great Depression, Leguía's regime crumbled, but the global crisis did not make all Peruvian intellectuals reconsider national priorities. The Great Depression would eventually push many of the countries in the region towards import

¹⁴ For ongoing research on this subject see: Mark Rice, "Roads to Progress: Public Press: Public Perceptions of Highway conceptions of Highway Construction in Peru, 1920-30," (CUNY Academic Works, 2015).

¹⁵ Orlove, "Putting Race in Its Place: Order in Colonial and Postcolonial Peruvian Geography," p. 311. See also: Ombeline Dagicour, "Construir el Estado, forjar una nación. La «nueva geografía» y su enseñanza en el Perú del Presidente Leguía (1919-1930)." *Caravelle*, 106, (2016), pp. 79-96.

¹⁶ Óscar Miró Quesada, *Elementos de geografía científica del Perú*. Lima: Imprenta El Comercio, 1919, p. 4

¹⁷ German Stiglich, *Geografía Comentada del Perú* (Lima: Casa Editora Sanmartí & Cia., 1913), p. 85

substitution industrialization models, although certainly at different times and not in a uniform manner.¹⁸ But Peru largely ignored these trends, and national discourses continued to exalt technical means of integration as the cure for all of the country's problems. Indeed, roads building represented a clear case of continuity in moments of political ruptures.

The government of Óscar R. Benavides (1933-1939) continued Leguía's ambitious road building plan, in part to garner political support. Infrastructural development could unite Peru's population both physically and politically in time of crisis, and instead of fighting among themselves, Peruvians should come together to overcome the challenges of geography. At no point was this clearer than in 1936, when Benavides mulled over the decision of nullifying the electoral process that would have opened the return of a civilian president to power. His chosen candidate, the conservative Jorge Prado, was being defeated at the polls by Luis A. Eguiguren of the Social Democratic Party, with a swarm of voters unexpectedly supporting the latter. It was clear to Benavides, as well as to everyone else, that this deluge of votes came from members of the outlawed radical APRA party, an outspoken enemy of the government.¹⁹ Unwilling to accept the results, Benavides declared the contest null and void before the results were announced.

Two months later, with tensions still high, Benavides gave a speech to Congress in which he justified his decision. In it, he needed a strong unifying message that would bring Peruvians together to leave behind the divisions created by the election. Justifications dealing with the political would not be enough to bring Peruvians together; if anything, they risked tearing them farther apart. It is no surprise then that during his speech he began to speak of what he considered his most "primordial obligation": his roadway plan. Benavides stressed that continuity, not rupture, should characterize the efforts of the Peruvian state, and stated that only one policy must be applied by successive Peruvian governments, that of road building.²⁰

¹⁸ Paulo Drinot and Alan Knight, eds., *The Great Depression in Latin America* (Durham: Duke University Press, 2014), p. 5.

¹⁹ The American Popular Revolutionary Alliance, better known as APRA, was founded in 1930 by Raúl Haya de la Torre. It espoused anti-imperialist and economic nationalist principles, although later in its existence it would moderate its stance in such matters, and even collaborate with Peru's oligarchy. Its followers were known as *apristas*.

²⁰ Archives of Congress, Presidential speech by Óscar Benavides to Congress, 8 December 1936, p. 7.

https://www.congreso.gob.pe/participacion/museo/congreso/mensajes/mensaje_nacion_congreso_8_diciembre_1936

Roadbuilding was special to Peru, as the General stressed that “more than in other countries” roads served a vital function. Such efforts even acquired a religious aura, as they represented a task imposed by providence, and as such, it should become “the national cause.”²¹ The very outcome of Peru becoming a successful nation-state depended on the ability of Peruvians to rise to the challenge. Only through roads could natural resources be exploited; commerce be conducted, and agriculture developed. The general dramatically concluded that “the country’s existence depends, in sum, on roads.”²²

