

Death by Water: The Rise and Fall of Los Saltos del Guairá.

The fall of the waters, whose noise can be heard miles off, is most deafening, and like the roar of thunder; the ground in the neighbourhood also trembles as if a volcano was burning the inside of the earth. Of its sort the falls of Guayra has no rival, and of it can be said that even the far-famed Niagara must do it homage as a King of Nature. The famous waterfalls of the world known up to the present time would be considered pigmys by the side of the Parana giant.¹

“The Waterfall of Guayra,” *Manchester Courier* (25 April 1876)

Until 1982, los Saltos del Guairá, known in English as the Guayra Falls, and in Portuguese as Sete Quedas (Seven Falls), on the Brazil-Paraguay border were the most powerful waterfalls on earth, surpassing the other cataracts of the world in volume and offering a dramatic visual and aural spectacle. However, in October 1982, these immense falls vanished, submerged in two weeks by rising river levels extending behind the vast reservoir created by the massive Itaipú Dam (Fig. 1). Itaipú, located 170 kilometres south of the falls on the Paraná, and jointly-run by Brazil and Paraguay, was the product of a Brazilian drive for energy which saw the two countries develop a project subsequently voted one of the seven wonders of the modern world in 1994

by the American Society of Civil Engineers. Providing close to a fifth of Brazil's electrical energy needs, and almost all of Paraguay's, Itaipú became the largest hydroelectric project in the world, achieving a new world-record in 2016 with production of 103,098,366 MWh.

Itaipú has been the subject of numerous scholarly studies, a *National Geographic* documentary, as well as inspiring an eponymous symphonic cantata by US composer Philip Glass.² It also plays a prominent role in Paraguayan politics in the context of the country's "hydroelectric sovereignty" following the Itaipú Treaty (1973), which dictated terms regarding the export of Paraguay's surplus energy that were highly advantageous to Brazil.³ A major tourist attraction in Paraguay, and a source of pride as a symbol of the country's modernity, Itaipú, however, ensured the disappearance of los Saltos del Guairá, an extensive natural formation (Fig. 2) that held an important place in Paraguayan history and the literature of landscape in Latin America. The disappearance of the falls has been described as "the greatest loss of the planet's scenic heritage" resulting from dam construction, but despite this, with the exception of a short entry in R. Andrew Nickson's *Historical Dictionary of Paraguay* (2015), no study of los Saltos del Guairá in the literature and history of Latin America has yet appeared in English.⁴ While in Portuguese, a number of studies have focused on the Brazilian contexts of the inundation of Sete Quedas and the political, social and environmental consequences of the construction of Itaipú, in both Spanish and English information on the rich history of the falls lies across Jesuit histories, travellers' accounts and Paraguayan archives.⁵ The end of the falls went unreported in international media in 1982, and outside of Paraguay and

Brazil, knowledge of the former existence of los Saltos del Guairá remains scant. Their history, and the circumstances leading to their disappearance, therefore, represents an unexamined moment in the environmental history of Latin America, a lacuna in the record of modernity's transformation of natural landscapes. If, as Shawn William Miller suggests, the "work of environmental history is to recover, in a sense, what is lost, and to make it dear to our historical consciousness," then this article aims to uncover the history of one of the most impressive vanished places of the earth by exploring the literary, cultural and political contexts of los Saltos del Guairá.⁶

The history of this Paraguayan and Brazilian exchange between geography and the poetic and scientific imaginations sheds important light on evolving attitudes to the environment in an especially dramatic context. Responses to the monumental falls by Jesuit missionaries in the seventeenth century, scientifically-minded travellers and explorers in the eighteenth and nineteenth centuries, through to politicians and engineers in the twentieth century chart a journey from trepidation before the natural sublime to an emerging awareness of the possibility of material intervention and control over nature. However, while the history of los Saltos del Guairá documents the human experience of nature, its fate also records *nature's* experience of people, notably the environmental consequences of the economic development of nation states in the twentieth century. From the beginning, los Saltos del Guairá took up a prominent role in the imaginaries of Jesuit historians and travellers, later becoming, in the 19th and 20th centuries, central to the political and material aspirations of both Paraguay and Brazil. Whereas the falls, in their physicality, were long-conceived as fundamental to

Jesuit, and later national histories, the imperatives of modern economic transformation suddenly became founded on their disappearance.

This study, therefore, explores in detail how people came to “to understand, define and ultimately transform” one of the most remarkable natural sights in South America.⁷ Human intervention in the environment perhaps offers no worse example than the disappearance of los Saltos del Guairá, and the loss takes on particular significance in the context of ongoing dam construction in both Latin America, especially in Brazil, and around the world. It also highlights how environmental wounds can be concealed, especially where superlatives formerly employed to define the world’s most powerful falls have been co-opted to describe the world’s most powerful dam. In this respect, the changing rhetoric of writers who evoked a singular landscape also bears witness to an exemplary feature of the transformation of the modern world, whereby nature which “had previously been known only as an elemental force . . . now became an invisible but efficient power with unsuspected possibilities.”⁸ Travellers contributed to a fascination with the various lost, isolated, but potentially recoverable worlds of South America, but this gradually ceded to a language that prophesied the harnessing of the unchained power of the Paraná into the channelled production of electrical units; ensuring the sudden, definitive end of los Saltos del Guairá.

