

Harvesting Cholera: Fruit, Disease and Governance in the Cholera Epidemic of Tucumán, Argentina, 1867–68

CARLOS S. DIMAS*

Abstract. In 1868 a cholera epidemic erupted in the north-western Argentine province of Tucumán. Urban-based doctors and politicians argued that fruit cultivated primarily in the south of the province was responsible for the spread of cholera. Hoping to avoid cholera, they advocated the complete prohibition and destruction of fruit in Tucumán as both a prophylactic measure, but also to prepare new land for sugar cultivation. Through a reading of governmental memos, medical journals, and public health reports, this article examines how agriculture, disease, and contagion mediated the interaction between Tucumán's urban minority and rural majority. This article offers a window into grassroots politics and state formation during one of Argentina's most formative periods.

Keywords: cholera, environment, Tucumán, fruit cultivation, state formation

In 1867, cholera erupted in Argentina for the first time. In response, Argentine health officials in Buenos Aires enacted ordinances designed to separate the healthy and the sick, improve and monitor sanitation, and educate the public about the benefits of personal hygiene and the moderation of actions deemed unhealthy. The *medidas higiénicas* also included the prohibition of certain foods, namely fruit, believed to cause digestive irregularities or generate miasmas.¹ When cholera appeared in 1868 in the north-western Argentine province of Tucumán, politicians and hygienists enforced a similar hygienic code to protect the public against cholera. However, in Tucumán the connection between cholera and fruit formed the nucleus of the public health

Carlos S. Dimas is an assistant professor of History and Latin American Studies at Albright College, Reading, Pennsylvania. Email: cdimas@albright.edu.

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¹ Donald F. Stevens, 'Eating, Drinking, and Being Married: Epidemic Cholera and the Celebration of Marriage in Montreal and Mexico City, 1832–1833', *The Catholic Historical Review*, 92: 1 (2006), pp. 74–94.

campaign. Why was fruit such a concern in Tucumán, as opposed to hygiene and public sanitation?

In this article, I investigate the cholera epidemic of 1868 that erupted in Tucumán and the responses and sentiments it generated. Exploring an epidemic provides a fertile ground to examine factors that would otherwise go unnoticed; thus, this investigation centres on the convergence of disease, contagion, governance, and agriculture during a transformative period for Tucumán, Argentina, and the global medical field. In light of the threat of cholera, the municipality of San Miguel, which was formed in response to the cholera epidemic, initiated a programme to prevent a major outbreak in the city. Like their medical and political counterparts in Buenos Aires, municipal officials in San Miguel scoured public spaces with lye and recommended hygienic practices to the population. However, administrative officials and local doctors with ties to the emerging sugar industry favoured the prohibition, confiscation, and destruction of fruits believed to be unhealthy and harmful to public health. Prior to the bacteriological revolution of the late nineteenth century, many physicians believed that fruit, decomposed material, cadavers, and marshlands, generated disease through miasmas (noxious gases) that polluted populations. Some physicians linked fruit and disease to contend that the consumption of fruit during ‘cholera summers’ caused gastro-intestinal disorders.

Although scholars have argued that the Argentine state exerted significant influence over the interior provinces, I hold that the 1868 epidemic triggered a major political restructuring at the provincial and national level when Argentine understandings of global scientific discourse collided with local ideas over the role of the environment in disease and public health. I place these changes as part of the large process of the consolidation of the Argentine state during the nineteenth century. Rather than look for the imposition of Buenos Aires on the provinces, it presents state formation beginning at the provincial level towards the national government through the standardisation of public health. The municipality of San Miguel, with ties to the rapidly growing sugar industry, pressured the provincial government of Tucumán to regulate supposedly insalubrious agriculture throughout the entire province. Setting their gaze on the many private and public fruit groves in southern Tucumán, municipal officials in San Miguel argued that fruit, combined with the province’s naturally harsh summer climate, created suitable conditions for the development of choleric miasmas that threatened the provincial capital. On the other hand, Octavio Luna, governor of Tucumán, argued that travellers and infected people spread cholera and advocated a sanitary cordon along provincial borders.

The disagreement between municipal and provincial officials offers an opportunity to explore 1860s Tucumán from a medical, economic, political, and environmental perspective. During the epidemic, Tucumán’s political

structure was organised vertically. In the departments,² two government-appointed commissaries maintained peace and order, and organised rural militias. In the few towns outside San Miguel, municipal councils reported directly to their commissary. The formation of San Miguel's city council compromised the division of power. As the capital, the sole urban zone, and the provincial financial, social, medical, economic, and political centre, San Miguel held significant power throughout the province, often overshadowing the provincial government.

In the 1850s, Tucumán's sugar industry took its first steps towards developing large-scale sugar production on land south and east of San Miguel, siphoning capital, labour, and land from other agricultural ventures.³ Before and during the formative years of the sugar industry, farmers in central and southern Tucumán had cultivated a cornucopia of fruit, vegetables and wheat, that was sold and traded with San Miguel and neighbouring provinces. By the 1860s, orchards and other small-scale and subsistence farming became incompatible with the introduction of agro-export capitalism. As early as the mid-colonial period and extending past the era of independence, state officials, naturalists and medical scientists established clear hierarchies between productive and exportable goods (such as sugar and coffee) and non-productive local artisanal products (fruit, cheeses, and others). The appeal for agro-capitalism found a willing audience among Tucumán's elites, entrepreneurs and medium-scale farmers.⁴ By 1895, the majority of arable land in Tucumán was tied to the production of processed sugar.

Throughout Latin America, medical and political officials often played on public health anxieties to further develop the state. In the closing quarter of the nineteenth century, social medicine was central to the development of criminology and the eugenics movement as paradigms for the establishment of strict social control. Institutions, such as the National Department of Hygiene, exerted their influence over the population. In Tucumán's epidemic of 1868, however, the language of health formed part of the need to extend the agro-capitalist economy into Tucumán's southern frontier. Municipal officials intentionally employed theories of fruit-generated miasmas to fuel fears of cholera and cultivate an image of the south as inhospitable. Shaped by the sugar industry and cholera, these new regulations of land use played a

² Equivalent of counties.

³ Donna Guy, *Argentine Sugar Politics: Tucumán and the Generation of Eighty* (Tempe, AZ: Center for Latin American Studies, Arizona State University, 1980); Patricia I. Juárez Dappe, *When Sugar Ruled Economy and Society in Northwestern Argentina, Tucumán, 1876–1916* (Athens, OH: Ohio University Press, 2010).

⁴ Stuart George McCook, *Science, Agriculture, and Environment in the Spanish Caribbean, 1760–1940* (Austin, TX: University of Texas Press, 2002), p. 2; Donald Worster, *Nature's Economy A History of Ecological Ideas* (Cambridge: Cambridge University Press, 1994), Kindle edition, location 2,083 of 9,674.

crucial role in integrating the more peripheral regions of the province into the nation.

The municipal and provincial hygienic ordinances failed to contain cholera in the southern region due to limited government presence and the central role of fruit in rural economies. Travellers largely ignored the travel restrictions from Santiago del Estero and Catamarca to Tucumán; trade and the movement of people continued undisturbed. Governor Luna eventually bowed to pressure from the municipality and outlawed the production and trading of fruit throughout Tucumán, yet similar to the travel restrictions, rural commissaries reported that the consumption and trade of fruit continued. Nevertheless, disagreements over how to prevent cholera in 1868 set a precedent for centralised control by the provincial government during Tucumán's second and third epidemics.

In recent decades, the lived experience of disease has become a focal point in the history of medicine. Historian Charles Rosenberg argued that social, cultural and political contexts frame ideas of disease, health and medicine. Building upon Rosenberg's work, Latin American scholars have analysed disease as a social and biological problem.⁵ Large swathes of Latin America's history have been analysed from this medical perspective. For instance, studies of the colonial period have presented the ecological, demographic and social impacts of the Columbian Exchange on the Americas and its peoples.⁶

Scholars of the history of medicine in Latin America have focused largely on the late nineteenth century. During this period, political, social and economic changes influenced the Latin American medical field. They included: the formation of the state as an institutional entity; social ills from increased immigration and the growing urban sector; the development of national industries and export-oriented economies; the extension of US influence in the region; the emergence of the hygienist as a social and political actor, and member of the national elite; and the onset of the bacteriological revolution. The medical state emerged as a key element in the larger goal of modernising the nation through social medicine. Science and public medicine provided the state a mechanism to exert control over society, promote national economies

⁵ Diego Armus, 'El descubrimiento de la enfermedad como problema social', in Mirta Lobato (ed.), *El progreso, la modernización y sus límites (1880-1916)* (Buenos Aires: Ed. Sudamericana, 2000), pp. 507-52 and Charles Rosenberg, 'Introduction: Framing Disease: Illness, Society, and History', in Charles E. Rosenberg and Janet Lynne Golden (eds.), *Framing Disease: Studies in Cultural History* (New Brunswick, NJ: Rutgers University Press, 1992), pp. xii-xxvi.

