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Defending Agriculture: Citizens, Scientists, and the Fight against Locusts in Argentina, ca.

1890-1950

A dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of

Philosophy in History

by

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1890-1950

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ABSTRACT

Defending Agriculture: Citizens, Scientists, and the Fight against Locusts in Argentina, ca. 1890-1950

by

Chris McQuilkin

This dissertation traces the history of Argentina's locust control programs from their origins at the end of the nineteenth century to their culmination in the middle of the following century. It uncovers an understudied part of Argentina's agricultural boom when the nation became a major global exporter of wheat, maize, and other crops. The South American locust (*Schistocerca cancellata*), which had previously been a periodic nuisance, became a serious, nationwide problem when agricultural exports became a pillar of the national economy. In this dissertation, I examine the responses to locust invasions at the national, provincial, and local levels and trace locust control programs' evolution as scientific and political projects.

Anti-locust efforts began with the establishment of a vast, hierarchical bureaucracy of commissions and sub-commissions that conscripted ordinary people to collect and destroy locusts. This program aroused considerable opposition and anger, even among the rural farmers whom it was meant to benefit. Critics of locust control efforts deployed locusts as a flexible cultural metaphor for government corruption, wastefulness, and inefficiency—even as a symbol of the anti-locust commissions themselves. However, the program persisted and led to the foundation of a broader pest-control agency in Argentina known as Agricultural Defense.

Beyond the coordination of massive, coerced labor, anti-locust efforts led to the systematic, scientific study of locusts for the first time. Argentinians sought to understand why this plague only came in certain years, where it came from, and why it always

eventually subsided. A major part of this quest was the search for the “permanent zone,” a specific region where, it was thought, locusts lived permanently and from which they exploded periodically into the agricultural regions. For decades, scientists and politicians sought to locate this place within the Gran Chaco, the vast forested region in northern Argentina that spanned the frontiers with Paraguay and Bolivia. In the end, however, the heavy, sustained use of pesticides sprayed from trucks and airplanes accomplished what the great labor corvees could not. From the 1950s to the first years of the twentieth century, locust swarms largely disappeared from Argentina.

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Introduction

In the early 1890s, large swarms of locusts invaded Argentina's agricultural regions and devastated crops, especially maize and wheat. Locusts were not new to Argentina—they were not an invasive species—but only at the end of the nineteenth century did commercial export agriculture become a major part of Argentina's economy. Santa Fe province, just north of Buenos Aires, was at the heart of this new economic sector. In response to locust invasions, Argentina's national government began to launch large-scale campaigns to kill locusts in order to mitigate the damage and protect harvests. The execution of such a program depended on cooperation between national, provincial, and local authorities. However, such cooperation was often difficult to achieve, and the anti-locust program became mired in controversy.

In October 1897, the political chief (*gefe político*) of San Martín, Santa Fe province, wrote a report regarding a dispute between residents of Pueblo Casas and the local representatives of the anti-locust sub-commission (*Sub Comisión de la Langosta*). The political chief had sent a subordinate, Juan Cruz, to Pueblo Casas to investigate the dispute. Cruz introduced himself to the local judge of the peace, Santiago Menotti, and informed him that he had come to investigate complaints against him. Menotti insisted that he had done his best and added that he had received complaints against the local anti-locust subcommissioner. The subcommissioner, Ángel Ferrari, had fined three men, Martín, Julio, and Bautista, fifty pesos each for failing to comply with their duties to fight an invasion of locusts. Namely, they had been obligated to turn in a certain weight of locusts. They countered that the fine was unfairly imposed simply because Ferrari bore a grudge against

them. Several other residents of the time, all of them described as Italian nationals, recounted abuse and corruption at the hands of Ferrari.¹

Ferrari was a minor official vested with national authority to compel locals to collect locusts. He was part of a new bureaucracy established in the 1890s to try to deal with enormous invasions of locusts that devastated the wheat and maize crops of Santa Fe and other fertile provinces of central Argentina. The case of Ferrari exemplified one of the major contradictions of the national anti-locust program: an outsider sent by the national government to protect local interests instead turned to exploit people.

This thesis traces the history of Argentina's anti-locust program from its inception in the 1890s to the mid-1950s, when major locust invasions ceased to afflict the nation's agricultural regions. For several decades, the national and provincial governments relied on crude methods like crushing locusts under hoof and foot, driving them into ditches, and burying or burning them. A widespread defensive method was the erection of metal barriers around fields to protect crops from the *saltona*, the young locust that crawled and jumped but could not fly. All of this involved the large-scale mobilization of coerced labor and the establishment of a hierarchical bureaucracy centered at the Ministry of Agriculture in Buenos Aires. It also relied heavily upon the nation's emerging railroad and telegraph networks to transport people and supplies and to rapidly communicate locust sightings. The anti-locust programs generated intense controversy in the halls of congress, national print media, and agricultural communities it affected. Critics cast it variously as an overreach by the national government in the provinces, a waste of money, and a violation of individual rights to

¹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Gefe Político de San Martín eleva sumario sobre multas aplicadas á varios vecinos del Pueblo Casas por la Sub Comisión de la Langosta].

property and labor. Nevertheless, despite accusations of corruption and politicization, Agricultural Defense—as the program came to be known—remained as an institution; whenever locusts invaded agricultural regions, this institution asserted its authority to mobilize large numbers of people in a kind of labor draft that supporters and critics alike compared to mass conscription in a time of war.

Beginning in the 1930s and accelerating in the 1940s, anti-locust workers turned to insecticides sprayed over vast areas from airplanes and trucks. By the late 1940s, Argentina shifted to what Julio Gastón, in his 1969 summary of anti-locust efforts, called “the offensive fight.”² By 1954, locust plagues had been largely eradicated, and the anti-locust efforts were reorganized into “permanent exploratory commissions, each one composed of two environmental experts, provided with emergency tools to locate and destroy incipient focal points that could appear” in the major agricultural zones of the country.³ Locusts remained a localized problem, especially in places like La Rioja and Catamarca, but they were largely prevented from forming swarms that devastated crops for about a half-century.⁴

This thesis argues that anti-locust programs were as much, or more, a political program as they were a scientific or technical one. Anti-locust campaigns sought to protect an emerging sector of the national economy from a pest that was often cast as a foreign invader, sweeping in from the northwest. During the 1860s and 1870s, Argentina went from being a net importer to a net exporter of wheat; this crop, along with maize and linen, became a major pillar of the economy for the first time and remained a crucial export through the

² Julio Gastón, “Síntesis histórica de la langosta en la Argentina,” *Publicación Miscelánea N° 433* (Buenos Aires: Secretaría de Estado de Agricultura y Ganadería, 1969), 21-24.

³ Gastón, “Síntesis histórica,” 27.

⁴ Eduardo V. Trumper et al., “A Review of the Biology, Ecology, and Management of the South American Locust, *Schistocerca gregaria* (Serville, 1838), and Future Prospects,” *Agronomy* 12 No. 1 (2022), 2. https://www.researchgate.net/publication/319987703_The_resurgence_of_the_South_American_locust_Schistocerca_gregaria.

1920s.⁵ This rapid expansion of commercial agriculture was due to several factors, including immigration-driven population increase, the expansion of rail networks, and the establishment of agricultural colonies.⁶ By the outbreak of World War I, Argentina was one of the largest wheat producers in the world.⁷ Locusts, it was feared, could threaten this new economic boom. The very uncertainty as to both the timing of the invasions and the geographical origins of the locust was a source of anxiety for Argentina's politicians, scientists, and farmers. Locusts could strike several years in succession, then disappear for a decade or more only to return after that—and no one knew why.