Between History and Legend: Early Writings on the Falls

Situated at 24° 02'S 54° 16'W, where the world’s eighth largest river narrowed precipitously from a width of over four kilometres into a gorge comprised of a series of cascading channels, los Saltos del Guairá “thundered

over 18 separate cataracts each more than 30 metres high,” seven of which constituted the major falls referred to in the name Sete Quedas.⁹ In *Among the Waterfalls of the World* (1935), an illustrated survey of the world’s then major cataracts (Fig. 3), Edward C. Rashleigh outlined the “immense unchained power which Guayra conveys,” divulging that “the average mean flow is not merely far more than double that of the mean of Niagara, but exceeds the *combined* mean volumes of Niagara, Paulo Affonso, the Iguazu Falls, the Grand Falls of Labrador, the Victoria Falls of the Zambesi and Kaieteur rolled into one!”¹⁰

Of the falls listed by Rashleigh, Guayra, Labrador (Canada), and Paulo Affonso (Brazil), have all now vanished; submerged, controlled, or dried up in the drive for renewable energy. However, before the development of hydroelectric projects in the late-nineteenth and early twentieth centuries, a visit to these waterfalls proved irresistible to adventurous travellers, for whom “the esthetic *pleasure* of the sight singlehandedly constitute[ed] the value and significance of the journey.”¹¹ In the 1870s, Scottish writer R. B. Cunninghame Graham travelled through Latin America, and in *A Vanished Arcadia* (1901), a history of the Jesuit missions, he reflected on the falls of Guayra and their isolation, drawing attention to their enigmatic reputation, inaccessibility, and the sparse number of accounts of previous travellers: “Few European travellers even today have visited the great cataract known as El Salto de Guayra, or in Portuguese as Sete Quedas. . . . Situated as it is in the midst of almost impenetrable forests, it has not even now been properly placed upon the map.”¹² For Graham, a Socialist who viewed Jesuit Paraguay in a Utopian light, the falls offered an imposing entrance to a country

frequently placed beyond the stream of modernity, either through the dictatorship of Dr. José Gaspar Rodríguez de Francia (1766-1840), who closed Paraguay to the world in the early nineteenth century, or by the geopolitical designs of Brazil and Argentina, both of which acquired Paraguayan territory after inflicting a devastating defeat on the country in the War of the Triple Alliance (1864-70). Still remote and resisting modernity, the falls stood as a portal to the past: “Buried in the primeval forests, forgotten by the world . . . the giant cataract is a lost wonder of the world.”¹³

While the forgotten nature of the falls appealed to Cunninghame Graham, it was their distinctly *unforgettable* nature that characterized their important place in the earliest descriptions of Latin America. Spanish cleric and explorer Martín del Barco Centenera’s (1535-c.1602) poem *Argentina y conquista del Río de la Plata* (Lisbon, 1602) prefigured Jesuit accounts of the wonders of the continent, surveying the territory of the Paraná and offering what would become a recurring trope in Baroque estimations of the excess of the natural landscape of the New World: “The falls / My hand is trembling, and I flee from them / The most horrible and dreadful thing / In all the wide and wonderful Paraná.”¹⁴ In the work of colonial administrator Ruy Díaz de Guzman (1559-1629), whose *Historia Argentina* (1612) offered an outline of the early conquest of the region, the author wrote of “that strange cataract, which I take to be the greatest wonder of nature in existence.”¹⁵ In such accounts, the falls embody a natural formation that inspires the “discourse of the marvellous” which Stephen Greenblatt has labelled as “the central figure in the initial response to the New World.”¹⁶ Describing the Paraná’s violent progress through the channels of the falls, Guzman observed that “no human

eye or brain can look on it without fainting and losing consciousness. The noise of the falls is heard eight leagues away, and at six leagues off you can see the steam and mist from the falling water rising like white cloud.”¹⁷

Elaborating on such descriptions, Jesuit Nicholas del Techo (1611-80) echoed the rhetoric of amazement, casting the falls as the pinnacle of Latin American natural majesty. In “The Wonderful Precipice of Guayra,” part of his *History of the Provinces of Paraguay, Tucuman, Rio de La Plata, Parana, Guaira, and Urvaica* (1704 [1673]), Del Techo observed that “Very many fabulous stories have been made concerning this Precipice . . . and I know not whether there be any thing in the world more wonderful of that kind; at least in America, there is nothing more dreadful, or more spoken of.”¹⁸ These accounts echo descriptions of natural phenomena elsewhere in the Americas, including early descriptions of Niagara Falls, which spoke of a “frightful abyss” with “a sound more terrible than that of thunder,” and such language “stimulated in Europeans the macabre vision of the New World . . . [where] a gargantuan cataract foamed and roared in the unknown interior of the continent.”¹⁹ Common to accounts of both Niagara and los Saltos del Guairá is a spectacular natural backdrop to the work of spiritual salvation, with Jesuit natural histories of South America beholding both wonder and terror to afford “a glimpse into the perturbing side of the Guaraní Eden.”²⁰

It is from Jesuit accounts, particularly Antonio Ruiz de Montoya’s (1585-1652) *Conquista espiritual hecha por los religiosos de la Compañía de Jesús en las provincias del Paraguay, Paraná, Uruguay y Tape* (1639), that the association of waterfalls with Jesuit missions originates, something exploited in the film *The Mission* (1986), shot at Iguazu Falls following the inundation of Guayra in