⁶ David Noble Cook, *Born to Die: Disease and New World Conquest, 1492-1650* (Cambridge: Cambridge University Press, 1998) and Adam Warren, *Medicine and Politics in Colonial Peru: Population Growth and the Bourbon Reforms* (Pittsburgh, PA: University of Pittsburgh Press, 2010).

and maintain social order through direct intervention via the language of health.⁷

Scholars are, nevertheless, divided over the medicalised state's motives in developing public health.⁸ On the one hand, scholars have presented 'conspiratorial explanations' to public health initiatives. The state, as an entity, enforced hygienic reform as a means to expand the nation's economic output to meet the needs of global capitalism. By contrast, other scholars view programmes designed to increase state social control as a product of elite anxieties over an unruly and racially mixed society. Such anxieties shaped the state's intervention in education, legislation, labour, and gender relations that reproduced social hierarchies that facilitated state control. In each instance, medical elites employed the language of public health to regulate, standardise and, at times, demonise certain cultural practices and social interactions deemed socially dangerous and viewed as impediments to modernity. Both approaches are applicable to nineteenth-century Argentina. The nation's wheat boom created a need for labourers. In response, national elites, such as Domingo Sarmiento, looked to northern Europeans to populate the nation's vast interior with a capable work force, and simultaneously 'whiten and civilise' the nation. Instead, Buenos Aires received a flood of Spanish and Italian immigrants. The overpopulated city developed problems common in all nineteenth-century cities: poor sanitation, overcrowded housing, crime and disease. Tuberculosis, typhoid fever and cholera became part of the Argentine urban experience.

Yet gaps exist in the medical literature. Few studies span the era from independence to the bacteriological revolution. During this period, the biomedical field was divided over the transmission and treatment of diseases that limited the efficacy of public medicine. In the 1860s, the medicalised Argentine state was still in its formative stages and confined to Buenos Aires. Scholars have centred their inquiries on tropical diseases to investigate notions of racial and environmental determinism, or how medical officials tied to the state

⁷ Julia Rodríguez, *Civilizing Argentina: Science, Medicine, and the Modern State* (Chapel Hill, NC: University of North Carolina Press, 2006), p. 5.

⁸ María Silvia Di Liscia, and Graciela Nélica Salto (eds.), *Higienismo, educación y discurso en la Argentina, 1870–1940* (La Pampa: Editorial de la Universidad Nacional de La Pampa, 2004); Ricardo Salvatore, 'Sobre el surgimiento del estado-medico legal en la Argentina (1890–1940)' *Estudios Sociales*, 20: 1 (2001), pp. 81–114; Ann Zulawski, *Unequal Cures: Public Health and Political Change in Bolivia, 1900–1950* (Durham, NC: Duke University Press, 2007); Diego Armus (ed.), *Disease in the History of Modern Latin America: From Malaria to AIDS* (Durham, NC: Duke University Press, 2003); Armando Pérez de Nucci, *Historia médica de Tucumán, siglo XIX* (Tucumán: Editorial Universidad de Tucumán, 1992); María Estela Fernández, 'Salud y condiciones de vida. Iniciativas estatales y privadas en Tucumán. Fines del siglo XIX y comienzos del XX', in Adriana Álvarez, Irene Molinari, and Daniel Reynoso (eds.), *Historias de enfermedades, salud y medicina en la Argentina de los siglos XIX–XX* (Mar del Plata: Universidad Nacional de Mar del Plata, 2004), pp. 111–34.

understood the health of the region in comparison to the more temperate Europe.⁹ There are few studies on cholera in Latin America. For instance, Greg Grandin's work on the 1837 epidemic in Guatemala reveals cholera's role in the formation of Guatemalan racial and national identities.¹⁰ Donald F. Stevens puts cholera and religiosity into a fruitful discussion in 1830s Montreal and Mexico City.¹¹ Instead, cholera has found a home among European historians who have examined it to understand social and political turmoil, the sentiments of elites towards the popular classes, industrialisation, and global commerce.¹²

This article investigates cholera in a rarely studied context: 1860s rural Latin America. Tucumán does not fit the mould of the cholera literature. Similar to Mexico and Guatemala, the province did not receive an influx of immigrants. Instead most of its population were inhabitants since the colonial period or migrants from other provinces. Until the mid-twentieth century, Tucumán was predominantly rural. The sugar economy, which flourished post-1876, met regional demand; Argentina did not export sugar like Brazilian and Caribbean producers. Instead, attempts to 'cure the land' through removal of generators of disease and backwardness motivated the cholera eradication initiatives. Medical environmental literature has shown that health and nature were inextricably interwoven prior to the bacteriological revolution and mass urbanisation of the late nineteenth century.¹³ Nations associated health and prosperity with local environments, and looked to strike a balance with their surroundings. Nature was to be respected. However, on the cusp of the development of germ theory, a more pessimistic view of the environment emerged. The domination and alteration of the land with the hope of increasing agricultural productivity to meet the needs of the global economy overshadowed balance, preservation and understanding of the

⁹ Nancy Lays Stepan, *The Hour of Eugenics: Race, Gender, and Nation in Latin America* (Ithaca, NY: Cornell University Press, 1991).

¹⁰ Greg Grandin, *The Blood of Guatemala: A History of Race and Nation* (Durham, NC: Duke University Press, 2000), chap. 3.

¹¹ Donald Fithian Stevens, 'Eating, Drinking, and Being Married', pp. 74–94.

¹² Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago, IL: University of Chicago Press, 1962); Catherine Jean Kudlick, *Cholera in Post-Revolutionary Paris A Cultural History* (Berkeley, CA: University of California Press, 1996); François Delaporte, *Disease and Civilization: The Cholera in Paris, 1832* (Cambridge, MA: MIT Press, 1986); Valeska Huber *Channelling Mobilities: Migration and Globalisation in the Suez Canal Region and Beyond, 1869–1914* (Cambridge: Cambridge University Press, 2013).

¹³ Conevery Bolton Valenčius, *The Health of the Country: How American Settlers Understood Themselves and Their Land* (New York: Basic Books, 2002); Linda Lorraine Nash, *Inescapable Ecologies A History of Environment, Disease, and Knowledge* (Berkeley, CA: University of California Press, 2006); Eric Carter, *Enemy in the Blood Malaria, Environment, and Development in Argentina* (Tuscaloosa, AL: University of Alabama Press, 2012).

environmental world.¹⁴ A wealth of studies exists on the social, political and cultural impact of commodities (sugar, fruit, coffee, and dyes) on societies and ecologies. Some studies of commodities have branched into medical environmental history.¹⁵ My analysis engages with the field of environmental history and unearths the interplay between disease, health and agriculture.

Cholera: Fruit and Germs

During the nineteenth century, a series of cholera epidemics killed an enormous number of people around the globe. British explorers first encountered cholera when they began to colonise the Bengal region of India in the early nineteenth century. In establishing new links between European and Asian regions, they brought the 'scourge of the Ganges' to new cities and ports along the Mediterranean Sea, and eventually to northern Europe. The disease moved across the Atlantic Ocean towards the Americas, bringing with it fear, panic and death. James Jameson, the head physician on the 1817 Bengal expedition, concluded that cholera was unlike any other disease because of its speed and stealth.¹⁶ In South America, cholera first appeared in Rio de Janeiro in 1867 aboard ships arriving from Europe and then followed the beef trade to the Southern Cone. Between 1867 and 1868, cholera made the first of three appearances in Argentina (1867–68, 1886–87, and 1895). The first cases of cholera were reported among Uruguayan, Brazilian, Paraguayan and Argentine soldiers fighting on the frontlines of the Paraguayan War. From there, it moved into Argentine territory and into the cities and towns that straddled the Paraná River and River Plate. By early 1868, cholera was present in the provinces of Córdoba, Santa Fe, Catamarca, Santiago del Estero, San Juan, San Luis, Mendoza, and Tucumán.¹⁷

¹⁴ Shawn W. Miller, *An Environmental History of Latin America* (New York: Cambridge University Press, 2007), chaps. 1 and 2.

¹⁵ John Robert McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914* (New York: Cambridge University Press, 2010); José Amador, *Medicine and Nation Building in the Americas*, chap. 3, pp. 68–94; Reinaldo Funes Monzote, *From Rainforest to Cane Field in Cuba An Environmental History Since 1492* (Chapel Hill, NC: University of North Carolina Press, 2008); Thomas D. Rogers, *The Deepest Wounds A Labor and Environmental History of Sugar in Northeast Brazil* (Chapel Hill, NC: University of North Carolina Press, 2010), and Heather L. McCrea, *Diseased Relations Epidemics, Public Health, and State-Building in Yucatán, Mexico, 1847–1924* (Albuquerque, NM: University of New Mexico Press, 2010). Steven Topik, *From Silver to Cocaine: Latin American Commodity Chains and the Building of the World Economy, 1500–2000* (Durham, NC: Duke University Press, 2006).

¹⁶ 'Report on the Epidemic Cholera Morbus as it Visited the Territories Subject to the Presidency of Bengal in the Years, 1817–1819', in Tom Koch (ed.), *Disease Maps: Epidemics on the Ground* (Chicago, IL: University of Chicago Press, 2011), p. 95.

¹⁷ *Revista Médica Quirúrgica*, vol. 3 (Buenos Aires: Imprenta de Pablo E. Coni, 1866), pp. 370–1. Hereafter RMQ.

Cholera infects the body through contaminated food and water. Once inside, the bacterium attaches itself to the intestinal lining and reproduces. For the fortunate ones, the body's natural defence system evicts the bacterium before it causes any damage to the intestinal tract. The unfortunate ones, however, begin to feel the symptoms (abdominal cramps that violently twist the body, strong diarrhoea resembling rice water, chills, fever and vomiting) within hours. Death comes quickly. The violent expulsion of bodily fluids and severe dehydration thickens the blood and the body convulses until the heart stops, often within hours or days. For most of the disease's history, families, physicians and hygienists stood by helplessly as cholera arrived, and brought death and devastation.