The suspicion that locusts came from the Gran Chaco, the arid, forested region of the country's borderlands with Bolivia and Paraguay, reinforced the perception of that region as backward and potentially threatening. Argentina expanded its northern border to the Pilcomayo River only in the 1870s and 1880s.⁸ Paraguay and Bolivia did not conquer the northern Chaco, or Chaco Austral, until the 1930s.⁹ Thus, the idea that locusts came from this area, largely outside the reach of national governments, became intertwined with racialized fears of unconquered Indigenous populations. As a result, several expeditions were launched periodically across the first four decades of the twentieth century to try to identify a “permanent zone” of locust habitation in the Chaco—an area within the Chaco in which

⁵ James R. Scobie, *Revolution on the Pampas: A Social History of Argentine Wheat, 1860-1910* (Austin: University of Texas, Austin, 1964), 38; Juan Luis Martirén, *La transformación farmer: Colonización agrícola y crecimiento económico en la provincia de Santa Fe durante la segunda mitad del siglo XIX* (Buenos Aires: Prometeo Libros, 2016), 51; Roy Hora, *The Landowners of the Argentine Pampas: A Social and Political History, 1860-1945* (Oxford: Clarendon Press, 2001), 173-174.

⁶ Ezequiel Gallo and Roberto Cortés Conde, *Historia argentina: La república conservadora*. 4th ed. (Buenos Aires: Editorial Paidós, 1995), 22-29, 33, 54.

⁷ Scobie, *Revolution on the Pampas*, ix.

⁸ Ernesto J.A. Maeder, *Historia del Chaco*, 2nd ed. (Resistencia, Argentina: Contexto Libros, 2012), 100-105; Gastón Gordillo and Juan Martín Leguizamón, *El río y la frontera: movilizaciones aborígenes, obras públicas y Mercosur en el Pilcomayo* (Buenos Aires: Editorial Biblos, 2002), 23-25.

⁹ Bridget Maria Chesterton, *The Grandchildren of Solano Lopez: Frontier and Nation in Paraguay, 1904-1936* (Albuquerque: University of New Mexico Press, 2013).

locusts were thought to live permanently, from which they would launch their periodic migrations outward.¹⁰

Proponents of anti-locust efforts also argued that the collective, large-scale work involved in fighting locusts would contribute to solidifying a sense of national identity to replace older provincial and local loyalties. Argentina had been fractured by decades of internecine conflict after the departure or defeat of the last Spanish royal forces; even after the country was nominally unified in 1862, local or provincial uprisings were common, as was their violent suppression by the national government. By the same token, provincial authorities often feared that the national anti-locust program would impinge on their autonomy. Congressional representatives of the interior provinces often argued that anti-locust programs should be left up to them to devise and carry out as they saw fit. Or they argued that the existing methods were useless and that all efforts should be focused on the discovery, through scientific research, of an effective remedy before spending more money on labor gangs and anti-locust commissions. Several efforts were made to identify a biological remedy, i.e., to find a natural predator for the locust that could be cultivated or bred. Various species of fungi, birds, and flies were all tried with little success. Various chemical solutions were also tried from an early date, although these did not become the predominant method until combined with airplanes and trucks. But whatever the method, the idea that the national government could send officials into the provinces and compel labor from private citizens was, at first, a radical challenge to provincial authority.

I further argue that anti-locust programs were highly controversial and often criticized precisely by those they were intended to benefit. Farmers were dragooned even

¹⁰ Carlos Lizer y Trelles, *La lucha moderna contra la langosta en el país* (Buenos Aires: Academia Nacional de Agronomía y Veterinaria, 1940), 15-19.

during harvest season when their labor was most needed. On occasion, they were transferred to other provinces. As the Ferrari case suggests, anti-locust officials were frequently accused of corruption, an accusation repeated in newspapers and in congress. Even beyond overt corruption, critics saw anti-locust efforts as a waste of money and labor. The labor often involved digging up the dirt roads—to uncover and destroy the eggs that adult locusts lay there—that provided the lifeline for farmers to transport their crops to the nearest railway station. Eventually, anti-locust officials were even empowered to burn fields of crops that had been infested by locusts (although, in theory, the owners of such fields were to be remunerated). All of this while leaving the vast lands beyond the confines of a town or colony untouched; no one knew or could know how many locusts lay eggs in such out of reach places. Critics compared the mandatory labor requirements to the hated conscription of people to fight against Indigenous groups on Argentina's southern and northern frontiers or in the War of the Triple Alliance against Paraguay. In the popular press of Buenos Aires, cartoons mocked government officials by comparing them to locusts who devoured the national budget.

The province of Santa Fe is the focus of this thesis because it was the heart of Argentina's agricultural boom and, consequently, the main origin point of its anti-locust program. When the national congress passed the first nationwide anti-locust legislation in the early 1890s, the law was modeled on similar legislation passed by Santa Fe's provincial legislature about a decade earlier. In the second half of the nineteenth century, Santa Fe underwent a rapid recovery from the turmoil of the post-independence decades; from the countryside surrounding two cities, Rosario and the provincial capital, also called Santa Fe, sprang the most of the agricultural colonies that were a major part of the Santa Fe's

agricultural boom.¹¹ Beginning in the 1850s and accelerating over the next two decades, the provincial government sold off public land to entrepreneurs in return for legal commitments to establish agricultural settlements, called colonies, with immigrant families. These colonies became a major, though certainly not the only, source of commercial crops like maize and wheat that would fuel Argentina's agricultural boom.

This thesis expands on the growing literature on Argentina's agrarian history. Several works have discussed the history of rural Argentina's agricultural revolution in the late 19th and early 20th centuries and debated the connection between this shift in land use and the rise of agricultural colonies. In *La pampa gringa*, Ezequiel Gallo outlines and categorizes the different kinds of colonies in the province. According to Gallo, there were four kinds of colonies. The first were public colonies established by the provincial government. Only a very small number were public colonies, and the government essentially gave up on establishing them in 1880. The second variety Gallo called "official colonies," which were private colonies established on land ceded to the entrepreneur by the government. In return, the recipient committed to settling a certain number of families, providing them with tools, etc. Most colonies, however, were private concerns established by purchasing land on the private market. According to Gallo, the government merely provided tax breaks for a certain number of years. The last category Gallo calls "colonias particulares," but he also notes that "it is not easy to discern the difference between 'particular' and 'private.'" According to Gallo, the vast majority of the colonies in Santa Fe were of the third kind.¹²

¹¹ Juan Luis Martirén, *La transformación farmer: Colonización agrícola y crecimiento económico en la provincia de Santa Fe durante la segunda mitad del siglo XIX* (Buenos Aires: Prometeo Libros, 2016), 74.

¹² Ezequiel Gallo, *La pampa gringa: La colonización agrícola en Santa Fe (1870-1895)* (Buenos Aires: Editorial Sudamericana, 1983), 68-72.

Juan Luis Martirén, in his *La transformación farmer* focuses on the province of Santa Fe. He traces the emergence of agricultural colonies, arguing that many farmers initially sought to practice diversified agriculture but that eventually, Santa Fe agriculture embraced large-scale, commercial mono-crop agriculture.¹³ This focus on what he calls the colonies’ “mercantile orientation” allowed them to thrive in Santa Fe and outcompete the older “creole world.”¹⁴ Though agricultural colonies existed alongside older forms of occupation and tenancy, agricultural colonies are useful for this thesis because much of the evidence of disputes between anti-locust officials and local people pertains to these unique institutions discussed by Gallo and Martirén.