Benavides, no doubt sincerely, was also tapping into a national discourse which had been present since the nineteenth century. His words even resembled the ratzelian tone of General Balta, as they continued the analogy of roads with arteries: “I wish to leave in place all the great arteries of our roadways...so that they may irradiate culture, labor, welfare and riches to all of the regions and all of the peoples of the nation.”²³ In 1939, at the end of his rule, he once again repeated: “There they are, those magnificent networks, spreading throughout the Republic, as new arteries through which the vitality of our economy and the inspiration of our culture flows.”²⁴ The Peruvian national body – as a living organism – needed roads so that its blood could flow and invigorate it; only then could the “greatest national problem be solved.”²⁵

The horizontal conquest inherent in Benavides’ road building plan was founded upon a scientific basis, both in organization and execution. Concerning organization, everything had been prepared to “receive the invigorating impulses of the road plan.”²⁶ When it came to execution, Benavides stressed that the abrupt and varied geography of Peru called for the “technical” to take charge and “execute and solve the multiple and complicated engineering problems that the broken topography of our territory presents to the construction of roads.”²⁷ Benavides reaped the results of these efforts, and claimed that “in contrast to the old pathways, which had been

²¹ Ibid., p. 7

²² Ibid., p. 7

²³ Ibid., p. 9

²⁴ Archives of Congress, Presidential speech by Óscar Benavides to Congress, 8 December 1939, p. 3.

https://www.congreso.gob.pe/participacion/museo/congreso/mensajes/mensaje_nacion_congreso_8_diciembre_1939

²⁵ Ibid., p. 3.

²⁶ Ministerio de Fomento, *Memoria del Ministerio de Fomento* (Lima: Ministerio de Fomento, 1931), p. XV.

²⁷ Archives of Congress, Presidential speech by Óscar Benavides to Congress, 8 December 1939, p. 66.

opened without any technique and which had to be abandoned...Peru now had real highways constructed with geometrical stokes.”²⁸ Such fascination with high scientific approaches can best be seen in the Reports of the Ministry of Development, which showcased modernity by picturing the modern machinery used to construct the “arteries” of the nation, long highways stretching through the Andes and modern proletariats working in remote areas of the country (it should be pointed out that Benavides used road building as a viable employment program). Commemorative monuments alongside highways encapsulated the Benavides administration’s view of his public works program: “Work, peace and progress.”²⁹

By the end of his administration, Benavides could boast of considerable progress in his road building efforts. Indeed, an American traveler in the Amazon remarked that “The old school of tough, hardworking muleteers who faced the hardships of the road unconcerned is rapidly dying out: their trade is gone with the advent of trucks which ply over the steadily growing network of roads.”³⁰ What was more difficult to assess however, were the less tangential benefits of road building. In his last speech Benavides claimed that “Peruvian regionalism, in its three geographic zones” had meant that until a few years prior, Peruvians had not “travelled through our territory, did not know Peru and held tight to our local homelands.” His road building plan had changed this, he argued, allowing Peruvians to “know each other” and to develop their “Peruvianness” (*Peruanidad*). Despite remaining political tensions, Benavides concluded that to “govern is to communicate. Road building is synonymous with patriotism. That is why...the political regime that I preside over is preferably the government of roads.”³¹ Under Benavides, the art of governing prioritized the art of “communicating,” that is, linking and connecting the isolated areas of the country with the aid of the modern highway.

Of course, infrastructure remained a fertile ground for political disputes, and as successful as Benavides was, *apristas* would continue to attack his actions. The

²⁸ Ibid, p. 66

²⁹ Ministerio de Fomento, *Memoria al Congreso 1940* (Lima: Ministerio de Fomento, 1940), n.p.

³⁰ J. V. Harrison, “An Expedition to the Central Andes of Peru, 1939,” *The Geographical Journal*, 95:4 (1940), 242.