Throughout the nineteenth century, the global medical community investigated cholera's aetiology, transmission and treatment. In the 1860s, European medical researchers divided cholera into two strains: *colera asiatico* and *colera nostras* as a means to explain cholera's ability to appear almost yearly in some regions of the world while simultaneously skipping entire towns and differentiating it from diarrhoea.¹⁸ The first term was used to identify the strain that originated in India, moved along trade routes, and broke out in epidemics. The latter, on the other hand, produced a severe case of diarrhoea. As opposed to asiatico's human-to-human contraction, nostras was understood to be environmental in nature and composed of rotting organic material (vegetation, food, animal carcasses, human cadavers, and bodily waste) that seeped into the ground and remained in a dormant state until seasonal temperatures released it into the local atmosphere. Max von Pettenkofer, the German miasmatist, illustrated this point in explaining why cholera broke out in Paris, but not in Lyon, as part of his conjecture that cholera was tied to specific locales, and therefore was not contagious. According to Pettenkoffer, Lyon's subterranean limestone made the city impregnable to choleric miasmas.¹⁹

The discovery of two strains of cholera influenced how doctors understood cholera's transmission: they formed camps that advocated theories of anti-contagion and contagion. During Tucumán's first brush with cholera, anti-contagionism (belief in miasmas) was at the height of its popularity for all diseases. Physicians in North America concluded that, 'the theory [of miasmas] has long generally accepted that [malaria] is exclusively the result, in gaseous form, of the decomposition of vegetable organisms'.²⁰

¹⁸ *La Revista Farmaceutica*, vol. 7 (Buenos Aires: Imprenta de Pablo E. Coni, 1869), pp. 126–34. Hereafter LRF.

¹⁹ Carl von Voit, *Max von Pettenkofer zum Gedächtnis: Rede im Auftrag der mathematisch-physikalischen Classe der K. G. L. Bayer. Akademie der Wissenschaften in München in der öffentlichen Sitzung am 16. November 1901* (Munich: Akademie, 1902.) pp. 90–2.

²⁰ Thomas M. Logan, 'Malarial Fevers and Consumption in California', *Third Biennial Report of the State Board of Health of California for the Years 1874 and 1875* (Sacramento, CA: Superintendent State Printing, 1875), p. 115. Quoted in Kenneth Thompson,

Proponents of anti-contagionism argued that the human body had a dynamic relationship with the environment and that skin was permeable to the poisons of the environment it inhabited. Doctors connected miasmas to certain environments and societies. Humid marshes, swamps and lowlands with dense vegetation created the suitable atmosphere for miasmas. In contrast, lush grasslands, high altitudes, clean air, and temperate zones were considered the most salubrious.²¹

The works of Argentine doctors fighting in the War of the Triple Alliance, which pitted Argentina, Brazil and Uruguay against the Paraguayan government of Francisco Solano López, reveal how people understood miasmas, disease and the environment. Lucio del Castillo attributed the high levels of non-combat deaths to Paraguay's atmosphere: high levels of humidity and heat; rampant miasmas originating from rotting vegetation, food, animals, and human bodies; and thick vegetation dotted with pools of brackish non potable water. In a report detailing an outbreak of dysentery, Castillo attributed the disease's miasmatic origins to the cadavers strewn around encampments. Castillo argued that Paraguay differed greatly from Argentina, which boasted 'pure air that is not marred by emanations or miasmas'.²² The *Revista médica-quirúrgica*, an Argentine medical journal that published works by local and international doctors about health, medicine and hygiene, commented on the consensus of belief in miasmas within the medical community. '[Hygienists and physicians] are all in almost complete agreement in recognising the role of miasmas in cholera. Miasmas are toxic materials that penetrate the blood either through the air or other methods, and produce disturbances in the body.'²³ Miasmas also flourished because of the types of foods grown in certain environments.

In 1867, Buenos Aires's Hygiene Commission published a list of hygienic recommendations for the municipality intended to lessen cholera's effect on the city: maintaining personal and public cleanliness, avoiding inclement weather, and 'the absolute abstention from all fruit'.²⁴ The city council of Buenos Aires prohibited the entry of all fruit and banned its sale within city limits. Yet, only a vague connection existed between decomposing fruit, miasmas and disease. The measures were simply part of general prophylactic responses to cholera. The International Sanitary Conference, which gathered

'Insalubrious California: Perception and Reality', *Annals of the Association of American Geographers*, 59: 1 (1969), pp. 50–64.

²¹ Nash, *Inescapable Ecologies*, p. 25.

²² Lucio Del Castillo, *Enfermedades reinantes en la campaña del Paraguay* (Buenos Aires: Imprenta del Mercurio, 1870) pp. 15–27.

²³ RMQ 1868, vol. 5 'Cholera Morbus and its Rational Treatment', p. 125.

²⁴ RMQ 1867, vol. 4 'Buenos Aires Hygiene Commission to the Municipality', pp. 7–9.

hygienists and politicians from Europe, North America and Latin America, stated, 'It is also rational to agree, even though there is no available proof, that certain foods can become vehicles for the transmission of cholera.'²⁵

When cholera arrived in Tucumán, the newly formed municipality of San Miguel published lists of fruits they deemed the most dangerous: cantaloupe melons, citrus fruit, watermelons, pears, and bananas.²⁶ Fears and apprehensions over fruit became a recurring theme in Tucumán's bouts of cholera. In the epidemic of 1886–87, public officials linked fruit to gluttony, indolence and ignorance. Tucumán's leading newspaper of the 1880s, *El Orden*, published the following editorial comment:

Hopes were high that cholera was coming to an end, but one day has yielded over fifteen dead bodies. We have talked to medical doctors and they have said that only in the rarest cases the dead have not died as a result of fruit ... Who can still be healthy and strong after eating ripe and unripe fruit that has been boiling in its skin in this heat? Have they not read the advice of doctors who have published reports that fruit is an effective assistant to cholera in killing people? Do they not hear the explicit prohibitions and repeated complaints that our doctors have made against fruit in the hope of liberating them from a definite choleric attack? Of course this is all ignored and unappreciated by the gluttons that run the great danger of eating fruit... Do the greedy gluttons believe that we insist on not eating fruit in order to harm them?²⁷

During the 1886–87 epidemic, Tucumán's government took the anti-fruit narrative a step further, burning orchards and small farms where there had been cases of cholera. The 1868 provincial government had been limited in its functions and influence and could not undertake the destruction of crops.

The correlation between fruit and cholera was part of a global medical discussion on the disease's transmission through food. In 1865, *British Medical Journal* carried an article on an outbreak in Marseille, 'with very few exceptions the disease attacked only those of the lower classes used to consuming excess of food and drink'.²⁸ In the United States, in 1885, the National Board of Health produced a report entitled, 'How to Take Care of Yourself and [Your] Family during a Cholera Summer', which advised

²⁵ *Ibid.*, The International Sanitary Conference 1865 Proceedings: Discussion Point XXXI. p. 359.

²⁶ The basis for associating disease with the ground was espoused by the German hygienist Max Von Pettenkofer (1818–1901). As Robert Koch's main rival, Von Pettenkofer developed his X, Y and Z factors on cholera. In this theory, X being the disease, was only able to spread when Y, local soil conditions and ground water, combined in Z, a personal susceptibility to certain diseases. What separated Von Pettenkofer from Koch was that Y was the most important variable. Miasmas, decomposed material and faecal matter all seeped into the ground and fermented. Local patterns of agriculture or construction could release these underground poisons to the general public. LRF, 1867, vol. 5, p. 235.

²⁷ *El Orden*, 12 January 1887.

²⁸ 'Cholera', *The British Medical Journal*, 2: 250 (1865), p. 399.

people to '... place your body in a thoroughly defensive condition: look upon unripe or overripe fruit or vegetables as so much poison, and do not allow your children to have pennies to buy the half decayed fruit offered for sale on street stands'.²⁹ While later generations more attuned to the language of bacteriology disregarded the correlation between certain foods and certain diseases, the connection filtered into society and formed part of social measures against disease. In the 1992 cholera epidemic of eastern Venezuela, for instance, public health officials suggested people avoid all foods from street vendors due to questionable hygienic practices and food preparation.³⁰

In the 1870s, medical officials shifted away from theories of miasmas and anti-contagionism in understanding cholera. In their stead, bacteriology, contagionism and moral reform rose to prominence. By 1884, German microbiologist Robert Koch isolated the cholera bacterium. The discovery presented proponents of contagionism with physical evidence to back their claims. Hygienists throughout the globe applied the laboratory's results to the urban world. Unsanitary homes, dirty streets, poor personal hygiene and moral decay created a hospitable environment for germs to mature. Hygienists and physicians held cholera to be an indicator of an impoverished and immoral lifestyle that made a person susceptible to infection.

In Argentina, the theory of contagionism found a welcoming audience among positivist-minded medical hygienists, such as Emilio Coni, Eduardo Wilde, Eliseo Cantón, Benjamín Aráoz and José Ramos Mejía. Argentine hygienists believed that theories of contagionism could be applied to both past and future social problems. Equally a politician, moral reformer and doctor, the hygienist gravitated to contagionism because it coincided with the professionalisation of the medical field as an appendage of the state. Anti-contagionism's emphasis on environment and atmospheres, however, could not find a home in Argentina's new centralised state of the late nineteenth century, since 'understanding the nature and cause of disease provides a basis for preventive action and control [*sic*]'.³¹ However, germ theory and the bacteriological revolution did not overhaul epidemiology overnight. Instead, personal and international medical and political rivalries, as well as further research into the environmental origins of disease slowed the adoption of 'the gospel of germs'.³²

²⁹ *Annual Report of the National Board of Health for the year 1885* (Washington, DC: Government Printing Office, 1886), p. 138.