1982, and inspired by passages from Montoya and Del Techo in Philip Caraman's *The Lost Paradise* (1977). After the establishment of the initial mission settlements on the Río Paranapanema in 1610, above Guayra Falls, Montoya fled the incursions of Brazilian slave traders (Paulistas) in 1631 and moved with thousands of Guarani down the Paraná to the territory that forms modern-day Paraguay. This exodus, achieved at the cost of sickness, hunger, and death, involved circumnavigating “the great cataract of the Paraná . . . [which] was counted on by the Jesuits as an effective safety-line between their intended settlements and the ravaging Paulistas.”²¹ Described by Montoya as “one of the wonders of the world,” the prominence of los Saltos del Guairá as the major geological feature of the region is also evidenced by its appearance in contemporary Jesuit cartography.²² In Giovanni Petroschi's *Paraquariae Provinciae* (1732), the falls feature imposingly as the “salto grande,” or Great Fall, mapped as a semi-legendary gateway to Jesuit Paraquaria. The connection in Jesuit texts between landscape and the narrative of the mission settlements initiated a historiographical process that identified the contours of later Paraguayan territory with los Saltos del Guairá. For instance, in 1965, during the stand-off between Brazil and Paraguay over the falls and potential hydroelectric development, Paraguayan historian Efraím Cardozo observed that “to speak of los Saltos del Guairá and to speak of Paraguay is to speak of one and the same thing.”²³

In the history of scientific writings about Latin America, Jesuit accounts were later scorned for their embrace of the marvellous. As a result, they were implicated in what has been labelled the *querelle d'Amérique*, or the “Dispute of the New World,” which informed attitudes to Latin America in science and

philosophy from the sixteenth to the nineteenth century.²⁴ Thinkers such as Hegel propagated the idea that the natural features of the Americas displayed a “physical immaturity” and were “not only relatively new, but intrinsically so in respect of their entire physical and psychical constitution.”²⁵ Responding to this intellectual context, the most important subsequent appearance of los Saltos del Guairá in writing comes from Spanish naturalist Félix de Azara (1746-1821), who surveyed the territory of Río de la Plata following the Treaty of San Ildefonso (1777), which established the new limits of Spanish and Portuguese possessions in the region following the expulsion of the Jesuits in 1767.

Frequently drawn on by later travel writers, Azara wrote in conscious opposition to de Buffon, de Pauw, and Linnaeus, who had denigrated the flora, fauna and landscape of Latin America as geologically immature. As an obvious site for establishing the claims of South American geography, Azara offered detailed evidence of the form and power of the falls to counter accusations of Jesuit marvel-spinning and simultaneously to position Latin American nature as equal if not greater than that of Europe. Presenting a descriptive overview of the structure of the falls, Azara wrote that “The Guayra Falls . . . lie not far from the Tropic of Capricorn at latitude 24° 4’ 27”, following observations. It is a frightful cataract worthy of description by poets.”²⁶ Elsewhere in Azara’s accounts, the falls were equated with classical European landscapes, becoming “worthy of description by Virgil and Homer.”²⁷ In effect, Azara writes in terms later familiar through the work of Alexander von Humboldt, offering a scientific underpinning to a still

“dramatic, extraordinary nature, a spectacle capable of overwhelming human knowledge and understanding.”²⁸

Azara’s testimony stood as authoritative throughout the nineteenth century for want of more substantiated evidence, but explorers, geographers and scientists still attested to the semi-legendary nature of the falls resulting from the dearth of descriptions and their continued remoteness. In *The Hydraulics of Great Rivers: The Paraná, the Uruguay and the La Plata Estuary* (1874), English engineer J. J. Révy surveyed earlier Jesuit accounts alongside the writings of Azara, outlining the need for further information on a place that still existed stubbornly between fact and fiction, observing that the only ascertainable fact was “that a prodigious Fall, involving the concussion of immense masses of water, exists in the Central South American continent on the Parana, the largest river in the world, except, perhaps, the Amazon.”²⁹

Subsequent accounts by nineteenth-century travellers, while shaped by the scientific positivism of the age, nevertheless compounded the uncertainty, with most characterized by a lingering determination to transmit an aesthetic of the sublime in registering the sight, and especially the sound, of the falls. Manuel de San Martín’s *Un Viaje al Salto Guayra* (Asunción, 1897) stated that neither the Jesuits nor Azara had done justice to the tremendous nature of the place: “I don’t think that anywhere quite like Guayra exists on earth,” while also seeking to offer a contemporary account of a place laden with “semi-mythological notions, lost in the mists of time.”³⁰

This aspect of the falls, their fame but simultaneous obscurity, was recorded in *The Geographical Journal* in 1911, which received correspondence from a traveller to “the famous Guayra falls on the upper Parana river, which,

though long known . . . have not yet been seen by any large number of Europeans, and, so far as we are aware, have not hitherto been the subject of a first-hand description by an English traveller.”³¹ Similarly, in 1908 the *Buenos Aires Herald* had asserted that “it was not possible to ascertain the name of more than 18 Europeans who had visited the falls.”³² Among documented accounts, the most detailed work in the late-nineteenth and early-twentieth centuries came in Emmanuel de Bourgade la Dardye’s *La Paraguay* (Paris, 1889), and from Serbian explorers, brothers Mirko and Stevo Seljan, whose richly illustrated *El Salto del Guayra/La Chute du Guayra* (Buenos Aires, 1905) sought to document the site photographically and to imbue the falls with an aura of classical grandeur. An additional feature of these writings was the endeavour to see both Iguazu and los Saltos del Guairá in one journey, given their geographical proximity, with Jose Rodriguez’s *A Traves del Iguazu y del Guayra* (1917) and Julio Nogueira’s *Do Rio ao Igaassú e ao Guayra* (Rio de Janeiro, 1920) elaborating on the additional hardships of reaching the latter on a journey through the wilderness of Western Brazil and Eastern Paraguay.