³¹ Archives of Congress, Presidential speech by Óscar Benavides to Congress, 8 December 1939, p. 74.

most ardent criticism came from Manuel Seoane - second in command of APRA³² -. Seoane claimed to represent the non-traditional views regarding the development of Peru, a development that, according to *aprista* principles, ought not to be associated solely with capitalist development. However, even such a radical different program could not wholly distance itself from technical discourses of road building, as is evident in Seoane's scathing critique of the Benavides administration, *Autopsia del Presupuesto Civilista*. Seoane's critique attacks the "wasteful" aspects of Benavides' 1936 national budget, including those resources allotted to the Ministry of Development, which he accuses of being run by politicians rather than engineers. Likewise, he criticizes the government's inefficient drive to colonize the Peruvian Amazon, an effort that in his view had been limited to "swallow[ing], but not digest[ing]" some colonies of European immigrants, therefore undermining results that could have "yielded great economic results."³³ Even more worrisome in Seoane's view is that flagship colonies such as the one of Satipo had been used as *gulags* for *aprista* political prisoners, who had been left at the mercy of the "wild nature of the jungle."³⁴

On the specific matter of road building, he criticizes government efforts as well, insisting that they are roads to nowhere, while proposing more "interesting" plans that APRA had in this regard. One of these plans was based on the "restauration of Inca roads - many of which remain intact - which would link north and south, go above the Andes, forking as necessary towards the coast and the Amazon basin."³⁵ By appealing to an even older discourse, the greatness of the Inca Empire and its complex road system, Seoane suggests that such a plan would result in the country's ultimate integration, unlike current efforts, which, according to him, only served the interests of the wealthy. An example of this was the road which linked Lima with the wealthy seaside resort of Ancon.

³² The American Popular Revolutionary Alliance, better known as APRA, was founded in 1930 by Raúl Haya de la Torre. It espoused anti-imperialist and economic nationalist principles, although later in its existence it would moderate its stance in such matters. Its followers were known as *apristas*.

³³ Manuel Seoane, *Autopsia del Presupuesto Civilista: Cómo Derrocha una Casta los Dineros del Pueblo* (Buenos Aires: Comité Aprista Peruano, 1936), p. 156.

³⁴ *Ibid.*, p. 164-165.

³⁵ *Ibid.*, p. 172.

The return of democracy and the end of dictatorship did not symbolize a complete break with the Benavides years. Peru's new president, Manuel Prado (1939–1945), was far more interested in hydroelectric development, but he too could not ignore the road building responsibilities of the Peruvian state. In his first speech to Congress since assuming the presidency, Prado outlined the priorities of his government. His words were not only like those of Benavides during the previous decade, but once again echoed ideas of progress dating back to the nineteenth century. The geographic exceptionality of Peru was once more a departing point of reference: “Road building is the fundamental axis of the national life of a country such as ours, one of such vast territories, filled with topographical obstacles, where until a few years ago, everything seemed opposed to the reciprocal communication between different towns that, dispersed along the *costa*, *sierra* and *montaña*, make up “Peruvianess.”³⁶ The concept of Peru as a body that needed to be united to come to life was also present. The analogy of roads with arteries, and commerce with blood, used by both Balta and Benavides – and others in between – was a recurring theme: “Highways are the arteries of the public and private economies that, powerfully contributing to a better circulation of wealth, represent an undeniable positive value.”³⁷

The task of road building continued to be a sacred one, one which would not only allow for wealth to be better distributed, but also culture, hence creating not only a prosperous country, but a united nation: “[Roads] constitute one of the highest spiritual signals of a people, because together with the movement of goods, they also allow for the exchange of constitutive elements of culture.” The religious aspect was not simply an abstract one, but a real one for roads would also allow the spread of the Catholic religion: “In the special case of Peru, roads make possible that the selfless work of missionaries reaches the most far flung regions, carrying the expressions of religious faith and civilization.”³⁸ In this particular case, we find an apparent contradiction, but one which was not contradictory at all to Catholic Peruvians. Road building, an inherent scientific endeavor, was linked to the spread of faith. Civilization,

³⁶ Archives of Congress, Presidential speech by Manuel Prado to Congress, 28 July 1940, p. 81.

https://www.congreso.gob.pe/participacion/museo/congreso/mensajes/mensaje_nacion_congreso_28_julio_1940

³⁷ *Ibid.*, p. 82.