In recent decades, historians of the construction of the national state in Argentina have begun to pay attention to the importance of rural people, outside of rural elites, as political actors. For example, Ariel de la Fuente, in his *Children of Facundo*, notes that most works of Argentine history have focused on Buenos Aires as the driver of politics, thus providing a very narrow and elite view of nation-building.¹⁵ By contrast, he studies *caudillos* (strongmen) and their followers in the interior province of La Rioja, examining the material and ideological factors that shaped political allegiances. He places them in the context of the decades-long clash between Federalists (those who wanted a weaker national government and more provincial autonomy) and Unitarians (those who advocated for a strong national government based in Buenos Aires)—a contest that is usually told from the vantage of Buenos Aires.¹⁶ Caudillos, he argues, filled the vacuum left by an impoverished provincial

¹³ Juan Luis Martirén, *La transformación farmer: Colonización agrícola y crecimiento económico en la provincia de Santa Fe durante la segunda mitad del siglo XIX* (Buenos Aires: Prometeo Libros, 2016), 25.

¹⁴ Martirén, *La transformación farmer*, 213, 214.

¹⁵ Ariel de la Fuente, *Children of Facundo: Caudillo and Gaucho Insurgency during the Argentine State-Formation Process (La Rioja, 1853-1870)* (Durham: Duke University Press, 2000), 4-6.

¹⁶ Peter Winn, *Americas: The Changing Face of Latin America and the Caribbean*, 3rd Edition (Berkeley: University of California Press, 2006), 92.

government. “The weakness of the provincial states and resulting lack of an independent judicial power,” according to De la Fuente, “was common throughout the interior, and was frequently used by the Unitarians as proof of the impossibility of governing the country under a federal system.”¹⁷ That same weakness, paradoxically, undergirded the popularity of Federalist caudillos. The same political fissures were replicated at the provincial level, as “the conflict between Unitarians and Federalists was also a struggle of the city of La Rioja against the rural departments.”¹⁸

His work also examines the animosity towards the national government that was engendered or exacerbated by the brutal repression of caudillo uprisings, not just in La Rioja but throughout the interior. De la Fuente argues that even after the national government had achieved military superiority, collective memories of the period of caudillos persisted into the twentieth century.¹⁹ This thesis examines the interplay between elite actors—the deputies in the halls of congress, the ministers of agriculture, and successive administrations—with provincial and local actors. Although the thesis examines a period after the dissolution of caudillismo, it shows how those older patterns of political organization persisted in political debates in congress.

Another major trend in Argentine historiography has focused on showing how the national government sought to exert stronger control over the country’s northern extremities. Eric Carter has shown how *porteño* governments constructed an image of the country’s northwest as backward and how this image shaped malaria control programs. He notes that this paternalistic view was informed by intellectual trends that privileged elite knowledge and

¹⁷ De la Fuente, *Children of Facundo*, 28.

¹⁸ De la Fuente, *Children of Facundo*, 30-31.

¹⁹ De la Fuente, *Children of Facundo*, 185-186.

world views despite the fact that other diseases were responsible for more deaths in the country at that time.²⁰ Frederico Freitas has shown how Argentina’s founding of Iguazú in Misiones was part of an attempt to solidify control over the frontier region with Brazil. Misiones, like the Gran Chaco, was a region of disputed historical borders, and Argentina and Brazil each constructed two rival national parks opposite one another in the 1930s.²¹ Gastón Gordillo and Juan Martín Leguizamón have shown how the lands on either side of the Pilcomayo River became a source of largely Indigenous labor for regional landowners in Argentina, Paraguay and Bolivia, even as Argentina sought to harden the border with Paraguay, which the river largely followed.²² Argentina’s search for a “permanent zone” in the Gran Chaco of northern Argentina, was a part of this history of permeable frontiers. Anti-locust efforts depended simultaneously on defining and controlling frontier territory and cooperating with nation-state neighbors beyond those frontiers.

Scholars of state-building have shown how top-down planning has sought to dominate humans and the non-human natural world.²³ Argentina’s decades-long anti-locust campaigns can be viewed as a variant of “the nature state”—an attempt to control nature and exploit it sustainably rather than through unbridled pillage.²⁴ Argentina’s anti-locust campaigns were focused on management: the fight to protect a specific product of nature—

²⁰ Eric D. Carter, *Enemy in the Blood: Malaria, Environment, and Development in Argentina*, (Tuscaloosa: The University of Alabama Press, 2012), 17-24.

²¹ Frederico Freitas, *Nationalizing Nature: Iguazu Falls and National Parks at the Brazil-Argentina Border* (Cambridge: Cambridge University Press, 2021), 3-25.

²² Gastón Gordillo and Juan Martín Leguizamón, *El río y la frontera: movilizaciones aborígenes, obras públicas y Mercosur en el Pilcomayo* (Buenos Aires: Editorial Biblos, 2002), 33-34.

²³ James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998), 2-6, 37-51, 183-261; Thomas D. Rogers, *The Deepest Wounds: A Labor and Environmental History of Sugar in Northeast Brazil* (Chapel Hill: The University of North Carolina Press, 2010), 1-9, 45-69.

²⁴ Matthew Kelly et al., introduction to *The Nature State: Rethinking the History of Conservation*, eds. Wilko Graf von Hardenberg Matthew Kelly, Claudia Leal and Emily Wakild (London: Routledge, 2017), 1-2.

agricultural wealth—against a natural threat—locusts—that was practically impossible to control. This was, as we will see, also an attempt to control those same people—to coerce labor on a large scale and, it was hoped, instill a sense of national loyalty in a country still fractured by war and provincial rivalries.

Over the past two decades, environmental historians have begun to study the history of locusts in Latin American societies. They have emphasized the importance of organized labor, scientific knowledge, and empirical experimentation, all of which would be important in Argentina.²⁵ Martha Few has shown how collective labor was crucial to anti-locust efforts in colonial Guatemala as one application of the labor tribute exacted upon Indigenous populations, along with mining and agriculture.²⁶ She also notes the emergence of people recognized as experts in fighting locusts and the publication of texts explaining how to fight locusts.²⁷ Expert knowledge, the production of written instruction manuals, and the mobilization of labor would all be important in Argentina in the late nineteenth and early twentieth centuries.

María Cecilia Zuleta and Inés Ortiz Yam have studied the response of Mexico's postrevolutionary government to locusts in the second quarter of the twentieth century, focusing on the states of Yucatán and Veracruz.²⁸ In many respects the methods, structure, and challenges of the anti-locust campaign that they describe parallel the history of efforts in Argentina. In Yucatán, the state government passed a law in July 1924 obliging adults under

²⁵ Martha Few, "Killing Locusts in Colonial Guatemala," in *Centering Animals in Latin American History*, eds. Martha Few and Zeb Tortorici (Durham: Duke University Press, 2013), 69-84; Inés Ortiz Yam and María Cecilia Zuleta, "Asuntos de vecinos: Langosta, defensa agrícola y la construcción de la sanidad vegetal en México y Centro América, siglo XX," *Historia Mexicana* 70 No. 1 (July-September 2020), 322-325, 334-350.

²⁶ Few, "Killing Locusts in Colonial Guatemala," p. 74.

²⁷ *Ibid.* 79-80.