Modern Travellers, Tourism, and Hydroelectric Power

Following the end of the War of the Triple Alliance in 1870, which saw Paraguay lose eastern territory to Argentina and Brazil, the country experienced a period of sustained economic liberalism.³³ Large tracts of Eastern Paraguay, devoted to the *yerba mate* trade, were purchased by companies such as the Anglo-Argentine *Industrial Paraguaya*, and Paraguay sought to attract foreign capital and promote its potential at events such as the 1897 World’s Fair in Brussels.³⁴ Foreign speculators surveyed a country still shrouded in enigma, and as accounts of the falls appeared in geographical

and economic publications in the late-nineteenth and early twentieth centuries, an emerging characteristic was analysis of the possibility for tourist development and technological transformation.

Employing a style found frequently in British writing about Argentina in the same period, Alexander Baillie's *A Paraguayan Treasure* (1887) offered a combination of adventure novel and emigration handbook, focusing on economic opportunities in Paraguay under the guise of a search for the putative buried treasure of recently-deposed dictator Francisco Solano López. In case of uncertainty, the novel confirmed Paraguay's geographical location, but also its new connection to the global economy, clarifying that the country lay "in South America, about thirty days from home, and in easy communication by post and telegraph."³⁵ Exploring the dramatic potential of the falls in ways that looked to both their legendary past and their future development, the narrative drew upon the language of Jesuit accounts, noting that "at thirty miles from the Falls of Guayra, a noise is heard like thunder; [so] that settlements had to be abandoned because the inhabitants became deaf."³⁶ The culmination of the plot sees the treasure of the title end up at the bottom of the falls, presently lost to history. However, Baillie's work is sufficiently a product of the era of the Suez and Panama canals to envisage a moment inconceivable to earlier writers, in which the Paraná and the falls become governable, with "the treasure itself, never again to appear until some gigantic force of Nature lays bare the bed of the river, or some unexampled feat of engineering, diverts the course of the Alto Parana."³⁷ This potential to imagine the altering of the hitherto immutable also appears in Victorino Abente's poem "Salto Guairá" (1899). While evoking the sublimity of the

movement of the falls, the Spanish-Paraguayan poet also dwells on futurity, displaying a portentous uncertainty before the idea of unchanging nature: “Will your career, tumultuous and proud, end one day? Or will the ceaseless movement of your wrathful, roaring waters last as long as the world?”³⁸

Surveying the role of los Saltos del Guairá in Paraguayan history, Efraím Cardozo observed that “The economic and technological revolution occurring elsewhere in the world that sought to capture the power of great waterfalls did not go unnoticed in Paraguay. At the same time as the United States undertook work at Niagara, in our country the first expeditions and investigations took place to gauge the power of los Saltos del Guairá with a view to its later use.”³⁹ The spectre of Niagara Falls represents a key context for reading the transformations which later occurred at los Saltos del Guairá. The nineteenth century saw the coming to Niagara of projects such as Roebling’s Suspension Bridge, burgeoning mass tourism, and hydroelectric power stations. In 1897, the *Literary Digest* registered such concerns in an article entitled “Is Niagara Doomed?” and this unease spoke to contemporaries concerned with the development of the world’s other famous cataracts.⁴⁰ In her analysis of modern cultural and economic history of Victoria Falls, JoAnn McGregor has observed how frequently “Niagara’s precedent was invoked” in “struggles over the physical and symbolic landscape of the Falls as it was turned into a tourist resort.”⁴¹ Initially taking the form of optimistic expectations of “urban and industrial developments” near Victoria Falls, connected to tourism and hydropower, this transformed into “debates over conservation” in light of the view that “new industrial prosperity in Niagara had spoilt its aesthetic appeal.”⁴² Niagara’s shadow can

be traced in writings about los Saltos del Guairá from the turn of the twentieth century, as tourist and hydroelectric potential saw the distinctive roar of the waters elicit a new range of responses increasingly removed from the awe-struck immobility of earlier travellers. As Walter D. Mignolo has observed, “If, in the sixteenth century, ‘nature’ was conceived in terms of lands and territories to be mapped or as the spectacle of the world through which its Maker could be known, from the beginning of the nineteenth century ‘nature’ became the fuel, the raw material, for the Industrial Revolution and the forward-moving engine of progress and capital accumulation.”⁴³

In Alexander K. MacDonald’s *Picturesque Paraguay* (1911), the author assessed the lack of infrastructural development at the falls. Highlighting the time, difficulty and stamina needed to reach the site, MacDonald envisaged appropriate future intervention: “Some day an enormous population will develop the hidden wealth of this region. Indeed, the Falls alone might provide sufficient electrical power for the whole Republic. What has been already done in North America will be done in the future in the South of the continent.”⁴⁴ In evidence here is what Mary Louise Pratt terms an “explicit interaction between esthetics and ideology,” in which “the esthetic qualities of the landscape constitute the social and material value of the discovery to the explorers’ home culture, at the same time as its esthetic deficiencies suggest a need for social and material intervention.”⁴⁵ Manuel de San Martín’s *Un Viaje al Salto Guayrá* (1897) was also optimistic regarding development, outlining of how the falls would meet the future: “Tourists will then come in their thousands to visit the great falls, as they now go to visit Niagara, the