³⁸ *Ibid.*, p. 82.

hence, did not have entirely scientific connotations, but also religious ones, showing how both modern and old conceptions of civilization co-existed in a country that still retained a strong colonial legacy. Prado concluded once more by insisting that roads would be the solution to all of the nation's problems, as they would end "the isolation of those infertile regionalisms, strengthening ever so more the bonds of national unity."³⁹

Having been the main priority of the Peruvian state for over two decades, it is no surprise that by the mid twentieth century, geographic imaginaries and road building inevitably became intertwined. Nowhere was this more evident than in Antonello Gerbi's influential *Caminos en el Perú*. Gerbi was an Italian imagining Peru's geography and its place in the world. Born to a Jewish family in Italy in 1904, he travelled to Peru in 1938 to work at the Banco Italiano.⁴⁰ In 1944 he wrote *Caminos en el Perú: Historia y Actualidad de los Caminos Viales*, considered at the time as the most thorough study of the country's roads and the significance that Peruvian thinkers had given to them throughout history.⁴¹ The opening words to *Caminos en el Perú* summed up the imaginary that many national and foreign intellectuals had of Peru's complex geography. Given Peru's wild geography, the country lacked one elemental feature which could characterize it – in that sense he was out of step with other intellectuals, who would have portrayed the country as a mountain – and thus could only be explained by the medium that would unite such disparate landscapes: "Peru is a road. Other countries may be summed up in one geographic symbol. Egypt is a valley, Brazil a jungle, Argentina a pampa, Siberia a steppe, England an island, Panama a fractured isthmus and Switzerland a handful of mountains dotted with hotels. Peru is a road: no other geographic category can express it with such precision."

The idea of Peru being a road seemed to encapsulate current trends regarding Peru's geographic dimension and challenges. Gerbi – being far more generous than Benavides when speaking of Peruvian topography – claimed that the country's own geography "seemed to escape all concepts" and ended up labeling it a "terrestrial

³⁹ Ibid., p. 82.

⁴⁰ Giovanni Bonfiglio, *La Estadía de Antonio Gerbi en el Perú* (Lima: Universidad San Martín, 2012), pp. 1-3.

⁴¹ Antonio Gerbi, "Los Caminos del Perú," en *Geografía del Perú*, ed. Emilio Romero (Lima: Ediciones del Sol, 1963), p. 32

archipelago.”⁴² For Gerbi then, Peru’s was a case of geographic exceptionalism. Although conceding that roads are important for every nation, he stressed that they were more so for Peru, for while in other countries roads “strengthened natural communication networks”, in Peru they challenged a “nature in rebellion.” Much like all other intellectuals, he concluded that Peru was a country made by men and not by nature. It was men who through their work connected a divided nation and foretold the coming of progress. As we shall see, other imaginaries would also seek to order this rebellious nature, but would do so vertically, not horizontally.

INFRASTRUCTURE AND PERUVIAN GEOGRAPHY IN THE XX CENTURY: VERTICALITY

From the Second World War onwards, an alternative view of Peruvian geography emerged which was far more nuanced. The Andes, no doubt, represented a formidable challenge towards the construction of communication infrastructures, but new technologies allowed for the reimagination of the mountain chain. For the past one hundred and fifty years the Andes had been characterized as a backward region – as opposed to Peru’s “modern” coast – in part because of their fragmented topography and it being home to the majority of Peru’s indigenous population. Hydraulic technologies changed this. Hydroelectricity, the use of water to generate electric power, became synonymous with Andean verticality, as it depended on the exploitation of rivers and altitude rather than the construction of large dams which characteristic in Latin America and other parts of the world. Beginning in 1930, a new generation of intellectuals emphasized that the Andes had become – in Jorge Basadre’s famous phrase – both a “problem and a possibility.”⁴³ The Andes remained the embodiment of a formidable physical barrier for national integration, but dramatic altitudinal variations also represented an “inexhaustible” supply of hydroelectric power.

The seeds of the opposing debates between the horizontal and vertical nature of Peruvian geography were planted in the early twentieth century, as intellectuals traded ideas back and forth in the Sociedad Geográfica de Lima. While there was consensus that Andean topography was indeed “difficult,” the potential generation of

⁴² *Ibid.*, p. 33.