³⁰ Charles L. Briggs and Clara Mantini-Briggs, *Stories in the Time of Cholera Racial Profiling During a Medical Nightmare* (Berkeley, CA: University of California Press, 2003).

³¹ George Rosen, *The History of Public Health* (New York: MD Publications, 1958), p. 17 and 109, quoted in Dorothy Porter (ed.), *The History of Public Health and the Modern State* (Amsterdam: Editions Rodopi, 1994), p. 1.

³² Gregg A. Mitman and Ronald L. Numbers, 'From Miasma to Asthma: The Changing Fortunes of Medical Geography in America', *History and Philosophy of the Life Sciences*, 25 (2003), pp. 391–412.

Thus, the mid-nineteenth century represents a transitional moment when theories of contagionism and anti-contagionism, germs and miasmas, and personal and environmental factors competed. For example, in 1866, medical officials at the International Sanitary Conference in Constantinople concluded that, ‘Man infected with cholera is the principal importing agent of the disease: this is undoubted.’ Yet, some conference delegates argued that unhealthy landscapes and miasmas could not be discarded as factors.³³ During the epidemic of 1868 contagionism and anti-contagionism co-existed as paradigms that divided Tucumán’s political and medical authorities. Beyond medical opinions, their allegiance to either theory depended on their political leanings and economic hopes for the province. Two years following Koch’s discovery and in the midst of the cholera epidemic of 1886–87, contributors to Argentina’s *Anales del círculo médico* wrote, ‘Our own initial investigation showed it [cholera] to be an infection resulting from the decomposition of organic material, under the influence of certain atmospheric conditions.’³⁴ The role of the environment in spreading cholera influenced the research of doctors who graduated from the University of Buenos Aires and volunteered in the anti-cholera campaign of Tucumán during the 1886–87 epidemic. There, they recorded detailed data on daily weather conditions, including information on wind direction, precipitation, and barometric pressure, noted next to daily death rates. The doctors concluded that cholera-related deaths in Tucumán spiked in the days following a rainfall or sudden barometric drops.³⁵ In the 1890s, Eliseo Cantón, Argentina’s leading malaria researcher argued that collecting data about the topography, altitude and climate of Tucumán was crucial to understanding malaria’s spatial distribution.³⁶

Tucumán: A Poisoned Eden

In 1869, Julio A. Roca, a native of Tucumán and later president of Argentina (1880–86 and 1898–1904), described Tucumán as a ‘wonder without equal in the entire American continent’, that possessed the ‘blessings of climate’, which made it a ‘paradise where life slips by in the midst of prodigious

³³ International Sanitary Conference 1866, Constantinople, Turkey. *Report to the International Sanitary Conference of a Commission from That Body, to Which Were Referred the Questions Relative to the Origin, Endemicity, Transmissibility and Propagation of Asiatic Cholera* (Boston, MA: Alfred Mudge & Son Printers, 1867) p. 61.

³⁴ ‘El microbio del cólera: revista crítica’, *Anales del círculo médico argentino*, vol. IX (Buenos Aires: Imprenta de M. Biedma, 1886), p. 54.

³⁵ José Roque Ávila, *Historia del cólera en la provincia de Tucumán. Tesis* (Buenos Aires: Imprenta, Litografía y Encuadernación de Stiller y Laass, 1887) and Diego García, *El cólera: estudio preparado sobre observaciones recogidas en Tucumán en la última epidemia. Tesis* (Buenos Aires: Imprenta de Pablo E. Coni é Hijos, 1887).

³⁶ Carter, *Enemy in the Blood*.

natural beauty'.³⁷ Governor Octavio Luna echoed these sentiments, highlighting that Tucumán's natural features made it conducive to the development of industry and economic growth. 'We owe much to heaven and the active industry of the province over all the maladies at the national level. Products and industry grow; labour and land prices are on the rise. Prosperity is felt in all parts.'³⁸

From the late colonial period to the mid-nineteenth century, the economy of Tucumán was divided between trade, small industries and agriculture.³⁹ Estate records and business contracts from the period demonstrate that entrepreneurs spread investments among landholdings, agriculture, and mercantilism. By the mid-nineteenth century, new economic investments, social and political influences on the developing nation, and the search for new fortunes pushed local elites to promote the growing sugar industry as the key to prosperity and modernity. In Tucumán, prominent elite families – Avellaneda, Nougés, Posse and Terán – began introducing new industrial machinery and securing a pipeline of labour to encourage the industry. Contemporaries commented on the immediate benefits of investing more of their portfolios in sugar mill technology and land. Investments in cane, unlike other crops, were paid off as early as one year after the first harvesting. Moreover, sugar cane was fairly resilient and did not require much agro-technological expertise. Tobacco, a cash crop found throughout southern Tucumán, on the other hand, was more of a gamble with a slower return on investment that took at least two years. The picking and separation of tobacco leaves was labour-intensive and required a high level of knowledge and skill during the drying process. One mistake could jeopardise an entire harvest.⁴⁰

Nevertheless, during the early years of the sugar industry, mills in Tucumán produced low-quality processed sugar unpopular with consumers outside the northwest. In order to spur new markets, sugar investors advanced local protectionist policies from the 1850s to the 1860s, levied high taxes on imported sugar, and acquired land for increased cane cultivation.⁴¹ Nevertheless, the growth of the industry prior to the arrival of the railway in 1876 was slow and was concentrated in the areas immediately south of San Miguel.

³⁷ Julio Roca to his brother Ataliva Roca, 19 Nov. 1869. Quoted in Donna Guy, *Argentine Sugar Politics*, p. 9.

³⁸ Octavio Luna to the Provincial Legislature in Miguel Lizondo Borda, *Historia del Tucumán (siglo XIX)* (Tucumán, Argentina: Universidad Nacional de Tucumán, 1948), pp. 97–104.

³⁹ For a discussion of the cart industry and Tucumán's economy in the late colonial period see Jonathan Brown, *A Socioeconomic History of Argentina, 1776–1860* (Cambridge: Cambridge University Press, 1979) chaps. 1 and 2.

⁴⁰ Juárez Dappe, *When Sugar Ruled*, pp. 17–18.

⁴¹ Claudia Herrera, 'Fiscalidad y poder: las relaciones entre el estado Tucumano y el estado central en la formación del sistema político nacional, 1852–1869', in Beatriz Bragoni and Eduardo José Míguez (eds.), *Un nuevo orden político: provincias y estado nacional, 1852–1880* (Buenos Aires: Biblos, 2010), pp. 181–208.

Observers from the period remarked on the outdated machinery employed to process the cane. Ignacio Rickart, the British engineer surveying land for the construction of the *Ferrocarril Central Argentino*, noted that excluding the technologically modern mill of Wenceslao Posse, the majority of the mills in the province were outdated and produced poor-quality sugar.⁴² Yet from 1845 to 1882, sugar production increased steadily, slowly overshadowing all other industries. In the 1840s, all of Tucumán's sugar mills collectively produced 3,000 *arrobas*⁴³ of processed sugar per annum. By 1882, one single mill produced nearly 120,000 *arrobas* per year.⁴⁴ By 1895, sugar was present in all areas of the province, except for the arid desert-like region of western Tucumán. The growth of sugar did have its pitfalls. Investors and land holders shifted from traditional agricultural practices that produced basic foodstuffs to specialising in sugar cane. Beginning in the 1860s, sugar-cane farming became so prominent in central Tucumán that San Miguel imported the majority of its food from neighbouring towns.⁴⁵ Yet, illustrious investor families, such as the Posse family, grew rich beyond their means. Looking to expand outside of central Tucumán, sugar investors set their sights on the lands south of San Miguel. In contrast to the dry and sparse northern, eastern and western corners of the province, pastures in southern Tucumán were flat and fertile, and possessed a web of small rivers that supply water.⁴⁶

Until the mid-twentieth century, the majority of *tucumanos* lived in the countryside. The nation's first census in 1869 showed that 87,000 of the province's almost 109,000 inhabitants were rural dwellers. In the north-west, this gave Tucumán the highest rural population, second only to Santiago del Estero.⁴⁷ In contrast, the majority of medical and government services were confined to Tucumán's capital. Six of Tucumán's eight doctors practised in San Miguel, leaving only two to treat around 80 per cent of the population. Because of the low numbers of university-trained doctors, *curanderos* were prominent throughout Tucumán.⁴⁸ Healers, however, did not operate on the fringes of society, or what Steven Palmer refers to as the 'cash nexus', but were deeply embedded in local societies. As in other Latin American

⁴² Juárez Dappe, *When Sugar Ruled*, pp. 36–8.

⁴³ 1 *arroba* = 25 lbs.

⁴⁴ José Antonio Sánchez Román, *La dulce crisis: estado, empresarios e industria azucarera en Tucumán, Argentina (1853–1914)* (Sevilla: Diputación de Sevilla, 2005), p. 37.

⁴⁵ Arsenio Granillo, *Provincia de Tucumán* (Tucumán: Impr. de La Razon, 1872), p. 64.

⁴⁶ Eric Carter examines how water in eastern Tucumán became especially crucial to the development of the sugar industry before and after the crisis of overproduction of 1895.