falls of the Rhine, the falls of Gavernie, and many others, all of which are of much less interest than Guayra.”⁴⁶ Contrary to such expectant visions, in 1922, in *The Golden River: Sport and Travel in Paraguay*, J. W. Hills and Ianthe Dunbar saw the growth of international tourism and hydroelectric power as a threat to the historical and natural continuity of the falls, tarnishing the landscape and diminishing the experience of the intrepid traveller. “Such are the Falls, untouched by man. Untouched, however, they will not long remain . . . before long Messrs. Cook . . . will run you out from London, three days at the Falls, at an inclusive charge there and back, English spoken all the way, and first-class accommodation in steamer, train and hotel.” Envisaging an emerging world of pampered international globetrotters, future tourists would “see what we saw, but it shall be tamed [. . .] and you shall mark with approval how all this force has been harnessed for the service of man, and no longer allowed to run to waste, in Nature’s foolish fashion.”⁴⁷

Contemporary with the work of such writers, developments were occurring to ensure that neither possibility sketched above would be realized. Between the vision of improvement outlined by MacDonald in 1911 and the spoliation of the hordes dreaded by Hills and Dunbar in 1922, los Saltos del Guairá would instead experience modernity as death by water, as preliminary excursions to investigate hydroelectric potential took place at the turn of the twentieth century. Pietro Antonelli’s *Salto Guaira* (Buenos Aires, 1896) sought to gauge the rate of flow of the waters, but resorted to a familiar rhetoric of wonder in which the traveller “seems to be in another world” in the presence of an “incomparable embodiment of nature.”⁴⁸ Following articles by Carlos Frutos on “Energías del Salto del Guairá” published in Asunción’s *El Diario*

on 28 and 30 January 1915, the first full report into the possibility of hydroelectric development at los Saltos del Guairá featured in Mario Mariotti's *Posibilidades del Desarrollo de la industria hidro-eléctrica en el Paraguay* (1925). Mariotti, an Italian engineer employed with *La Industrial Paraguaya*, asserted that “the energy that can be supplied by the rapids and torrents of the headwaters of los Saltos del Guairá is indeed considerable.”⁴⁹ Signalling their importance to Paraguay's territorial identity and economic future, the falls featured on the Paraguayan 100 peso banknote in 1925, while R. B. Cunninghame Graham, a longstanding sceptical observer of modernity and progress, added a footnote to a new edition of *A Vanished Arcadia* in 1924, remarking that the great forgotten cataract on the Paraná had unquestionably, and “unfortunately,” been “rediscovered.”⁵⁰

Itaipú and the End of Los Saltos del Guairá

[I]t has been proved that there can be no question of any major hydroelectric development at Guayra for many years to come.⁵¹

***The Geographical Journal* (March 1932)**

Paraguay's modern association with the economic potential of los Saltos del Guairá, as represented by their appearance in publications such as the government-sponsored *Antología Gráfica del Paraguay* (1911), reached its apogee during the dictatorship of Alfredo Stroessner (1954-89), who, as Christine Folch has observed, “staked his regime's claims to modernity and legitimacy on a gargantuan hydroelectric project, Itaipú Dam.”⁵² Stroessner's personalist rule drew strongly upon the legacy of Paraguay's authoritarian past, but, importantly, it also saw the country's progress become irrevocably

“intertwined with its foreign relations.”⁵³ Dominated by the shadow of what Raúl Zibechi has termed Brazil’s “regional imperialism,” Paraguay’s links to its eastern neighbour were characterized by an unequal economic partnership that pulled Paraguay into the channels carved by Brazil’s economic advancement. Brazil’s flexing of its economic muscle was driven by the pursuit of projects designed to “transfer nature into exchange values,” with these years seeing the development of hydroelectric stations at Paulo Affonso on the Rio São Francisco and the construction of ambitious projects such as the Trans-Amazonian Highway.⁵⁴

Following Paraguayan investigations into the hydroelectric potential of los Saltos del Guairá, Brazilian studies gathered pace in the 1950s and 1960s, and following the military coup in 1964, which saw the overthrow of President João Goulart, Brazil “employed military force in occupying the land adjacent to the falls, and adopted an obdurate position in an exchange of diplomatic notes over the ownership question.”⁵⁵ The disputed ownership dated to the end of the War of the Triple Alliance, which saw the signing of the Loizaga-Cotegipe Treaty between Brazil and Paraguay in 1872, leaving the exact position of the border contested. While a goods railway controlled by the Companhia Matte Larangeira skirted the falls in the early years of the century between Guairá and Porto Mendes to facilitate the *yerba mate* trade on unnavigable sections of the Paraná, major Brazilian interest in the falls was contemporaneous with its push for economic supremacy begun during the nineteen thirties and forties under the rule of Getúlio Vargas. Preliminary plans had investigated hydroelectric options that excluded Paraguayan involvement, as outlined in Octávio Marcondes Ferraz’s *Aproveitamento do*

Potencial do salto de sete quedas (Rio Paraná) (1953), while also envisaging a project which would have preserved the falls.⁵⁶ This, however, was forsaken in favour of bringing Paraguay within Brazil's sphere of influence through dominance of the bi-national project of the Itaipú dam.⁵⁷ Resolution of the border dispute came with the Act of Yguazu (1966), which agreed plans for bi-national cooperation, while the Treaty of Itaipú (1973), signed by Stroessner and the Brazilian military leader Emílio Garrastazu Médici, approved construction of a mega-dam 170 kilometres south of the falls. Annex B to the treaty announced that the *embalse* (reservoir) of Itaipú dam would “inundate an area approximately 1,400 km² in Paraguay and 800 km² in Brazil, and will extend upriver a distance of around 200 kilometres, up to and including the Guayra Falls or Sete Quedas.”⁵⁸ The full environmental impact, however, remained obscure in a climate of censorship in both countries.