⁴³ Jorge Basadre, *Perú, problema y posibilidad* (Lima: Librería Francesa Científica y Casa Editorial E. Rosay, 1931).

hydroelectricity appeared to offset many of the challenges that that very same topography presented to the building of communications lines. This concept of a “trade-off” was most eloquently expressed by Eugenio Delgado, the second president of the Sociedad Geográfica, who stated that while Peruvian territory was an “inconvenience” for the construction of roads, its unevenness offered the possibility of providing the country with hydraulic force at more than convenient prices.”⁴⁴ The unevenness of the territory appeared to be both a blessing and a curse. It was a curse in the sense that the development of certain infrastructures appeared as almost impossible, herculean tasks. Yet the same unevenness was a blessing, as hydraulic power could emerge from it.

Such views regarding Peruvian geography also found expression in a new generation of geographers who characterized themselves as *indigenistas*, a movement which, unlike previous oligarchic views that depicted Peru’s Indians as the reason for the country’s backwardness, considered them a regenerative force which would lead the nation into development. Among them we find influential figures such as Emilio Romero and Jaime Pulgar Vidal, who would go on to reinvent Peruvian geography in the twentieth century. Romero, in works such as *Geografía Económica del Perú* sought to link the study of geography with novel economic processes which would lead Peru to development. As for Pulgar Vidal, he sought to break the established geographic consensus of Peru being constituted by three regions by presenting eight distinct geographic units. Meanwhile, in the United States, John Murra began his research on the ability of the Incas to exploit their environment. Inca greatness, the anthropologist would argue, was the result of their vertical conceptions of space, allowing them to incorporate into the empire geographical zones at different altitudinal levels.⁴⁵

The apparent transformation of Peruvian geographic discourses found different political expressions during the following decades. Amid the Great Depression, ideas of state planning grew, and cases such as the Tennessee Valley

⁴⁴ Eulogio Delgado, “Memoria correspondiente al año 1905,” *Boletín de la Sociedad Geográfica de Lima*, Vol. 18, (1905): p. 15

⁴⁵ Emilio Romero, *Geografía económica del Perú* (Lima: Imprenta Torres Aguirre, 1939); Javier Pulgar Vidal, *Las ocho regiones naturales del Perú* (Lima: Universidad Nacional Mayor de San Marcos, 1946); and John V. Murra, *El mundo andino: Población, medio ambiente y economía* (Lima: Instituto de Estudios Peruanos – Pontificia Universidad Católica del Perú, 2002).

Authority reached countries like Peru that looked abroad to invigorate their own technological modernization projects. But it was the arrival of Manuel Prado to office in 1939 symbolized the arrival of great discourses of development and electricity that emanated from the state. For all intent and purposes, development in the mid-twentieth century meant industrialization, and this required a different kind of infrastructure. Thus, “communication” infrastructures now needed to be complemented with hydroelectric infrastructures, the latter producing cheap power to be absorbed by the various future factories imagined by the Peruvian state.

Manuel Prado remains a fascinating yet remains much understudied figure. He was a member of one of Lima’s most prominent families and was perhaps the most well-known representative of the Peruvian oligarchy, the very same leading class that many blamed for Peru’s underdevelopment. As such, Prado has been typically characterized as a *laissez-faire* politician. It is therefore surprising that during both his mandates he dreamt of and promoted large electrification and industrialization scheme. Indeed, the Cañon del Pato Hydroelectric Plant and its accompanying Steel Mill in the city of Chimbote – which he dubbed the future “Pittsburgh of the Andes” – were initiated during his first government.

In 1956 Prado returned to power and sought to rally the country around the inevitable industrialization of Peru. Challenging Prado’s depiction as a purely liberal politician, the pages of his *Plan Prado*, which outlined his vision for developing Peru, thunder with almost dependency like language, stating that “processes of industrialization, of utilization of resources in a growing industrial scale – avoiding the colonialist voyage of exporting raw material so that they return transformed and elaborated as articles to use and consume – is we repeat, the sociological fact of greatest importance in the South America arena and especially in our (country).”⁴⁶ If this dependency had not been shaken off, it was because Peru “as other countries of similar biological and historical formation, has marched too slowly towards the conquest of its riches...” The blame rested on the Peruvian elite – of which Prado himself was one of its most conspicuous members – as it “had not fulfilled the