⁴⁷ Data collected from Memoria del Ministerio del Interior 1869, p. 53. The percentages are Tucumán 80, Santiago del Estero 85, Catamarca 28, Salta and Jujuy 76.

⁴⁸ *Primer censo de la república Argentina: 1869* (Buenos Aires: Imprenta del Porvenir, 1872), pp. 506–9; Ricardo González Leandri, *Curar, persuadir, gobernar: la construcción histórica de la profesión médica en Buenos Aires, 1852–1886* (Madrid: Consejo Superior de Investigaciones Científicas, Centro de Estudios Históricos, 1999), pp. 18–23.

peripheries, *curanderos* co-existed and collaborated with traditional doctors.⁴⁹ Indeed, into the twentieth century, home remedies, home medical manuals and complementary medicine competed alongside ‘orthodox physicians’ in the medical free market. All were prominent in rural regions short of physicians.⁵⁰ In 1868, Tucumán’s government relied on healers to provide medical services for the province’s large rural population and to serve as links between the government and the peripheries of the province.

The bonds between San Miguel and the rest of Tucumán were weak. An 1865 land surveyor’s report on the construction of a road from San Miguel to Catamarca noted that during the long rainy season, rivers overflowed to the point that many towns in the south became unreachable for much of the year. The 50-kilometre journey from San Miguel to the town of Monteros could take up to 19 days.⁵¹ The story of an unnamed town in the department of Trancas, on the border with Salta, further illustrates the isolation that many settlements faced. For many years, the small settlement had paid taxes to Salta; it was not until the government of Tucumán requested soldiers for the Paraguayan War that the local mayor realised that the town was located in Tucumán.⁵² The construction of the railway, railway stations and telegraph lines in 1876 finally facilitated communication and travel throughout Tucumán.

Southern Tucumán was home to several small to medium-scale farmers who grew fruit, vegetables, wheat, and had an occasional sugar-cane plot. All crops were consumed locally. Citrus trees, cantaloupe melons, strawberries, corn, and squash were especially popular. Fruit and vegetables were the key staples in the diet of the popular classes of Tucumán. People used butternut and acorn squashes, for instance, to make a stew known as *locro* during the winter months. Émile Daireaux, a French travel writer who wrote looking to attract *émigrés* to the north-west, considered *locro*, ‘only good when starving’. Meat, a product that has become synonymous with Argentine gastronomy, was a rare and expensive treat as late as the 1930s. Carl C. Taylor observed that apart from the occasional piece of salted meat, people ate mainly vegetables.⁵³

⁴⁹ Steven Palmer, *From Popular Medicine to Medical Populism: Doctors, Healers, and Public Power in Costa Rica, 1800–1940* (Durham, NC: Duke University Press, 2003).

⁵⁰ Elaine G. Breslaw, *Lotions, Potions, Pills, and Magic: Health Care in Early America* (New York: New York University Press, 2012).

⁵¹ Report on the construction of a road from Catamarca to Salta through Tucumán Archivo Histórico de la Provincia de Tucumán Sección 1865, Book 97, Folio 124. Hereinafter referred to as AHT-SA.

⁵² The Chief Regiment of the 6th Division in Trancas to Minister Bernabé Piedrabuena, 1 January 1865 AHT-SA 1865. Book 97, folio 14.

⁵³ Taylor was an American anthropologist who conducted fieldwork on ‘rural life in Argentina’ in the 1940s. *Rural Life in Argentina* (Baton Rouge, LA: Louisiana State University Press, 1948) and Émile Daireaux, *Vida y costumbres en el Plata* (Buenos Aires: F. Lajouane, 1888), pp. 440–1.

Prior to the development of sugar-cane production, the citrus industry was the major competitor for land, labour and capital. In the 1850s, Hermann Burmeister, the German naturalist, travelled to Tucumán to catalogue the flora and fauna of the north-west and compiled a collection of casual observations of the province. He noted the abundance of wild orange trees in the countryside and in small groves on family farms. In the capital, Burmeister noted San Miguel's many oranges in the tree-lined streets near the central square (which are still present to this day). The German naturalist commented on the daily habit of farmers moving about the city selling their oranges from horse-drawn carts and the habit of *tucumanos* eating an orange as a *digestif* after a heavy meal.⁵⁴ In 1887, Émile Daireaux arrived in San Miguel and described his first glimpse of the city: 'from the station I see corn and wheat crisscrossed with lemon and orange trees, which every house possesses'. During his time in Tucumán, Daireaux visited a French-owned sugar mill that also possessed long tracts of land growing asparagus, strawberries, bananas and melons. Seasonal labourers who arrived from throughout the north-west were given plots of land on which to build temporary homes; many planted fruit and vegetables to supplement their daily rations.⁵⁵

As sugar expanded to cover the majority of the province, the fruit industry still thrived, even as Tucumán went 'sugar crazy'. The 1869 census noted that in Tucumán 'the abundance of [fruit] trees is astonishing. Orange groves are so abundant, even in the city, that it can be said that there is a forest of citrus. Bitter oranges and semi-sweet varieties stretch along the foot of the mountains. Their fruit is used to make dessert and candies and their trunks make furniture.'⁵⁶ In 1918, the first year detailed statistics were recorded, the capital boasted over 25,000 orange trees. The central Tucumán town of Monteros possessed over 17,000 trees and Chicligasta had 16,100. The southern department of Graneros reported a modest 5,070 trees, a large number for an underpopulated region.⁵⁷ In 1921, the US traveller Harry Franck noted that the entire province of Tucumán was covered with sugar cane and orange groves, remarking that 'the rivalry between these two products [sugar and citrus] has been acute for decades'.⁵⁸

Yet in the midst of the province's prosperity, disease festered. Disease, poor hygiene and low life expectancy stood in contrast to the agricultural opulence.

⁵⁴ Hermann Burmeister, *Descripción de Tucumán* (Buenos Aires: Coni hermanos, 1916).

⁵⁵ Daireaux, *Vida y costumbres en el Plata*, pp. 435–41.

⁵⁶ *Primer censo de la república Argentina: 1869*, p. 489.

⁵⁷ Alfredo Bolsi (ed.), 'El complejo azucarero en Tucumán: dinámica y articulaciones: censos nacionales agropecuarios' (San Miguel: Universidad Nacional de Tucumán-CONICET, 2002), CD-ROM.

⁵⁸ Harry Alverson Franck, *Working North from Patagonia: Being the Narrative of a Journey, Earned on the Way, Through Southern and Eastern South America* (New York: The Century Co., 1921), pp. 58 and 85.

Throughout the period, Tucumán's politicians bemoaned the poor state of health in the province, as well as its underdevelopment and backwardness. Maladies, such as malaria, had reached endemic proportions, while smallpox, typhoid fever and diphtheria threatened both the city and countryside.⁵⁹ In retelling the history of his home province, the intellectual Paul Groussac wrote in 1882 that, 'hygiene to this day has been one of the areas public administration has most often overlooked'.⁶⁰ For Groussac, the hygiene of the province depended on the changing seasons of north-western Argentina. The dry and pleasant winters gave way to the rank, humid and musty summers that worsened public health.⁶¹ Émile Daireaux shared with his French audience a similar assessment: '[Tucumán is] under a hot climate and physically draining atmosphere. Amid the harmful fumes of the marshes [the peons] till the soil, plant [sugar] cane and harvest malaria'.⁶² In describing his home province, Eliseo Cantón remarked that the health and environment of Tucumán were akin to a 'biblical curse'.⁶³ Speaking in 1895, a representative in the provincial legislature commented on the national stereotype of Tucumán as unhealthy. 'It is a common truth in Tucumán that the province has the worst hygienic conditions. It has been said so much that it has come to be known as the "Poisoned Eden"'.⁶⁴

Before the 1868 epidemic, Tucumán underwent significant changes that complicated political relations between San Miguel and the province, especially in the southern region over the management of the anti-cholera campaign. First, Governor Octavio Luna, a military leader from the countryside, led a successful revolution against Governor Wenceslao Posse in 1867. Speaking to Tucumán's legislative assembly following the uprising, Luna argued for the necessity of his administration to fight against corruption: 'The Revolution of 1867 has broken the chains of despotism that sought to expand, and the vulgar aspirations that misused the powers that constituted the will of the people.'⁶⁵ However, Luna was an outsider in San Miguel. The Avellaneda, Colombres, Paz, Terán, Zavaleta, Posse, Nougues and Gallo families, who were interrelated through a network of marriages, business partnerships, political allegiances and friendships, held a firm grip on the politics and

⁵⁹ Malaria was especially abundant and problematic in Tucumán. Carter, *Enemy in the Blood*.

⁶⁰ Paul Groussac, *Memoria histórica y descriptiva de la provincia de Tucumán* (Buenos Aires: Impr. de M. Biedma, 1882), p. 704.

⁶¹ *Ibid.*

⁶² Daireaux, *Vida y costumbres en la Plata*, p. 427.

⁶³ Carter, *Enemy in the Blood*, p. 39.

⁶⁴ Marco A. Maciel (ed.), *Digesto municipal: compilación de ordenanzas, resoluciones, memorias y decretos de a municipalidad, a partir del año 1868. Tomo IV* (Tucumán: Edición Oficial, 1924), p. 428.

⁶⁵ Octavio Luna to the Provincial Legislature, Lizondo Borda, *Historia del Tucumán (siglo XIX)*, pp. 97–104.

economy of the capital.⁶⁶ Their cachet rose even further during the sugar years, which allowed them to solidify their social standing well into the twentieth century, and gain control of provincial politics until the period of the Radical Party (1916–30).