²⁸ Inés Ortiz Yam and María Cecilia Zuleta, "Asuntos de vecinos: Langosta, defensa agrícola y la construcción de la sanidad vegetal en México y Centro América, siglo XX," *Historia Mexicana* 70 No. 1 (July-September 2020), 315.

the age of sixty to assist in anti-locust efforts. As Ortiz Yam and Zuleta note, although labor was organized into units called “brigadas” for the first time, the practice of collective anti-locust efforts was itself quite old.²⁹

Historians of locusts in Argentina and the Southern Cone have discussed how anti-locust programs affected property regimes, scientific knowledge, and international relations. Adrián Zarrilli’s 1993 article on Agricultural Defense, “Un cuestionamiento al derecho de propiedad” (“A Questioning of the Right to Property”) notes that locust invasions forced a rethinking of the concept of private property. According to Zarrilli, locust invasions forced congress and Argentines to consider “the social responsibility of the proprietor and certain forms, although limited, of a social function of individual property.”³⁰ Edward Deveson and Alejandro Martínez describe the use of machinery, the spraying of pesticides, and the propagation of certain kinds of fungi as a confluence “scientific, technological, and ecological ‘wars’” waged against the pest in Argentina and Australia.³¹

Valéria Dorneles Fernandes, like Deveson and Martínez, traces locust eradication across national borders, but she emphasizes Argentina as the main coordinator of anti-locust efforts with Uruguay and Brazil following Argentina.³² Elena Tranchini has studied anti-locust efforts of the 1930s from a sociological and historical perspective. She argues that

²⁹ Ibid. 322.

³⁰ Adrián Gustavo Zarrilli, “Un cuestionamiento al derecho de propiedad. Estado, plagas y agricultura: El caso de la defensa agrícola (1890-1930),” *Revista de Historia del Derecho* 21 (1993), 236-237.

³¹ Edward Deveson and Alejandro Martínez, “Locusts in Southern Settler Societies: Argentine and Australian Experience and Responses, 1880-1940,” in *Environmental History in the Making*, eds. Estelita Vaz Cristina, Joanaz de Melo, and Lígia M. Costa Pinto (Cham, Switzerland: Springer International Publishing, 2017), p. 259-260, 277-279.

³² Valéria Fernandes, “Combate à praga de gafanhotos na América do Sul: diferentes técnicas apresentadas pelo *Almanaque do Ministerio de Agricultura de la Nación (Argentina, 1925-1952)*,” *Estudios Rurales* 8 (October 2018), 232-234; Valéria Dorneles Fernandes, “A praga de gafanhotos no Sul da América: Argentina, Brasil e Uruguai (1890-1950),” *Fronteiras: Journal of Social, Technological and Environmental Science* 7 No. 3 (Sept.-Dec. 2018), 155-158. <http://dx.doi.org/10.21664/2238-8869.2018v7i3>.

much of the study of rural Argentine agrarian society has wrongly assumed that farmers were generally not political actors, and that they were less involved in self-organizing than other rural societies.³³ Tranchini argues that Argentine literature in the 1930s imagined the countryside as a beautiful place that was nonetheless fraught with danger and held at the mercy of a capricious environment. According to Tranchini, the locust reinforced these perceptions: “the [locust] plague has the connotation of disaster, damage or ruin [desgracia] that cannot be avoided.”³⁴

Outside of Argentina, historians of the Middle East and North Africa have examined anti-locust efforts in a timeframe similar to that of this thesis. Samuel Dolbee’s *Locusts of Power* traces the intertwined history of locusts, nomads, and state-makers from the last decades of Ottoman rule through the Second World War in the Jazira region spanning modern Turkey, Syria, and Iraq. He notes that the status of the Jazira as a peripheral region afforded some measure of protection for its inhabitants. At the same time, Ottoman officials often compared nomads explicitly to locusts and sought to control both. Fighting and controlling locusts, according to Dolbee, was part of a broader attempt to control the incredibly diverse ethnic populations of the late Ottoman Empire. This pattern persisted beyond the collapse of the Ottoman empire; the new Mandates and then nation-states sought to lay down borders because they “were key to managing space, whether in its entirety or in fractured form.”³⁵ In a merging of historical structures and insect life, observers found that locusts often reproduced in *tall*, essentially mounds or hills of dirt that had accumulated over centuries on

³³ Elina Mercedes Tranchini, “Políticas agrarias y comportamientos sociales: El caso de la plaga de langosta en la región pampeana,” Licentiate Thesis (Universidad Nacional De La Plata, 1995), 6.

³⁴ Mercedes Tranchini, “Políticas agrarias y comportamientos sociales,” 15-16.

³⁵ Samuel Dolbee, *Locusts of Power: Borders, Empire, and Environment in the Modern Middle East* (Cambridge: Cambridge University Press, 2023), 8, 255.

the archaeological remains of ancient Assyrian buildings.³⁶ In some cases, nomadic Bedouins cultivated farms on these *tall* and thus destroyed the local locust populations. “The humans who had been compared to locusts for their mobile challenges to state power,” Dolbee writes, “had displaced their nonhuman referents, and they did so with farms atop the Jazira’s distinctive elevations.”³⁷ Echoing criticisms of anti-locust work in Argentina, Dolbee recalls how an Iraqi writer of the mid-twentieth century compared anti-locust employees to locusts. In late nineteenth-century Argentina, it was far more common for government bureaucrats to be portrayed as locusts, although elites often saw the locusts as an impediment to modernity like their Ottoman counterparts.³⁸

In his study of French Algeria in the late nineteenth century, Brock Cutler argues that locust invasions were one factor in a larger confluence of natural and human forces that structured what he calls the “ecology of imperialism” in his book of the same name. He argues that a massive locust invasion that ravaged the countryside after decades of grinding settler colonialism, along with outbreaks of cholera, combined to produce a catastrophic famine in which about 800,000 Algerians died in the second half of the 1860s.³⁹ He further argues that one major result of this constructed ecology of imperialism “concerned Algerians being relegated to the ‘nature’ side of the human-nature binary.”⁴⁰ The French settlers, by contrast, saw themselves as actually “better suited to rule this ecosystem.” As Cutler points out, they based this belief on the fact that they suffered less from the combined ecological disasters of the nineteenth century—because they had better access to food, water, and other

³⁶ Dolbee, *Locusts of Power*, 18-19.

³⁷ Dolbee, *Locusts of Power*, 257.

³⁸ Dolbee, *Locusts of Power*, 8, 13-14, 258.

³⁹ Brock Cutler, *Ecologies of Imperialism in Algeria* (Lincoln: University of Nebraska Press, 2023), 4-9.

⁴⁰ Cutler, *Ecologies of Imperialism*, 10.

basic necessities of life precisely because of the imperial system they constructed.⁴¹

Argentine anti-locust efforts, as we shall see, cast Indigenous people, especially in the Gran Chaco, in a similar mold. Since the Chaco had only recently been conquered by Argentina's military when anti-locust campaigns began, although its official designation was as a national territory, it occupied what we might call a colonial status in the minds of Argentina's elite.

Michael Worboys, in his 2022 article "Imperial Entomology," argues that Great Britain carried out an empire-wide campaign, designed and orchestrated from the metropole, to fight locusts in British colonial territories in East Africa and the Middle East. This campaign was carried out under the auspices of the Imperial Bureau of Entomology (IBE). The British Empire's wide scope allowed it to study locusts over large areas and plan campaigns, which it did beginning in the 1920s. Despite early efforts at international cooperation, and conferences in London and Rome, Worboys argues that it was not until World War II that Britain began to cooperate, grudgingly, with the French in North Africa and even, to a lesser extent, with the USSR in Iran. He also highlights the major role that the British armed forces played in anti-locust campaigns and the strategic importance of the work for the British and Allied war effort. After World War II, the British established the Anti-Locust Research Centre (ALRC) in London, which remained a major global center of scientific information until the 1970s.⁴²

Claude Peloquin has argued that anti-locust efforts were also a major part of the French Resistance's strategy during World War II. The problems caused by locusts exacerbated what he calls "an especially complex crisis of geopolitical legitimacy in the

⁴¹ Cutler, *Ecologies of Imperialism*, 8-10.