⁴⁶ Gobierno del Perú, *Panorama de la Electrificación en el Perú* (Lima: Gobierno del Perú, 1962), p. 45

historical task of transforming and integrating its wonderful economic geography.”⁴⁷ Such transformation would have readily taken advantage of “the vast existence of cheap energy, which will allow Peru to enter an era of industrialization, thanks to its natural elements.”⁴⁸

Prado became so obsessed with Peru’s hydroelectric potential that in 1957 he approved the carrying out of a long-awaited Electrification Plan, which was elaborated with both French and Peruvian engineers. Prado also left in place the necessary legal scaffolding to begin the construction of the Mantaro Hydroelectric power plant, the country’s largest hydroelectric achievement. Surveyed and designed by Peru’s most noted scientist, Santiago Antúnez de Mayolo, the plant was to be built deep in the Andes, in the department of Huancavelica. Antúnez de Mayolo would also champion Peru’s vertical generosity throughout his life, as he considered that the country’s innumerable waterfalls could create a “permanent source of wealth in a country in which it is absent.”⁴⁹

By 1961 Prado had established the Corporación de Energía Eléctrica del Mantaro (Electrical Energy Mantaro Corporation or CORMAN).⁵⁰ The power plant represented nothing less than the total transformation of central Peru. By 1962 the race to award contracts began in earnest and offers were made to international financiers for the project. After a controversial period of negotiations, the Italian firm GIE-Impreglio was to oversee construction.⁵¹

By this time, different conceptions regarding Peru’s geography and environment had been presented by foreign and national intellectuals. We need look no further than American anthropologist David A. Robinson and his depiction of the challenges that Peru had to face because of its geography. Although little is known about Robinson, his works were read and reviewed by his contemporaries, and was known for establishing the short-lived *American Studies Press* “with the objective of

⁴⁷ Ibid, p. 43

⁴⁸ Ibid, p. 15

⁴⁹ Santiago Antúnez de Mayolo, *Relato de una idea a su realización o la Central Hidroeléctrica del Cañón del Pato* (Lima: Editorial Medica Peruana, 1957), p. 10

⁵⁰ Neydo Hidalgo, *Hidroeléctrica del Mantaro: El Arte de Hacer Luz* (Lima: Electroperú, 2010), p. 96

⁵¹ Ibid, p. 109

publishing works in English on western South America.”⁵² The American Studies Press would publish the English version of Fernando Belaúnde’s famous *La Conquista del Peru por los Peruanos (Peru’s Own Conquest)*, for which Robinson wrote the introduction.

Robinson presents a dramatic picture of Peru’s topographical realities: “Where her neighbors have specific problems of one sort or another, Peru has them all and a few more on top of that. Geographically, nature parsimoniously sliced the topography into varied habitats than one can find anywhere in the tropics.”⁵³ Using the well-known division of Peru into three geographical areas, Robinson described the coast as a “thin strip of parched desert” dotted with a few green valleys, where “misery and hunger exist side by side with wealth and luxury.”⁵⁴ What was more problematic, however, was what lay behind this “ribbon of aridity.” The Andes rose “like the abutments of a Medieval Castle overlooking the moat of the Pacific” and just as “formidable today for man to conquer as were the ramparts of European castles in their day.”⁵⁵ Below was the Amazon basin, its riches well out of reach for Peruvians, protected by the peaks of the Andes. Peru, hence, was “geographically fractured into many worlds.”⁵⁶ It would appear, hence, that Robinson shared a clear horizontal view of Peruvian geography. However, unlike his predecessors, Robinson saw opportunity within this complex landscape. In his later work, *Peru in Four Dimensions*, we find perhaps the most concise and clear description of Peru’s geographic paradox with the description of the potential for hydroelectric power: “The Andes, with their extreme relief and broken terrain, inhibit many aspects of economic development, but Peru’s hydroelectric power potential is a direct result of their ruggedness.”⁵⁷ Foreigners shared Peruvian views that the Andes inhibited but at the same provided the key for Peru’s economic development.

Robinson of course, considered that for such potential to become reality an active political vision was needed. Being the translator of Belaúnde’s work, it seems

⁵² William M. Denevan, review of David A. Robinson, *Peru in Four Dimensions*, *The Hispanic American Historical Review* 46, no. 3 (1966): pp. 334-335.