In contrast, Luna's political power was based on his military career, his personal connections with rural militias and allegiance to fellow centralist *caudillo* Antonio Taboada of Santiago del Estero and President Bartolomé Mitre. Taboada and Vice-President Marcos Paz helped engineer Luna's coup as part of a plan to ensure Tucumán would give its electoral votes in the 1868 presidential election to Mitre's hand-picked successor Rufino del Elizalde, rather than continue their support for Domingo Sarmiento.⁶⁷ José Posse wrote to Sarmiento stating, 'Vice-President Marcos Paz ... your enemy ... authorised and stimulated the revolt in Tucumán. Paz has publicly stated "I rather cut off my own hand than initiate any process of federal intervention into Tucumán [in order to put Wenceslao Posse back in power]"'.⁶⁸ Posse further argued that the revolution and Luna's government had transformed Tucumán into a political and administrative appendage to Santiago del Estero: 'The uprising against the government of Tucumán was a move by the Taboadas to remove a regional nuisance and extend their influence, without resistance, to all of the north and subject this province [Tucumán] to their dependency.'⁶⁹ The remaining years of Luna's administration were plagued with problems. His opponents looked for ways to remove him from power. As a result Luna spent long portions of his two-year term outside the capital completing tours of the southern countryside.⁷⁰ Public disapproval of Luna reached such high levels that members of the Posse family formally

⁶⁶ For example, Eudoro Avellaneda, brother of future president Nicolás Avellaneda, married Francisca Delfina Terán Silva, daughter of Juan Manuel Terán. Through the marriage, the Terán and Avellaneda families consolidated the Los Ralos sugar mill and formed a loose coalition with the Santa Bárbara and Luján sugar mills. See Claudia Herrera, 'Los Avellaneda: herencia, poder en la elite Tucumana', unpublished paper for the Segundas Jornadas Nacionales de Historia Social, Córdoba, Argentina 2009, p. 19.

⁶⁷ José Posse, for example, maintained an almost 50-year personal correspondence with Sarmiento. Nicolás Avellaneda was given the Ministry of Education and Justice during Sarmiento's presidential administration and then was chosen to succeed him as president (1874–80).

⁶⁸ José Posse to Domingo Sarmiento, 20 June 1868, vol. 1: *Epistolario entre Sarmiento y Posse, 1845–1888* (Buenos Aires: Museo Histórico, 1946), p. 172. Paula Alonso's *Jardines Secretos* advances the notion of political leagues in the post-1880 period, while David Rock, in *State Building* argues that each decade from 1860–1916 political history revolved around either one person, or the conflict between two. For the 1860s, Rock argues that *Mitrisimo* had a tight control over regional politics, but in 1868 with the election of Sarmiento, his influence began to quickly fade and never reached the level it had prior to 1862.

⁶⁹ *Ibid.*, 15 Nov. 1868.

⁷⁰ During his two-year administration, Luna temporarily delegated his role as governor to his Minister of Government David Zavalia five times in order to quell uprisings or to monitor conditions in the interior. Antonio Zinny, *Historia de los gobernadores de las*

requested permission from President Sarmiento (1868–74) to lead a rebellion and install a new governor.⁷¹ Fortunately for Luna this never came to pass.

Tucumán's finances prior to the sugar boom of 1876 were on shaky ground. Luna further strained relations with local powers after his uprising depleted the province's coffers. Indeed, the revolution cost the province a sum of Bs.\$ 16,337, a quarter of the province's estimated income for 1868 and more than the total income from the *patente*⁷² taxes of 1867, Bs.\$ 15,000. The destruction of fruit groves destroyed potential income from property and trade taxes.⁷³ To replenish the provincial accounts, Luna increased income and property taxes, and diverted funds from public works, a common response during times of economic uncertainty.⁷⁴ The provincial financial plan for 1865 reveals the level of budget cuts made to public health spending. Of the Bolivian \$ 1,500 originally allocated for the local hospital, the finalised budget reduced the sum to Bs.\$ 120.⁷⁵ Feofamia L. De Espejo, president of the board of managers of the *Hospital Mixto*, wrote to the government, 'we currently find ourselves without the funds or resources to continue offering assistance. I have had to personally ask my acquaintances for personal loans to pay for the demands of the hospital.'⁷⁶

In 1867, news reached Tucumán that cholera was present in Córdoba, Santiago del Estero and Catamarca. Reports from Córdoba, in particular, revealed the extent of damage cholera could inflict. In the span of weeks, the city of Córdoba was almost abandoned. The rivalries that had formed between the Catholic Church, the municipality and the provincial government hindered their collective response to stall cholera's spread.⁷⁷ In

provincias argentinas (Noroeste) (Tucumán: Fundación Banco Comercial del Norte, 1974), pp. 360–1.

⁷¹ 'We should not make a direct opposition [against Luna] but instead find ways to completely disarm the ill will of the government, accept the position and promote the public good and prepare the way for the future elections to recuperate power', Domingo F. Sarmiento to José Posse, Buenos Aires, 21 Oct. 1868, vol. 1: *Epistolario entre Sarmiento y Posse, 1845–1888* (Buenos Aires: Museo Histórico, 1946), p. 187.

⁷² *Patente* is a tax dating back to the colonial period that taxed all forms of economic activity: commercial, agricultural, professional and industrial.

⁷³ Between 1856 and 1870, the average genuine income (patentes, sales, and property tax) for the province was Bs. \$ 51,500 pesos. For 1868, only the estimated income is available: Bs. \$ 66,644. Taken from Herrera 'Fiscalidad y poder: las relaciones entre el estado Tucumano y el estado central en la formación del sistema político nacional, 1852–1869', chart 1, p. 191 and chart 2, p. 201.

⁷⁴ *Ibid.*, p. 199 and footnote 55.

⁷⁵ Finalised budget for 1865. AHT-SA 1865; 98: 345.

⁷⁶ Letter from Feofamia L. De Espejo to Gov. Octavio Luna. AHT-SA 1867; 102: 387.

⁷⁷ *El Eco de Córdoba*, Dec. 1867–Jan. 1868. An article from 4 Jan. 1868 illuminates the disagreement between the Church and the government, 'Catholicism has cures and medicine that are effective and healthy for every affliction of the soul; it could be that the medical

Tucumán the message was clear: quick, efficient and collective action was needed to minimise the spread of cholera. Preparations against cholera began in January of 1868. The first cases were reported in February and the epidemic concluded in May. Once in Tucumán, the epidemic remained concentrated around the southern border town of La Cocha.⁷⁸

To prepare for the epidemic, the provincial government and the archdiocese of northern Argentina erected a sanitary cordon to isolate Tucumán from its neighbouring provinces. The measures were intended to stop the arrival of people from Santiago del Estero and Catamarca. However, these ordinances were not met with approval in San Miguel. In the capital, local leaders with connections to the Posse family and sugar sector argued that the province and archdiocese's quarantine was insufficient, since it did not attack cholera's miasmatic origin and, thus, only postponed cholera's eventual outbreak in central Tucumán. Countering the province's moves, elites in San Miguel formally incorporated the city and formed a municipality under a council composed of President Juan Manuel Terán, Secretary José María Rojas and Treasurer Emiliano González to enact hygienic and sanitary measures to bolster public health defences. Through the newspaper *El Pueblo*, the municipality published letters from anonymous doctors who argued that the province's measures were insufficient to contain cholera outside the provincial borders.

The formation of San Miguel's city council caused immediate administrative changes in the province. First, although the governor's residence was in San Miguel, the city no longer fell under the jurisdiction of the provincial government. Second, Tucumán's Medical Tribunal, which provided hygienic assistance and regulated medical practice throughout the province, became part of the municipality. This change placed all doctors practising in San Miguel under the auspices of the municipality of San Miguel. Once organised, the new council cleaned public streets with bleach, fumigated all people and goods travelling from infected regions, and outlawed the introduction, consumption and harvesting of all fruit within city limits, due to the purported

assistance has not found the proper way of caring for the sick. Conversely, religious leaders are abundant and have not left any individual unattended, fortifying the word of the religious ministry. What does it matter if you are well-connected with friends in important places, if He is the one who gives us eternal health? Those that are happy are the ones who with their last breath have invoked the help of God immortal.'

⁷⁸ María Estela Fernández informed me that in the parish death records of San Miguel for 1860–70, cholera is not listed as a cause of death. See María Paula Parolo, Daniel Campi and María Estela Fernández. 'Auge azucarero, mortalidad y políticas de salud en San Miguel de Tucumán en la segunda mitad del siglo XIX', *Estudios Sociales*, 38: 1 (2010), pp. 39–72.

negative effects it had on the gastro-intestinal system and the 'certain disposition in the atmosphere [fruit] creates'.⁷⁹

San Miguel was divided into districts, each with a hygienic commissioner who oversaw the enforcement of sanitary laws and the cleanliness of private and public spaces, as well as a pharmacist who provided free medication to the poor. The municipality created a two-block zone around the Plaza Libertad where no mud, clay or open flames were allowed. Municipal-appointed citizens patrolled the streets giving out warnings about hygienic infractions.⁸⁰ In order to limit the possible spread of cholera within the city, the municipality banned all public gatherings. Municipal authorities argued that 'large meetings and the commotion created from events such as festivals will most definitely bring disease quickly and with force'.⁸¹ In case cholera appeared, the city council and medical tribunal planned to confine potential choleric to their homes. Upon the death of the infected individual, hygiene commissioners would confirm the cause of death and remove the body within two hours, with burial in large unmarked graves covered in quicklime to suppress any potential miasmatic gases.⁸²

The municipality and provincial government disagreed on several issues, primarily the funding of public health measures. Although the municipality had access to funds and health officials, it repeatedly called on Luna's government to finance all medical ordinances even if the municipality had initiated them without government approval. Municipal president Terán, for instance, wrote to Governor Luna in response to the city being unable to pay local militias that were sent to the border with Santiago del Estero to stop people seeking refuge in Tucumán, 'you have shut down the borders with both provinces, but the municipality does not feel it has enough men to cover that border. We ask that the provincial government do its part.'⁸³ The epidemic exposed the socio-economic disparities between San Miguel and rural Tucumán. While the provincial government struggled to fund hygiene commissions in the countryside and acquire medical supplies, prominent citizens of San Miguel collected monetary donations ranging from Bs.\$ 0.5 to Bs.\$ 10, with some donations as high as Bs.\$ 75, to establish disinfection stations in the towns of Favorina and Tacanas immediately east of the city.⁸⁴ The city and province also disagreed over the financial impact of destroying the fruit fields. The

⁷⁹ *El Pueblo*, 16 Feb. 1868.