The increasingly cordial, if unequal political relations between the two countries saw the removal of restrictions on Brazilian immigration to Eastern Paraguay and the rapid transformation of the long-remote region for agricultural production, a process involving the resettlement of indigenous communities and human rights violations inflicted on the Aché people.⁵⁹ With the sudden economic transformation of Eastern Paraguay and Western Brazil the longstanding isolation of the falls came to an abrupt end. Travelling in the Brazilian state of Paraná in the 1930s, Claude Lévi-Strauss could still observe a “virgin and solemn landscape which seems to have preserved the aspect of the carboniferous era intact over millions of centuries,” but this remote landscape was soon to join the lost worlds evoked elsewhere in *Tristes Tropiques* (1955).⁶⁰ With an eye to both short-term tourist potential and future

hydroelectric exploitation, Brazil designated the area around the falls a national park under the presidency of Jânio Quadros in May 1961, with Sete Quedas one of eleven Brazilian national parks established between 1959 and 1961.⁶¹ In 1965, at the height of the confrontation with Paraguay over the falls, a road was constructed through the jungle from the falls to Porto Renato.⁶² With US financial assistance Paraguay built a road from Colonel Oviedo in central Paraguay to the small hamlet of Saltos del Guairá in 1966.⁶³ A growing influx of Brazilian migrants into Eastern Paraguay and the sudden available access to the falls now designated the site a potential tourist attraction for the remaining years of its existence.

The changes in infrastructure can be instructively traced through the best-selling *South American Handbook*. Not featuring in the guidebook between its first publication in 1924 and 1951, in 1952 the falls suddenly emerged from their historical remoteness when listed as “pre-eminent amongst the many tourist attractions of South America.”⁶⁴ The 1953 edition introduced information that remained unchanged until 1965, recommending a 27-hour rail journey from São Paulo to Porto Tibiriça, followed by a two-day “rough and romantic river voyage through tropical forest” downstream to reach the falls, admitting that “land and river trips are an excellent way of seeing the country, but they require a certain amount of stamina.”⁶⁵ In his account of the life and culture of Paraguay in the mid-twentieth century, *The River and the People* (1965), Gordon Meyer captured the longstanding resistance to modernity of los Saltos del Guairá at the moment of their impending demise. Asking a Paraguayan acquaintance “What’s at Guairá besides the cataracts?” Meyer learns: “Nothing . . . different from Iguazú . . . lonely; no visitors go

there. It's something to see.” The spectacle of the falls, Meyer observed with wonder and some alarm, offered the sight of “A giant river . . . a cosmic force fighting the control under which it has suddenly been pushed.”⁶⁶

In 1975, however, travel advice in the *South American Handbook* now listed recently-developed roads and bus services in the western Brazilian state of Paraná, whereas by 1982 an expanded range of travel options and many further hotels were listed. Accompanying these from 1979 was new information about the Itaipú project and the fact that shortly “Sete Quedas will cease to exist.”⁶⁷ The fate of the falls was publically known from the late seventies, with publications surveying Brazil’s national parks, such as *Os Parques Nacionais do Brasil* (1979), and works such as Henri Pitaud’s *Las Sete Caidas del Rio Paraná* (1978), announcing their imminent inundation. The aesthetic allure of the falls and knowledge of their approaching disappearance saw visitor numbers increase. According to one study, the site received “as many as 160,000 tourists in 1980.”⁶⁸ The increased traffic to obtain views of the falls, afforded through a series of bridges spanning the channels of the cataract, resulted in tragedy on 17 January 1982, when a bridge on the Brazilian side collapsed, causing the death of thirty-two tourists, an event that garnered considerable media coverage in both Paraguay and Brazil and which has continued to occupy a place in Brazilian national memory.⁶⁹

In late 1982, after almost a decade of highly-publicized engineering feats, including the rerouting of the Paraná in 1978 to allow for the construction of Itaipú, on 13 October the reservoir behind the main dam began to fill. The ultimate drowning of the falls was recorded by Paraguayan and Brazilian media, as pictures of the slowly-disappearing site appeared in editorials. On

15 October, *Ultima Hora* announced that the Itaipú reservoir was filling at a rate of 1.2 metres per hour.⁷⁰ On 21 October, *Hoy* announced that “Los Saltos del Guairá are disappearing faster than expected.”⁷¹ A dramatic photographic valedictory was published in *ABC Color* on 20 October 1982 (Fig. 4), which announced “Farewell to Our Country’s Greatest Natural Treasure.” Featuring a dramatic aerial shot of the almost-submerged falls, the accompanying text announced “one of the last views of this natural wonder, slowly dying to give birth to another artificial wonder: Itaipú.”⁷² In contrast to Paraguayan publications at the time of the accords with Brazil in the 1960s, such as Marco Antonio Laconich’s *La Cuestión de Límites en el Salto del Guairá* (1964), and Efraím Cardozo’s *Los Derechos del Paraguay sobre los Saltos del Guairá* (1965) and *Los Saltos del Guairá en la Historia* (1966), which had claimed the falls as historically integral to Paraguayan identity, contemporary coverage invariably presented their loss as the necessary price of modernisation, with the dam cast as the phoenix rising from the ashes of the natural sacrifice. An editorial by Ilde Silvero, in *ABC Revista* on 24 October 1982, entitled “Life Before Beauty,” captured the irreconcilable antagonisms of “delicate decisions” in the nation’s history, but stressed the need for “material well-being ahead of poetry,” insisting that a natural wonder would make way for an artificial one in the interests of bi-national cooperation.⁷³