⁵³ David A. Robinson, “Introduction.” In Fernando Belaúnde, *Peru’s Own Conquest* (Lima: American Studies Press, 1959), p. 11

⁵⁴ *Ibid.*, p. 11

⁵⁵ *Ibid.*, p. 12

⁵⁶ *Ibid.*, p. 13

⁵⁷ David A. Robinson, *Peru in Four Dimensions* (Lima: American Studies Press, 1962), p. 330

that he considered the latter the adequate person to “tame” Peru’s unique geography. Indeed, as we shall see, Fernando Belaúnde Terry would offer a far more concrete plan of action about the relationship between the state and the environment. Belaúnde’s work is important for a number of reasons. First, he himself would become president in the year 1963, and by that time the construction of the Mantaro Hydroelectric Plant was already in full force. Secondly, much of his presidential campaign was based on his ideas of the “reconquest” of Peru.

Born during Peru’s “Aristocratic Republic” to an upper-class family, Belaúnde obtained his degree in Architecture from the University of Texas at Austin. He became one of Lima’s best-known architects. By 1944 he had become active in political life, serving as congressman in President José Bustamante’s National Democratic Front. He became nationally famous when he led a mass protest during the dying days of General Manuel Odría’s dictatorship when the latter sought to impede the registration of his presidential candidacy.

Although Belaúnde failed in winning the elections, he obtained a substantial number of votes. This encouraged him to establish a new political party called *Acción Popular*. The ideological foundations of the new party were conceived during the 1950s when he travelled extensively throughout the Peruvian territory. His impressions were gathered in *Peru’s Own Conquest*, where he asserted Peru’s “new” conquest would be carried out by Peruvians themselves and that they would do so by finding inspiration by looking back at their Incan ancestors and their traditions of community and cooperation that allowed the establishment of an empire not despite Peru’s complex geography and environment but because of it. In this new era, however, Peruvians would be significantly aided by capital and technology from abroad, as Belaúnde was seen as a fundamental piece of the United States’ sponsored Alliance for Progress.⁵⁸

For Belaúnde, “the difficult and abrupt topography of our country has constituted, and will always constitute, a real challenge to those who inhabit it; and, in its way has shaped the vigorous personality of the Andean man.”⁵⁹ Speaking in wholly

⁵⁸ *Ibid.*, p. 290

⁵⁹ Fernando Belaúnde, *Peru’s Own Conquest* (Lima: American Studies Press, 1959), p. 88

geographical determinist terms, he goes on to say that “Geography is a fundamental factor; here it does not favor man as in other civilizations, rather, it is against him. The geographical determinant is not, as in Egypt, a fertile, sheltering valley, but a harsh and steep chain of mountain. And yet, the implacable Andes were the cradle of an immortal civilization, just like the fertile Nile.”⁶⁰ However, because ancient empires *did* emerge in this unfavorable geographic context, Peru could do so again, but to do so the Andes had to be “conquered” through the development of infrastructure.

Peru’s Own Conquest centered more on the difficulties of road building and agrarian reform (the latter being a particular pressing problem in 1950s and 1960s). Yet, it is an important work in understanding existing Peruvian notions of geography and, furthermore, discourses that linked its “conquest” to ancient pre-Columbian civilizations. But perhaps it is in his analysis of the engineering feats of the latter – particularly when it came to hydraulic systems – where the aspect of “conquering” translates into something different. “The builder (pre-Columbian peoples) does not destroy or mistreat the topography, but rather seems to caress it.”⁶¹

It was precisely this “caressing” of river flows which had informed scientists such as Santiago Antúnez de Mayolo when he designed Peru’s largest hydroelectric power plant. Yet despite his celebration of the Andes, Belaúnde, was very ambivalent towards the Mantaro project. As a man who celebrated the Andes and Peru’s Incan past, he seemed to not be able to look beyond the actual infrastructures that the Incas themselves built, such as roads and irrigation. Indeed, his main obsession was his own road plan, which strengthened the tripartite imaginary of the country.⁶² In this sense, Manuel Prado, a far more conservative figure than the reformist Belaúnde, had a far more dynamic view of the Andean Mountain chain.