⁸⁰ *Ibid.*, 23 Feb. 1868.

⁸¹ Ramón Cordeiro, Carlos Dalmiro Viale, Horacio Sánchez Loria, Ernesto M. del Moral, Samuel Eichelbaum, Felin Linares Alurralde, and Martín Manso, *Compilación ordenada de leyes, decretos y mensajes del período constitucional de la Provincia de Tucumán que comienza en el año 1852* (Tucumán: Imprenta de la Cárcel Penitenciaria, 1916), pp. 22–3.

⁸² *El Pueblo*, no date visible.

⁸³ Letter from the Municipality of San Miguel to Gov. Octavio Luna AHT-SA 1868; 104: 259.

⁸⁴ *El Pueblo*, 1 March 1868.

provincial government relied on the taxes collected from the fruit industry, but *El Pueblo* and the municipality contended that although the decision to ban fruit was not taken lightly, the economic impact of destroying the fruit fields of central and southern Tucumán was fiscally negligible and insignificant when compared to the health of the province.⁸⁵ Nevertheless, the municipality argued that in permitting the continuation of fruit, ‘we harm almost the entire province in its most vital interest [of life]’.⁸⁶

Tensions between municipality and province worsened once cholera was confirmed in the south. Unable to stop the arrival of refugees from Santiago del Estero and Catamarca, cholera cases began to appear just south of San Miguel. Reports from the countryside also noted that even after the municipality requested that all fruit be banned, it continued to be sold, traded and consumed. Finally, rather than coordinate a collective effort against cholera, the municipality refused to help cholera patients outside the city limits. Terán concluded that, ‘The government is the guardian of the interests and well-being of the entire province. [Governor Luna] is responsible for taking the corresponding measures [against cholera]. The municipality is only responsible for handling any threat that is at the doorstep of the city.’⁸⁷ In order to incorporate the south into the province and promote public health measures, Luna looked to the south as a space and opportunity to standardise hygienic protocol. Moreover, Luna eventually did outlaw the consumption of fruit to minimise tensions with the municipality and his opponents in the capital, and in reaction to changes in national politics.

By the middle of February, cholera arrived in La Cocha, Graneros. The town is situated a little over 100 kilometres south of San Miguel and 25 kilometres north of the border with Catamarca. Catamarcan merchants founded the city in the mid-colonial period as a stopping point for supplies between Tucumán and Catamarca (Figure 1). The town, however, was never heavily populated and for most of its history remained a settlement with a large rural population. For instance, in 1881, La Cocha only had about 600 inhabitants.⁸⁸ Like other areas of Tucumán, the region supplemented trade with the cultivation of tobacco, corn, wheat, citrus trees, and other fruit trees planted in ‘soil of good quality for agriculture’.⁸⁹

The first cases of cholera reported in La Cocha were those of a mother and her child, a trader from Chile collecting *aguardiente*, four individuals from ‘*la clase decente*’ and guards stationed at the San Francisco quarantine post.⁹⁰

⁸⁵ *El Pueblo*, 16 Feb. 1868.

⁸⁶ *Ibid.*

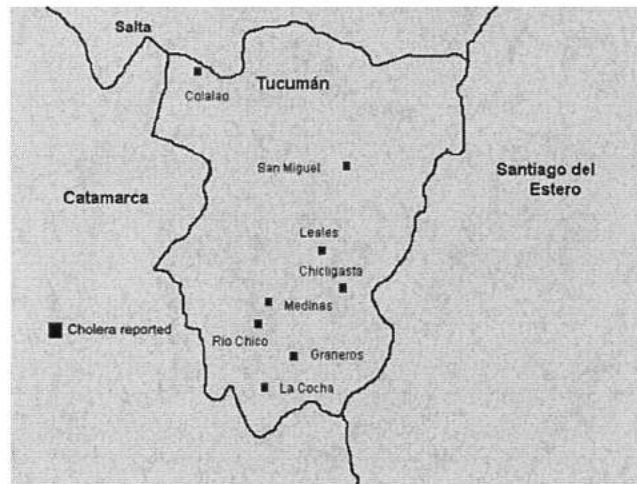
⁸⁷ Letter from the Municipality of San Miguel to Gov. Octavio Luna AHT-SA 1868, 105: 122.

⁸⁸ Information compiled from AHT-Pueblos del Interior portfolio.

⁸⁹ Agriculture of the department of Graneros listed in the 1869 census, p. 487.

⁹⁰ Letter from the commissary of La Cocha to Gov. Octavio Luna. AHT-SA 1868;104: 370.

Figure 1. Areas that reported cholera in 1868



Source: Map by author. Information compiled from AHT-SA 1868; 104–5.

Government officials promptly formed a municipal council in La Cocha and requested medical supplies and physicians from the capital. However, the provincial government denied these requests because most of the province's physicians were contracted under San Miguel's Medical Tribunal. Furthermore, lack of funds prevented assistance. Instead, the provincial government sent more soldiers to the sentry post at the border with Catamarca. The municipality of La Cocha convened with Enrique Edman, the commissary for the department of Graneros and government representative in the south, to form a hygiene commission to enforce hygienic ordinances. As in San Miguel, the streets of La Cocha were fumigated, rubbish collected and local fruit groves destroyed. Unsold fruit was burnt and buried in the ground. Edman notified Luna that the urgency of the epidemic required swift action that went beyond his military roles: 'I have neither faculty nor authority from the government to enact these laws, but seeing that they are a benefit to the local community ... I have confidence that the provincial government will not contest them.'⁹¹

The provincial government disapproved of Edman's measures. Luna appointed José J. Rodríguez as the assistant commissary. The appointment immediately raised problems in the south, since it lacked any input or approval from Edman. Offering an explanation to Edman, Luna argued that assigning Rodríguez stemmed from the government's disapproval of Edman's role in forming La Cocha's hygiene commission and the destruction of local fruit

⁹¹ *Ibid.*, 104: 128.

crops. Edman countered that his job as commissary required him to maintain the peace and safety of his jurisdiction. He argued that the epidemic called for him to expand his role as commissary beyond purely military functions and represent Luna in the south. Edman resigned. He stated that the province refused to honour his improvisation in the midst of a medical emergency: '[La Cocha] is a small district and not satisfactory to my dignity. I resign from my position. Find someone else.'⁹²

Yet, Edman's actions were common. The regions furthest from the capital operated with a degree of administrative autonomy. Ángel Salas, fellow commissary of Graneros, formed a local hygiene commission without government approval. Salas's edicts established 12-day quarantines on goods and people entering the province, but without destroying fruit fields. Nicanor Basail, chief of the Medinas militia, reported to Luna that officials in the department of Rio Chico, situated north-west of La Cocha, had, 'not taken any measures in respect to [cholera]. There are rumours that there are [cholera] cases even as far as Nachi. I have written to commissary Felipe Luna to verify this. If it is true, I will communicate to you. We must work together to keep La Cocha closed off from the rest of the province.'⁹³ In short, the disagreement stemmed from Edman advocating a miasmatic-based hygienic measure rather than solutions based on contagion theory.

Prior to Edman's resignation and Luna's rise to power, Tucumán had employed a contagionist approach to contain cholera. Wenceslao Posse authorised a series of sanitary measures in light of the outbreak in Buenos Aires and Rosario. The measures closed off the province, formed urban sanitary commissions, and prohibited all fruits within public markets.⁹⁴ In personal letters, José Posse, cousin of Wenceslao and fellow former governor, wrote to his colleague in Santiago del Estero, Gaspar Taboada: 'You do well to take precautions against cholera. Keep a watchful eye on travellers from infested regions. It is my opinion that people are the main transmitters and propagators of the epidemic, you shall see it confirmed by the decisions made in the International Sanitary Congresses of Europe...whose reports I have included in this package.'⁹⁵ Although anti-fruit measures were embedded within the hygienic regulations, as in other areas of Argentina, they were secondary to isolation tactics and urban sanitation policies. Yet, the majority of the anti-cholera measures in Tucumán fell short of their goals. The quarantine stations, even with additional soldiers and funding, failed to stop the arrival of people

⁹² The First Committee of Colalao to Gov. Octavio Luna, AHT-SA1868; 104: 222.

⁹³ The Head of the 6th regiment in Medinas to Gov. Octavio Luna, AHT-SA 1868; 104: 377.