⁴² Michael Worboys, "Imperial Entomology: Boris P. Uvarov and Locusts, c. 1920-c.1950," *The British Journal for the History of Science* 55 (2022), 28-29, 33-36, 40-45, 50.

French colonial Empire” arising both from the Nazi occupation of France and anti-colonial independence movements.⁴³ Peloquin argues that the Free French saw an opportunity to display their “techno-scientific benevolence” to North Africans through anti-locust programs.⁴⁴ This was especially important for France not just because of the crisis of legitimacy brought on by the surrender of metropolitan France but because both the French and the British actively conscripted colonial subjects to fight in World War II. He also notes that the French used the same basic mechanism—mass labor drafts—in their Algerian territory as did the Argentines addressed in this study. Like Worboys, he notes that World War II somewhat paradoxically created conditions for inter-imperial cooperation on the locust problem.⁴⁵

Lastly, relatively little historical work has been done on locusts in North America, but the entomologist Jeffrey Lockwood, in his aptly named *Locust*, examines the history and extinction of the locust from the U.S. West at the end of the nineteenth century. He notes that the locust was one of many dangers plaguing white settlers who made their way to settle as farmers in the Rocky Mountain region. He argues that just as locusts could prove catastrophic for farmers, so it was precisely the settlement of agriculturalists in the locusts’ permanent habitat that led to their extinction. Through the practices of plowing, irrigation, and grazing livestock in the locusts’ home ground, he argues, settlers doomed the locust to extinction long

⁴³ Claude Peloquin, “Locust Swarms and the Spatial Techno-Politics of the French Resistance in World War II,” *Geoforum* 49 (2013), 104.

⁴⁴ Peloquin, “Locust Swarms and the Spatial Techno-Politics of the French Resistance in World War II,” 104.

⁴⁵ Peloquin, “Locust Swarms and the Spatial Techno-Politics of the French Resistance in World War II,” 106, 109.

before the advent of DDT and other pesticides that became central in Argentina and elsewhere.⁴⁶

This thesis illustrates some similarities with the cases of the British, French, and Ottoman colonial empires illustrated by Peloquin, Worboys, Cutler, and Dolbee. Although Argentina lacked overseas colonies and certainly the globe-spanning, transcontinental empire of the British, Argentine politicians shared with their Old-World counterparts a belief that locusts represented an international threat that required international cooperation. Moreover, political elites in Buenos Aires in this period viewed the Gran Chaco as essentially a recently conquered territory whose human and non-human occupants had to be controlled within the Chaco and prevented from threatening the rest of the nation. The belief that locusts may originate from the Chaco was both a consequence of and an additional encouragement to this view of the Chaco. Finally, the fight against the South American locust (*Schistocerca cancellata*) in the late nineteenth and twentieth centuries, like the efforts of the British and French, became an international endeavor since its reach extended across virtually the entire southern half of the continent.⁴⁷

The present dissertation expands on these works, combining the intellectual history of debates in the halls of congress with a close examination of how anti-locust commissions functioned (or malfunctioned), focusing on Santa Fe. Santa Fe province, located just north of Buenos Aires, was at the heart of Argentina's agricultural boom and, consequently, at the heart of its anti-locust efforts. Indeed, as we will see, the earliest nationwide anti-locust

⁴⁶ Jeffrey A. Lockwood, *Locust: The Devastating Rise and Mysterious Disappearance of the Insect that Shaped the American Frontier* (New York: Basic Books, 2005), 232-254.

⁴⁷ Eduardo V. Trumper et al., "A Review of the Biology, Ecology, and Management of the South American Locust, *Schistocerca cancellata* (Serville, 1838), and Future Prospects," *Agronomy* 12 No. 1 (2022): 6. https://www.researchgate.net/publication/357630722_A_Review_of_the_Biology_Ecology_and_Management_of_the_South_American_Locust_Schistocerca_cancellata_Serville_1838_and_Future_Prospects.

legislation was inspired by earlier anti-locust laws passed in Santa Fe province. The thesis also highlights the decades-long search for the “permanent zone”—a place where, it was thought, locusts lived year-round. Most Argentinians imagined that locusts lived in such a place permanently, and emerged every few years to wreak havoc on the agricultural zones. Finally, I show how locusts functioned as a flexible symbol—alternately a metaphor for corrupt politicians or a representation of the backwardness that those politicians sought to overcome. Finally, the project contributes to the history of science by showing how knowledge production extended beyond the development of new machinery and seeds: an insect that had previously been ignored became the subject of intense scientific study. This range of foci—the regional and local, the national and the frontier, the symbolic and the material—illuminates the myriad ways in which locusts affected Argentine society.

This thesis is divided into five chapters and organized chronologically. The first chapter will introduce the history of locusts in a wider chronological context, provide an overview of the formation of political institutions in Argentina and Santa Fe in the nineteenth century, and discuss the factors that led to the agricultural boom at the end of the century. Prolific eighteenth-century writers like Pedro Lozano, Florian Paucke, and Félix de Azara discussed locusts as scourges of Spanish agriculture and as food sources for some Indigenous groups. The second task of the first chapter will be to provide a brief background of the political and economic history of post-independence Argentina. This will be necessary for two reasons: first, many of the debates in the halls of congress regarding anti-locust campaigns centered around differing conceptions of political authority, debates that can only be understood in the context of Argentine history to that point. The final objective will be to examine the major factors—immigration, transportation infrastructure, and territorial

expansion—that allowed Argentina to emerge as one of the world’s leading agricultural exporters. This new economic engine made locusts a major problem requiring a nationwide response.

The second chapter will focus on the legislative process and debates surrounding anti-locust programs. It will begin with the passage of a provincial law in Santa Fe in 1880-1881, then trace the creation of a national anti-locust program by the national congress in the 1890s, and conclude with the eventual changes that saw the transformation of that network into a broader effort called “Agricultural Defense” (*Defensa Agrícola*) in the early twentieth century. Coming on the heels of decades of civil conflict between provinces, creating a nationally directed program that would operate independently within provinces was not a universally supported idea. The question of using coerced labor, even if reimbursed, was another source of discord, as was the suggestion to empower commissions to destroy private fields if locusts had infested them. Critics sometimes compared the labor draft to the practice of conscription in the War of the Triple Alliance, which disproportionately drew on the population of the Interior provinces.⁴⁸ The military was indeed, on occasion, employed in anti-locust work, although the evidence for this is fragmentary and suggests that the practice was not common or popular. On the other hand, proponents of anti-locust efforts often explicitly compared the locusts to a foreign invading army, thus emphasizing the need for a national, rather than provincial, response. For all these reasons, the scope and nature of the authority wielded by anti-locust authorities would be hotly debated in the halls of congress.

The third chapter, focusing on Santa Fe province, will examine how anti-locust commissions worked in practice. Theoretically, they could be established at the level of

⁴⁸ De la Fuente, *Children of Facundo*, 169-176.

provinces, departments, or even districts, depending on the local needs. They employed a fairly standard set of procedures and tools: shaking down trees with locusts, gathering them with large rake-like contraptions, and stomping the eggs, plowing them under, or burning them in great piles. Drawing on official reports, newspapers, and archival material, this section examines in detail the material work that anti-locust commissions carried out (or directed others to carry out) and the conflicts that they engendered or exacerbated in the process.