Owing to the authoritarianism and surveillance of the Stroessner era, opposition to the project in environmental terms proved difficult to voice within Paraguay, with dissent instead centred on the terms of the Itaipú Treaty as a way of challenging the Stroessner regime.⁷⁴ Earlier, on 23 January 1982, journalist Andrés Colmán Gutiérrez had published an article entitled

“The Environment and Dams: Los Saltos del Guairá Will Die in October” in *Ultima Hora*, scrutinizing the uncertain ecological consequences of Itaipú, but skeptical responses were lost amidst a mass of information on the productive potential of the dam and Paraguay’s role in the construction of an engineering marvel.⁷⁵ In Brazil, protest proved more forthcoming. By the early 1980s the authoritarian excesses of the military era in Brazil gave way to the more open politics of the leadership of its final president, João Figueiredo. The effects of the dam, including the flooding of 1,350 square kilometres, the relocation of 42,444 people, and the inundation of the falls, mobilized protest that, while facing the ineluctable economic rationale of the project led by the military government in the 1970s, has since been credited with initiating contemporary political movements opposed to the environmental consequences of Brazil’s hydroelectric ambitions.⁷⁶

At the time, however, as Ana Dos Santos has noted, “the arguments of engineers and politicians overrode all obstacles to the building of the plant. Opposition to its realization was interpreted as opposition to the nation itself. To invest against Itaipú was to be contrary to the long-sought development of the Brazilian nation.”⁷⁷ Brazilian justifications for the decision to submerge the falls echoed those in Paraguay, with additional arguments asserting that the site could be sacrificed in light of both Brazil’s possession of the global attraction of Iguazu and the role the loss would play in fostering economic union with Paraguay. According to General José Costa Cavalcanti, the first director-general of Itaipú Binacional, Sete Quedas produced “little more than rudimentary tourism, and nothing at all like Iguazu Falls. And now, that natural resource, which yields little . . . can be allowed to give an enormous

income to the owners of the Sete Quedas, namely Brazil and Paraguay.”⁷⁸ The Sete Quedas National Park was liquidated by presidential decree in July 1981, amongst protests from Brazilian ecologists.⁷⁹ In advance of the formation of the Itaipú reservoir, a Quarup, an indigenous lamentation festival, was staged from 23-25 July 1982 for the destruction of the falls. Attended by 3,000 Brazilian ecologists, 30,000 tourists and 7,000 residents of the nearby town of Guaira, this took place in the context of a larger Brazil-wide “Adeus a Sete Quedas,” which helped contribute to the later emergence of social justice movements for farmers affected by the consequences of Itaipú.⁸⁰ In a published statement, the Quarup drew attention to the secrecy of the development of the Itaipú project during the Medici government of the early 1970s, decrying the lack of transparency in decisions taken to approve the dam and the lost opportunities for developing a project that might have simultaneously preserved the falls.

With a continued ecological presence at the falls and ongoing silent protests, on 9 September 1982, the *Jornal do Brasil* published a poem entitled “Adeus a Sete Quedas” by Brazilian poet Carlos Drummond de Andrade, which evoked the wondering gaze of those who had seen the falls across the centuries, while looking on aghast at the finality of the form of their death.⁸¹ A month later, on 10 October 1982, before the filling of the reservoir, Drummond’s article “Sete Quedas Might Have Been Saved,” published in the *Jornal do Brasil*, relayed correspondence from engineer Octávio Marcondes Ferraz recalling the first Brazilian plans to harness the falls with a project that preserved the cataract, as put forward in Ferraz’s 1953 report *Aproveitamento do Potencial do Salto de Sete Quedas*.⁸² Contrasting the former onslaught of the

waters of the falls with the onslaught of economic priorities, the article evoked frustrated helplessness and melancholy regret.

Contemporary and later Paraguayan attitudes to the loss of the falls emphasized the aesthetic compensation to be found in the sublime technological achievement of the dam, which would eclipse the falls in splendour, with additional justifications linked to the role of Itaipú in ending the border dispute with Brazil. The 1998 *Enciclopedia Geographica del Paraguay* classified the dam as an “ecological crime as a solution to border conflict.”⁸³ The longstanding importance of los Saltos del Guairá to Paraguay’s territorial identity shifted to the importance of Itaipú to its economic modernisation. Continuing up to the present day, the narrative of Paraguayan modernity and territorial sovereignty has remained bound to the Itaipú Dam. Figures such as engineer and political activist Ricardo Canese have published numerous works on the subject, dealing with the economic terms imposed on Paraguay as the price for participation in the project.⁸⁴ As such, it illustrates the contemporary role of hydroelectric power in “the formulation of a new notion of sovereignty” to replace that historically expressed through the geography of the falls.⁸⁵ In interviews on los Saltos del Guairá conducted in Paraguay in 2014 and 2016 for this research, many interviewees afforded the loss of the falls regret before swiftly turning to the treaty rights agreed between Paraguay and Brazil over the sale of surplus electricity from Itaipú. For others who had visited in the 1970s, there remained the memory of an indelible encounter with nature, and subsequent reflection on an ecological wound, with the falls a casualty of an era in which Paraguay lacked an ecologically minded class and a political climate in which to express

environmental opposition to Itaipú. In the town of Saltos del Guairá, which contains an underwhelming monument to the former splendour of the falls (Fig. 5), the loss is felt more acutely, and the *Municipalidad* currently seeks compensation in perpetuity from the Paraguayan state for the loss of the falls. In Guaíra, in Brazil, in the poems and songs of local poets and musicians, such as Edson Galvão, the falls are celebrated and mourned in acts of poetic and musical remembrance.