⁹⁴ Public health and prophylactic decrees of Wenceslao Posse, AHT-SA 1868;105: 190.

⁹⁵ José Posse to Gaspar Taboada, 23 Jan. 1868. Gaspar Taboada, *Recuerdos históricos: 'los Taboada': luchas de la organización nacional: documentos seleccionados y comentados*, vol. 5 (Buenos Aires: Imprenta López, 1929), pp. 308–9.

from outside Tucumán. The commissary for Chicligasta, a department in central Tucumán, reported that he had seen first-hand many *catamarqueños* entering the province daily.⁹⁶ More troops were sent to La Cocha, but reports of cholera cases continued to grow, especially among those guarding the border.

Curanderos in the areas outside San Miguel tried to persuade government officials to help the sick. During the epidemic, the provincial government relied on rural healers, which the municipality considered 'ignorant and charlatans', to provide services and news on the spread of cholera in areas with a limited medical presence.⁹⁷ José Sobre, a curandero in San Miguel and a personal contact of Luna, provided an example of the breakdown between the province and municipality during the epidemic. In a letter, Sobre recounted his treatment of multiple choleric cases in the town of Los Suedos, Leales, located 50 kilometres from San Miguel. He also requested that the government assist the sick in the immediate areas outside San Miguel following the municipality's refusal to send doctors. The well-connected curandero reported that the area was rife with cholera, which spread quickly among the poor who could not afford medical care from professional doctors in the capital. The healer wanted Luna to pressure the municipality to help the poor, which he believed was the capital's 'Christian duty'. Sobre ended the letter stating that, although his 'credentials are not very distinguished', he hoped the province would take on the cause of the poor that the municipality had chosen to overlook.⁹⁸

The shortage of formally trained doctors in the province caused many *tucumanos* to rely on the use of home remedies and curanderos to treat disease. Rural doctors used plant-based treatments, including fruit, herbs, plants, and animals to cure and deter physical and psychological afflictions. For instance, rosemary was believed to ward off cholera. Chamomile, mint and *yerba buena* eased all forms of stomach pains, even dysentery. Other concoctions included the tea brewed from peach-tree leaves, or a paste made of basil, squash and ants.⁹⁹ In La Ciénaga Catamarca, an area with strong ties to Tucumán through trade, three kinds of mint were included on a list of the 24 plants with the strongest medicinal properties.¹⁰⁰ *Susto*, a folk illness that occurred when trauma separated the soul from the body, caused diarrhoea, coughing

⁹⁶ *Ibid.*, p. 305.

⁹⁷ The tension between popular and traditional medical officials appears as early as the late colonial period and once again during the 1886 epidemic. In 1886, the government of Tucumán persecuted and jailed various curanderos over charges that they spread false medical advice and sold diluted medication. One prominent curandero, famous in areas as far as Mendoza, was jailed after giving medicine that resulted in the death of a child.

⁹⁸ Report from José Sobre to Gov. Octavio Luna, AHT-SA 1868; 104: 301.

⁹⁹ Instituto Nacional de Antropología y Pensamiento Latinoamericano, Encuesta Nacional de Folklore (1921): File Tucumán, carpeta 23; Town of Río Colorado.

¹⁰⁰ *Ibid.*, file: Catamarca, carpeta 79; town of Capayán.

and insomnia; the body became 'quiet, disheartened and lifeless'. Curanderos cured patients suffering from *susto* by calling the person's name from the spot where the traumatic episode took place, and offered herbal teas to relax the individual as soul and body were reunited.¹⁰¹

In order to bridge the tensions between the municipality and province, and consolidate collective action against cholera, Luna forbade people from eating fruit throughout Tucumán. Nevertheless, Luna's decision was politically motivated. Sarmiento's presidency required Luna to cooperate with the large *sarmientista* coalition forming in Tucumán. Moreover, the new president ended military-based state action to consolidate support in the interior that had been prominent under Bartolomé Mitre.¹⁰² Influential generals, such as Tucumán's Anselmo Rojo and José María del Campo and Santiago del Estero's Antonio Taboada who had fought against federalist caudillos for decades in hopes of national unification, no longer factored into the national political process of Sarmiento. Instead, Sarmiento used federal employees, governmental ministries and the federal army to extend the presence of the state. Luna's choice to force Edman to resign shows that the provincial government wanted to establish a standardised approach to the epidemic. In line with Wenceslao Posse's 1867 ordinance that: '*it is the responsibility of the provincial government to take all steps of precaution that may liberate the province from this terrible disease [cholera]*', Luna wanted the central government to make the major decisions about public health.¹⁰³ In the closing weeks of the epidemic, Luna toured the department of Graneros to supervise the quarantine posts. He declared the epidemic had ended. The province celebrated the accomplishment with Luna marching through the capital in a religious procession thanking God for sparing Tucumán from an epidemic, or San Miguel at least.

Conclusion

Cholera returned to Tucumán in 1886–87 and 1895. Scholars have examined the 1886–87 outbreak as an optic through which to investigate the patterns of social control established by the nation's oligarchic conservative order from the 1880s to 1916.¹⁰⁴ By contrast, the epidemic of 1868 has not received scholarly attention. The 1860s were a transformative period not only for the global

¹⁰¹ Armando M. Pérez de Nucci, *La medicina tradicional del noroeste argentino: historia y presente* (Buenos Aires, Argentina: Ediciones del Sol, 1988), pp. 76–85.

¹⁰² The Taboada family in Santiago del Estero and Anselmo Rojo of Tucumán are two ideal examples.

¹⁰³ Public decree by Wenceslao Posse AHT-SA 1868; 105; 190. Italics my own.

¹⁰⁴ Héctor Recalde, *Las epidemias de cólera (1856–1895): salud y sociedad en la Argentina oligárquica* (Buenos Aires: Corregidor, 1993) and Olga N. Ordi de Ragucci, *Cólera e inmigración, 1880–1900* (Buenos Aires: Editorial Leviatán, 1992).

medical sciences, but also for Argentina and Tucumán's political structure. Indeed, the epidemic of 1868 sheds light on the role of the interior in the formation of the Argentine state through the lens of medical and environmental history. Countering studies that have examined the consolidation of the state emanating from Buenos Aires following its establishment as the capital in 1880, this article shows how power was restructured at the grassroots and regional level through public health responses to the epidemic.

I have argued that cholera brought together the province through debates on globalised scientific perspectives on contagion and local pre-existing ideas of the environment, and by cementing the government's role in public health. A close reading of the administrative responses cholera generated reveals a divided province and a weak provincial government. The recently formed municipality of San Miguel, composed of elites connected to the sugar industry and the medical field, envisioned the epidemic as an opportune moment to extend the sugar industry into the southern frontiers of Tucumán. Embedded within the language of contagion, the Medical Tribunal of San Miguel recommended to the municipality and provincial government the destruction of fruit fields believed to generate choleric miasmas. This conjecture coalesced with nineteenth-century medical thought that connected public health to the environment and established clear hierarchies of agriculture. Those crops that assisted in the advancement of agro-capitalism, such as sugar, had more prestige than those that did not, such as fruit.

Conversely, the provincial government promoted a contagionist approach to cholera's dissemination. As a precautionary measure, Governor Luna established a sanitary cordon that created a medicalised and administrative division between the healthy and those suspected of infection. This plan, nevertheless, required a restructuring of governmental roles in the countryside from purely military functions to include medical administrative duties. Although the prophylactic measures were medical failures, they established the provincial government at the top of the province's public health sector. As happened to Commissary Edman, those unwilling to follow medical protocol were dismissed. Responses to the epidemic demonstrate that local leaders took responsibility for creating medical services at a time when the structures of the Argentine state were limited. Cholera not only infected Tucumán, but also healed its divisions.

Spanish and Portuguese abstracts

Spanish abstract. En 1868 surgió una epidemia de cólera en la provincia noroccidental de Tucumán, Argentina. Doctores y políticos urbanos argumentaron que el cultivo de fruta, localizado mayoritariamente en el sur, había propagado la enfermedad. Con la esperanza de evitar el cólera, apoyaron la completa prohibición y destrucción de la

fruta de Tucumán como medida profiláctica pero también para desarrollar nuevas tierras para el cultivo de caña de azúcar. A través de una lectura de informes gubernamentales, revistas médicas e informes de salud pública, este artículo examina cómo la agricultura, junto a la enfermedad y su propagación, mediaron la interacción entre la minoría urbana y la mayoría rural en Tucumán. El material ofrece una ventana para evaluar las políticas de base y la formación estatal durante uno de los períodos más formativos de Argentina.

Spanish keywords: cólera, medio ambiente, Tucumán, fruta, formación estatal

Portuguese abstract. Em 1868, uma epidemia de cólera eclodiu na província de Tucumán, noroeste da Argentina. Médicos de áreas urbanas e políticos argumentaram que a doença foi disseminada por frutas que cresciam principalmente no sul da província. Na esperança de evitar a cólera, eles defenderam a proibição completa e destruição de frutas em Tucumán como medida profilática, mas também como forma de liberar novas áreas para o cultivo de açúcar. Através da leitura de memorandos governamentais, revistas médicas e relatórios de saúde pública, este artigo examina como questões sobre agricultura, doença e contágio mediaram a interação entre a minoria urbana e a maioria rural de Tucumán. O artigo oferece uma perspectiva acerca das políticas de base e da formação do Estado durante um dos períodos formativos mais intensos da Argentina.

Portuguese keywords: cólera, meio ambiente, Tucumán, cultivo de frutas, formação de Estado