Commissions often came into conflict with residents and with local authorities, such as justices of the peace or the *jefes politicos* (even though, in many cases, the latter were supposed to head the anti-locust sub-commissions). Some residents complained of being fined unjustly; others complained of being forced to destroy roads or crop fields. Others complained that their neighbors were not doing their part. The nature of complaints and disputes varied, but there were a few common issues: 1) the orders of anti-locust commissions to destroy public roads 2) disputes over the bounty system, whereby individual farmers would be paid by the kilo for locusts or locust eggs that they turned in and 3) complaints about the behavior of officials from Agricultural Defense. For their part, the Agricultural Defense employees complained that local people did not follow their instructions or that the bags with which they turned in locusts were often weighted with soil to increase the monetary reward. This section will situate these conflicts within the social, political, and environmental context of rural society in the Pampas region in the late nineteenth century.

The fourth chapter will return to the national scale and examine how various criticisms were leveled against Agricultural Defense in the press and congress. Critics

lambasted Agricultural Defense as, at best, an organization that failed in its stated purpose and, at worst, an expensive cure that was worse than the disease. Although most people agreed that locusts were a problem, they continued to argue over the best methods of fighting them. Experimentation continued with various natural predators, chemical sprays, and other methods.

The fifth chapter will deal with two roughly sequential stories: 1) the search for the “permanent zone” and 2) the eventual turn to pesticide campaigns and aerial spraying in the 1940s and 1950s. The search for the permanent zone was a major source of contention among politicians and scientists. Its supposed location within the Gran Chaco Forest in the northern borderlands underlined locusts as a quasi-foreign invader for many Argentinians. In the mid-nineteenth century, the Gran Chaco lay beyond the frontiers of the Argentine state. Only in the 1870s and 1880s did the Argentine military begin encroaching in the area, finally launching a sweeping, coordinated military campaign in 1884. Eventually, the northern border of Argentina was fixed at the Pilcomayo River, where it more or less remains today.⁴⁹

Attempts to prove or disprove the existence of such a place gave rise to several expeditions in and around the Chaco in the first two decades of the twentieth century, as well as correspondence with officials in neighboring Bolivia. The reports from these expeditions provide valuable information about the debates surrounding the precise location of the permanent zone. They also function as revealing documents concerning the missionaries, Indigenous people, and other rural inhabitants of the region. The search for the permanent zone in the Chaco was conceived of in similar terms to the military conquest of the same region that had preceded it. That is, these expeditions functioned both to make the region

⁴⁹ Ernesto J.A. Maeder, *Historia del Chaco*, 2nd ed. (Resistencia, Argentina: Contexto Libros, 2012), 100-105.

more comprehensible to politicians and officials in Buenos Aires and to address a perceived threat emanating from the region. Because the Chaco extended far to the north, into Paraguay and Bolivia, the locust was often cast as a foreign invader, and successive governments sought some form of cooperation or at least the creation of a frontier observation service. The Argentine government sent several scientific expeditions into northern Argentina and occasionally Bolivia to search for the permanent zone. This cooperation also extended to Uruguay and Brazil, although efforts in these cases were mainly about locust control rather than identifying a permanent zone.

Thus, the search for the permanent zone embraced older ideas of conquering and civilizing both environments and people. This civilizing logic applied to Indigenous *chaqueños* (people of the Chaco), but it also applied to rural creole inhabitants of Argentina's interior provinces. Political and scientific elites often viewed such people as more attached to their town or province than the nation of Argentina. Not only was the locust a symbol of danger and backwardness; its eradication also became a *cause célèbre* for instilling a sense of *argentinidad* in the people who were mobilized to work in Agricultural Defense. Supporters and employees of the national anti-locust effort hoped that public education and participation in this effort would unite the country in a common cause. People who were mobilized to fight locusts, according to some anti-locust officials, would participate in a program that benefited the whole nation and would thus come to understand the benefits of such collective action. The program emerged at a time when the country was still somewhat fractured; although the age of caudillo uprisings had largely passed, it was by no means a distant memory.

The second part of the fifth chapter will look at the development of large-scale campaigns using insecticides and pesticides. The search for the permanent zone persisted in

various ways in the 1930s and 1940s the use of pesticides and poison bait took priority and “phase theory” took hold. This theory, first proposed by the entomologist Boris Uvarov, posited that locusts existed in one of two “phases.” In the first phase, the isolated phase, they were simply grasshoppers. Under certain climatic conditions, however, they could begin to form swarms of locusts—but they were not, as previously believed, a different species. This insight and the advent of effective pesticides generally spelled the end of the mass labor mobilizations of previous decades.

Beginning in the 1930s and accelerating in the 1940s, Argentina, following international anti-locust efforts, began to employ insecticides sprayed from airplanes on a large scale. This was coupled with mobile ground teams who combined spraying with the older methods (burning, burying, stomping etc.). These were employed in the Chaco, but also increasingly in the more westerly provinces of La Rioja and Catamarca. Since the mid-1950s, anti-locust efforts in Argentina have mainly been confined to these two provinces. Teams search for and identify locust outbreaks at their inception and spray them to prevent any further growth.

Locusts impacted large swathes of Argentina for decades and elicited a sustained, nationwide effort to exterminate them, but the history of that effort has largely been forgotten. In the late nineteenth century, Argentine officials saw the insect as a challenge to the nation’s rising prosperity and the struggle for its eradication as an opportunity to exert tighter control over the provinces. From the debates about provincial versus central authority, the quest to protect Argentina’s agricultural wealth through scientific research, technology, and labor mobilization, and the search for a permanent zone, the fight against locusts was a

wide-ranging and long-term project that cast locusts as enemies of the nation and barriers to progress, and their eradication as a key component of state-making.

In the conclusion, I will briefly examine modern anti-locust efforts in Argentina and around the world and the prospects for locust resurgence due to global warming. I will also discuss trends towards viewing grasshoppers and locusts as food sources, both in Indigenous and non-Indigenous settings.

This thesis will draw on the minutes of the national congress, newspapers and magazines, official reports published by the Ministry of Agriculture and other government bodies, and unpublished archival records. The major national newspaper used in this study is *La Nación*, but I have also used *La Prensa* and *La Vanguardia* as well as some provincial papers: *La Voz del Chaco* from Chaco province and a couple of newspapers from Santa Fe, Major national newspapers closely followed locust invasions and efforts to combat them, both in Argentina and internationally. Satirical periodicals like *PBT* and *Caras y Caretas* followed developments in anti-locust efforts, but they also give us a window into how locusts became a symbol of corruption, bureaucratic inefficiency, and official avarice.

The major governmental sources this thesis draws upon are congressional records and published reports from the Ministry of Agriculture. The Ministry of Agriculture, especially the Agricultural Defense branch created to deal with locusts, published regular reports on scientific research and ongoing campaigns. Certainly, they are self-interested publications, and there was no shortage of criticism of these bulletins in the halls of congress. Nonetheless, they offer a wealth of detailed information on how anti-locust efforts progressed (or stalled). They also frequently provided instructions as to what methods to use; in this sense part of their function was educational.

Congressional debates elucidated what was at stake ideologically in a national anti-locust program. They revealed a persistent skepticism regarding the national government's authority to carry out its anti-locust program and the efficacy of the rather crude mechanical methods employed. Rarely, however, did legislators reject the idea that locusts presented a major problem for Argentina's agriculture. And, despite the periodic, sometimes caustic, criticism, Agricultural Defense not only survived but expanded its duties over time.

Finally, the provincial archives of Santa Fe offer a rare window into how local people received anti-locust efforts. Colonists wrote frequent complaints to the governor regarding anti-locust efforts, but they also asked for advice and occasionally for financial remuneration for their expenditures in dealing with locusts. I have occasionally cited two other provincial archives, in Tucumán and Córdoba, and drawn on several libraries in Buenos Aires, but the bulk of the archival data comes from Santa Fe, the center of both the agricultural boom and the anti-locust campaign.