At Itaipú today, no information on los Saltos del Guairá is available. Alongside Paraguayan and Brazilian promotion of the dam as a symbol of economic modernity, the relatively obscured history of los Saltos del Guairá can be attributed, ironically, to another set of famous waterfalls, the world-renowned Iguazu Falls, which received UNESCO World Heritage status in 1984, two years after the disappearance of Sete Quedas. In correspondence from Brazil and Paraguay in the UNESCO archives in Paris from the 1970s and 1980s, amongst applications for the protected heritage status of Iguazu no reference to los Saltos del Guairá can be found. As early as 1932, W. S. Barclay, writing in the *Geographical Journal*, observed that “The Iguazu Falls have by now been so often described that one hesitates to add further impressions,” and in 1934 the Argentine government designated the area around Iguazu Falls a protected national park, followed by a Brazilian national park in 1939.⁸⁶ Owing to such long-standing fame, later consolidated by their role in *The Mission* (1986), as well in their appearance in blockbusters such as *Moonraker* (1979) and *Indiana Jones and the Kingdom of the Crystal Skull* (2008) Iguazu Falls emerged in the international consciousness as the emblematic Great Falls of South America, promoted as a destination

embodying nature's power and beauty, just as Machu Picchu in Peru stood for the continent's sophisticated pre-Colombian civilization. However, the prominence of Iguazu has ensured that the original Great Falls of South America, those in actuality bound up with the history of the Jesuits in Paraguay, and regarded for centuries as the supreme natural wonder of the continent, lie submerged in the historical record just as they lie drowned by the modernity that saw their end at the close of the twentieth century.

¹ "The Waterfall of Guayra," *Manchester Courier*, 25 April 1876, 3.

² Phillip Glass, *Itaipú* (1989); *National Geographic - Megastructures: Itaipú Dam* (2009).

³ Christine Folch, "Surveillance and State Violence in Stroessner's Paraguay: Itaipú Hydroelectric Dam, Archive of Terror," *American Anthropologist* 115 (2013): 44–57; and Christine Folch, "The Cause of All Paraguayans?: Defining and Defending Hydroelectric Sovereignty," *Journal of Latin American and Caribbean Anthropology* 20 (2015): 242–63.

⁴ Patrick McCully, *Silenced Rivers: The Ecology and Politics of Large Dams* (London: Zed Books, 1996), 33.

⁵ See Daniella Feteira Soares, *Paisagem e memória: dos Saltos de Sete Quedas ao lago de Itaipú*. Dissertação de Mestrado (Rio de Janeiro: UFRJ/ IPPUR, 2001); Guiomar Inez Germani, *Expropriados. Terra e água: o conflito de Itaipu* (Salvador: Edufba: Ulbra, 2003); Ana Paula dos Santos, *Lago de Memórias: a submersão das Sete Quedas*. Dissertação apresentada ao Programa de Pós-Graduação em História (Mestrado) da Universidade Estadual de Maringá, (Maringá, 2006); E. B. C. Souza, "Contextualização política da construção da Barragem de Itaipú," *Perspectiva Geográfica* 1 (2005): 25-47; and J. F. M Silva and E. B. C. Souza, "A (re)organização do espaço em Guaira após o fim das Sete Quedas," *Revista Ra'e Ga: O Espaço Geográfico em Análise* 14 (2007): 85-95.

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⁷ Ted Steinberg, *Gotham Unbound: The Ecological History of Greater New York* (New York: Simon & Schuster, 2015), xviii.

⁸ Jürgen Osterhammel, *The Transformation of the World: A Global History of the Nineteenth Century*, translated by Patrick Camiller (Oxford: Princeton University Press, 2014), 652.

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¹² R. B. Cunninghame Graham, *A Vanished Arcadia: Being Some Account of the Jesuits in Paraguay 1607 to 1767* (London: Heinemann, 1901), 74.

¹³ Cunninghame Graham, *A Vanished Arcadia*, 77.

¹⁴ Martín del Barco Centenera, *Argentina y conquista del Río de la Plata, con otros acaecimientos de los reinos del Perú, Tucumán y estado del Brasil* (Lisbon, 1602), 13. All translations from Spanish, Portuguese and French are my own throughout unless otherwise noted.

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¹⁶ Stephen Greenblatt, *Marvellous Possessions: The Wonder of the New World* (Chicago: University of Chicago Press, 1992), 73, 14.

¹⁷ Ruy Díaz de Guzmán, *Historia Argentina*, 15-16.

¹⁸ Nicholas del Techo, *History of the Provinces of Paraguay, Tucuman, Rio de La Plata, Parana, Guaira, and Urvaica, And Something of the Kingdom of Chili in South America* (1704 [1673]), 742.

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