Belaúnde, like Prado, was not able to finish his mandate, as he was ousted from power in 1968 by a group of Generals led by Juan Velasco Alvarado. This new government, self-proclaimed as the “Revolutionary Government of the Armed Forces,” had far more ambitious plans than either of its predecessors. The nature of the new military government was a mystery because the government now followed a new

⁶⁰ Ibid, p. 89

⁶¹ Ibid, p. 40

⁶² Orlove, “Putting Race in Its Place,” pp. 329-330.

doctrine of “integral defense” in which threats to the state included dependency and imperialism. Import substitution models, which inevitably required an abundant amount of electricity, became the norm. Construction sped up, and the project was finalized in 1973.

Upon the inauguration of the power plant, the military government presented it as a great achievement of the Revolution. Did this not mean that the new military government did not recognize the past of achievements of those who designed it and began its construction. Certainly, Santiago Antunez de Mayolo - hailed as an “exemplary and visionary Peruvian” - was beyond any criticism even by the most hardened revolutionary officer. But it considered that previous governments, while wishing perhaps to “reconquer” Peru, did not wish to embark on the real conquest that the country needed: to end imperialism and dependency. It is not, therefore, that old discourses had been discarded by the new revolutionary government, but rather, that they were framed in the language Third World activism and the Non-aligned movement at this critical juncture of the Cold War. The vertical conquering of geography through great public works also meant obtaining true independence, which according to the new government, had eluded Peru since it's the days of the independence. Together with the ambitious program of agrarian reform, the electrification of the Andes meant imposing a new modernity on what had previously been depicted as a traditional and backward heartland.

CONCLUSION

Since the nineteenth century, Peru carried out an ambitious project of expansion of transport or communication infrastructure, specifically railroads and highways. Such infrastructures were deemed to be necessary to achieve economic development as well as for creating a unified nation, ultimately based on ideas of science and modernity. Likewise, the construction of railroads and highways was inevitably based on horizontal understandings of Peruvian geography, which meant “breaking” through the Andean barriers to communicate peoples and radiate economic growth. These efforts made it possible for successive governments, whether of a military or civilian nature, to pursue such goals. In this sense, road

building presents a rare case of continuity rather than rupture in Peruvian state building.

The same cannot not be said of geographical discourses, which highlighted the fundamental paradox of Peruvian geography. Thanks to hydraulic energy, previous obstacles to development could now become its driving forces because of Peruvian verticality. It allowed future Peruvian statesmen and intellectual to grapple with the duality of the country's geography, and to reimagine the country's development. Much like roads, the construction of electric infrastructure undeniably continued from one government to the next, although unlike roads, the speed and scope of progress was affected by the political dynamics that each government had to face, as well as competing notions of development.

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Entre la Horizontalidad y la Verticalidad: Infraestructuras e Imaginarios Geográficos en el Perú Poscolonial

RESUMEN

Este artículo analiza los diferentes imaginarios geográficos que surgieron en el Perú después de la independencia y cómo estos fueron moldeados por las infraestructuras impuestas sobre paisajes complejos. Argumento que las concepciones geográficas horizontales del territorio peruano se vieron reforzadas por el desarrollo de infraestructuras de “comunicación”, específicamente la construcción de carreteras, que representaron a la Cordillera de los Andes como un obstáculo para la integración nacional. Por el contrario, a partir de mediados del siglo XX surgieron representaciones verticales de la geografía peruana, impulsadas por la construcción de grandes centrales hidroeléctricas, que dependían de la complejidad de la topografía andina que justamente dificultaba la construcción de otras infraestructuras. En esta concepción vertical, la complejidad de los Andes no solo debía ser “conquistada”, sino también hábilmente “aprovechada”. Ambos imaginarios horizontales y verticales de la geografía peruana coexistieron, fomentando la noción de que la geografía peruana presentaba tanto un problema como una posibilidad para la búsqueda del desarrollo nacional.

Palabras clave: infraestructura; geografía; Perú; caminos; hidroelectricidad.

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