Figure 1 Map of Argentina in 1867. The province of Santa Fe borders the province of Buenos Aires to the north.
https://commons.wikimedia.org/wiki/File:Mapa_coloreado_de_la_Republica_Argentina_1867.jpg

Chapter 1 Agricultural Colonies and Rural Society in the Nineteenth Century

Introduction

Locusts became a national concern in Argentina at the end of the nineteenth century, but they were by no means new to Argentina or South America. Nor, for that matter, were they new to peninsular Spaniards. This chapter begins by looking at the long history of locusts in the Río de la Plata, and how Spanish observers understood them in the context of their experiences with locusts in the Iberian Peninsula. I discuss how colonial Spanish authors, especially Jesuits, frequently observed that some Indigenous communities used locusts as a food source. Although Spanish writers generally viewed locusts as a threat to agriculture, locusts were not a major subject of royal policy because the Río de la Plata was relatively sparsely populated, and agriculture was mainly a subsistence activity.

For most of the colonial period, the Río de la Plata was not a center of Spanish settlement. The economy centered on ranching and the export of silver from Buenos Aires.⁵⁰ Such decrees as were passed regarding locusts, either with respect to peninsular Spain or Spanish America, generally reflected locust control methods similar to those that would predominate in the late nineteenth century in Argentina. That is, they were concerned with charging local authorities with organizing, usually through some degree of coercion, large numbers of laborers to engage in the tedious work of collecting and killing locusts. We can also see, even in these early decrees and reports, a nascent understanding of the lifecycle and

⁵⁰ James Lockhart and Stuart B. Schwartz, *Early Latin America: A History of Colonial Spanish America and Brazil* (Cambridge: Cambridge University Press: 1999), 253-258, 271-272; Tulio Halperín Donghi, *Revolución y guerra: Formación de una elite dirigente en la Argentina criolla* (Buenos Aires: Siglo Veintiuno Editores 2002 [1972]), 24.

habits of locusts—for instance, the observation that adult locusts often became lethargic at night or in cold temperatures and thus easier to kill.

In the second part of the chapter, I give a brief overview of the political fragmentation that followed the Wars of Independence in the early nineteenth century. Santa Fe was particularly stricken by the internecine conflict in the decades following independence because it was frequently the scene of battles between forces from Buenos Aires and forces from the Interior provinces, especially during the period of the Confederation (1853-1862). These conflicts and the political decentralization of the time led to a restructuring of power around *caudillos*, and, at a local level or political chiefs (*jefes políticos*).⁵¹ These local authorities were later supplemented by the establishment of municipalities (*municipalidades*) and, for smaller communities, “development commissions” (*comisiones de fomento*). It was these local authorities that alternately became charged with carrying out anti-locust programs or came into conflict with employees sent in by the national government.

In the last part of the chapter, I examine how Argentina’s agricultural boom, centering on Santa Fe, made locusts a pressing problem and potentially a threat to the national economy. The port of Buenos Aires, long an exporter of silver, then meat, hides, and wool, now began to send wheat and maize to overseas markets. This period also saw the establishment of agricultural colonies, usually private concerns wherein an entrepreneur received a grant of land and committed to settling a certain number of families within a certain period of years. From three initial colonies in the 1850s, hundreds of colonies had been established in Santa Fe alone by the 1880s. These colonies and other pre-existing towns

⁵¹ Evangelina de los Ríos, “Los jueces de paz y su intervención en conflictos cotidianos: conciliaciones, demandas y sentencias. Rosario (Argentina) 1854-1872,” *Nuevo Mundo, Mundos Nuevos* (October 2020), 2-3. <https://journals.openedition.org/nuevomundo/81057>

took advantage of the expanding rail network in Santa Fe, linking the hinterlands of the city of Santa Fe and Rosario to global markets in a way that had been prohibitively expensive before. It was in this context that Santa Fe province passed one of the earliest anti-locust laws in the early 1880s, which became the model for the first nationwide anti-locust legislation a decade later. The ideological debates surrounding anti-locust legislation, centering on differing conceptions of national authority and individual liberty, will be the subject of Chapter Two.

The Pampas, the Chaco, and the Locust

The flat grasslands of the Pampas region of Santa Fe and Buenos Aires provinces were the heart of the country's ranching economy throughout the nineteenth century. Few trees grew in the Pampas, except for along the banks of the rivers that meandered through on their way to the Atlantic. The eastern Pampas, in the province of Buenos Aires, was known as the "flooding pampas." The region's fertile soils were formed from erosion from the Andes mountains, carried eastward by wind and water during the Last Glacial Maximum.⁵² From the 1840s onward, shepherding became a major concern in the area, and Argentina became a global wool exporter. Pastoral and ranching economies required a great deal of land and relatively little labor; hence land remained concentrated in relatively few hands, though not necessarily the same families generation after generation.⁵³

⁵² Gerardo Rubio, Fernando X. Pereyra and Miguel A. Taboada, "Soils of the Pampean Region," in *The Soils of Argentina* eds. Gerardo Rubio, Raul S. Lavado and Fernando X. Pereyra (eBook: Springer International, 2019), 81-83; Martín Iriondo and Daniela Kröhling, "Non-classical types of loess," *Sedimentary Geology* (December 2007): 357-358.

⁵³ Hilda Sabato, *Agrarian Capitalism and the World Market: Buenos Aires in the Pastoral Age, 1840-1890* (Albuquerque: University of New Mexico Press, 1990), 2-9, 15-16, 49-51.

The Pampas reach into the southern portions of Santa Fe province. The heartlands of agricultural colonization in the province were in the areas west of Rosario and Santa Fe.⁵⁴ Rosario, in the southern part of Santa Fe, sits within the Pampas region, while Santa Fe city sits in a transitional zone; the northern part of the province shades into the Gran Chaco, a region straddling the borders of Argentina, Paraguay and Bolivia, which a U.N. report has described alternately as a “dry tropical forest” and a “warm dry temperate forest.”⁵⁵ Few colonies were established in the Chaco, but the region became a crucial focus of anti-locust efforts as the region from which the pest supposedly originated.⁵⁶

Several Spanish writers in the colonial period described locusts in and near the Chaco or the Pampas. One of the earliest references to locusts in South America in Spanish is in Ruy Díaz de Guzmán’s sixteenth-century *Argentina: Historia del descubrimiento y Conquista del Río de la Plata*. He recounted how the conquistador captain Salazar sent Francisco Ruiz upriver from Buenos Aires to Asunción to meet with Gonzalo de Mendoza, where they had heard there was plenty of food and that the Spanish had established good relations with the Indigenous population. They found that Mendoza did indeed find himself welcome among the native people, but they had little food to spare because locusts had devoured much of the crop.⁵⁷ Díaz didn’t mention whether the fields had been cultivated by the Spaniards or the

⁵⁴ Martirén, *La transformación farmer*, 74.

⁵⁵ Rubio et al., “Soils of the Pampean Region,” 84-85; Lucas M. Moretti, Héctor José María Morrás, Fernando X. Pereyra, and Guillermo A. Schulz, “Soils of the Chaco Region,” in *The Soils of Argentina* eds. Gerardo Rubio, Raul S. Lavado and Fernando X. Pereyra (eBook: Springer International, 2019), 149-150; Judith Walcott, et al. *Mapeo de los beneficios múltiples de REDD+ en Paraguay: utilización de la información espacial para apoyar la planificación del uso de la tierra* (Cambridge, United Kingdom: UNEP-WCMC, 2015), 1, 3.

⁵⁶ Martirén, *La transformación farmer*, 86.

⁵⁷ Ruy Díaz de Guzmán, *Argentina: Historia del descubrimiento y Conquista del Río de la Plata*, ed. Silvia Tieffemberg (Buenos Aires: Editorial de la Facultad de Filosofía y Letras, Universidad de Buenos Aires, 2012), 157-158.

local Guaraní Indians, but the brief reference suggests that locusts were viewed as a threat to agriculture to some extent even before the agricultural boom of the late nineteenth century.

In his two-volume *Descripción é historia del Paraguay y del Río de la Plata*, the late-eighteenth century naturalist Félix de Azara described a locust that usually arrived in October and “devoured everything, without rags of linen, wool, silk, or cotton, nor any plant that I know of, except melons and oranges.” Despite the voraciousness of the insect, Azara explained that they rarely caused disasters. First, they rarely descended upon Paraguay and second, “since little is cultivated,” Paraguayans could protect the small, cultivated areas without major difficulty.⁵⁸ However, he observed, if they happened to stop and lay eggs in “hard lands” (*terrenos duros*), the next generation would emerge around December. He described how they grew and crawled on the ground at first, eventually changed color, and then one day took flight “to no one knows where, although one assumes towards the North.”⁵⁹ Later writers and observers would also note that locusts tended to come from the north. Although their exact place of origin was unknown, most late-nineteenth century observers would assume they came from the Gran Chaco.

The Jesuit Pedro Lozano described the Chaco as a forbidding place for Spaniards in his 1733 *Descripción chorográfica del terreno, ríos, arboles, y animales de las dilatadissimas provincias del gran Chaco, Gualamba*. He described the land as “very swampy” and hot, making it an ideal climate for venomous animals.⁶⁰ For much of the rainy season, the Chaco Central (between the Bermejo and Pilcomayo rivers) was too flooded to travel.⁶¹ According

⁵⁸ Félix de Azara, *Descripción é historia del Paraguay y del Río de la Plata*, vol. 1 (Madrid: Imprenta de Sanchez, 1847), 118.

⁵⁹ Azara, *Descripción é historia del Paraguay*, 119.

⁶⁰ Pedro Lozano, *Descripción corográfica del Gran Chaco Gualamba* (Tucumán: Instituto de Antropología, 1941 [1733]), 53.

⁶¹ Lozano, *Descripción corográfica*, 61.

to Lozano, the Chaco also contained locusts, which the natives ate “grilled or cooked, or toasting them, reduce them to an ordinary flour provision of theirs, when they make war upon the Spaniard”⁶² perhaps as an easily portable food source. But to Lozano, the locusts were “extremely harmful to the neighboring Provinces, because from the Chaco are seen to leave dense swarms of these flying bugs, that in the summer regularly infest the Province of Tucumán, and cost much sweat to liberate the harvest from the plague, which this summer in which I write has been copious.”⁶³ What was an abundant source of food for native chaqueños was, to Lozano, just another threat to sedentary agricultural life. In another instance, however, Lozano argued that locusts, combined with drought, had driven some groups of Chiriguano to the brink of starvation—thus suggesting that locusts could indeed be a serious threat to the food supply of Indigenous peoples.⁶⁴

José Jolís made similar observations in his *Ensayo sobre la historia natural del Gran Chaco*, although he also noted, curiously given subsequent views of the Chaco as the permanent home of locusts, that the insects,

do not abound in the *Chaco* as much as in other countries of America, and much less than in the old Continent, where, frequently, in the domains of Prester John, and in other Kingdoms they devastate entire provinces and oblige the Inhabitants to move to far regions to avoid dying of hunger.⁶⁵ He wrote that the locust “which is considered, and which is in fact a terrible punishment for other peoples, is considered among the chaqueños a gift. They eat them with gusto and,

⁶² “comiéndolas asadas o cocidas o tostándolas las reducen a harina ordinaria provisión suya, cuando hacen guerra al Español,” Lozano, *Descripción corográfica*, 54.

⁶³ “son nocivísimas a las provincias circunvecinas, porque del Chaco se ven salir las mangas densísimas de estas sabandijas volantes, que por verano infestan de ordinario esta provincia de Tucumán, y cuesta mucho sudor el librar las mieses de esta plaga, con el verano, en que esto escribo, ha sido copiosísima.” Lozano, *Descripción corográfica*, 54.

⁶⁴ Lozano, *Descripción corográfica*, 267.

⁶⁵ “No abundan las Langostas en el *Chaco* como en otros países de América, y mucho menos como en el viejo Continente, donde a menudo, en los dominios del Preste Juan, y en otros Reinos muchas veces devastan las Provincias enteras y obligan a los Habitantes a mudarse a regiones lejanas para no morir de hambre.” José Jolís, *Ensayo sobre la historia natural del Gran Chaco* (Resistencia, Chaco: Universidad Nacional del Nordeste, 1972), 233-234.

ground up into flour, make bread” as did, he claimed, the ancient Hebrews and Saint John the Baptist. He noted that eating locusts compensated, to a certain extent, the loss of the harvests. The “flour” they made from locusts could be kept for some time without going bad. The Indigenous chaqueños, he claimed, “call locusts and invite them in their fashion,” and collected as many as possible. According to Jolís, women especially sought to collect locusts because it made their work of food production much easier. At least one method of collection was curiously similar to what would be used in later years in anti-locust campaigns (with the difference, of course, that in the latter case they were simply disposed of rather than eaten): the chaqueños, he wrote “dig deep pits and seek to fill them [with locusts] pushing them with branches and with their clothes and skins” before cooking them.⁶⁶

Florian Paucke, another Jesuit writer, also noted that Indigenous peoples of the Chaco (and Paraguay) ate locusts, “young and old alike, as well as the eggs that they bury.” Sometimes they would take branches on which the locusts were sitting and roast them directly in a fire to eat. Other times they would sun-dry locusts and then pound them into “a powder that they toss into a pot with water to make a soft mixture.” Women would take their children out to gather locust eggs buried in the ground. Paucke described another method of group hunting whereby people would herd a swarm of locusts onto a patch of ground covered in straw, then light the straw on fire. They would eat their fill and then take the remainder home for later.⁶⁷ Locusts, then, could occasionally destroy crops of either Indigenous people or Spaniards, but the former also understood locusts as a food source.

⁶⁶ José Jolís, *Ensayo sobre la historia natural del Gran Chaco* (Resistencia, Chaco: Universidad Nacional del Nordeste, 1972), 233-234.

⁶⁷ Florian Paucke, *Hacia allá y para acá (Memorias)*, trans. Edmundo Wernicke (Santa Fe: Ministerio de Innovación y Cultura de la Provincia de Santa Fe, 2010), 291, 296-297.

Spanish colonists across the American territories echoed the distaste for the eating of insects displayed by Paucke, Lozano, and Jolís. Rebecca Earle has shown how early Europeans like Christopher Columbus and Gonzalo Fernández de Oviedo in America viewed food as one marker that demonstrated both the barbarous character of Indigenous people and the unsuitability of America's natural world for Europeans. It followed, then, that cultivating European foods in America was a prerequisite to conquest and colonization.⁶⁸ On the other hand, Enrique Rodríguez-Alegría, using archaeological evidence from three regions of Spanish America, has qualified this picture, showing how Europeans, by necessity or desire, adapted to a certain degree their culinary and dietary habits by learning from Indigenous Americans.⁶⁹

As early as 1619, Philip III issued a declaration providing for efforts to fight locusts in Spain's American possessions. The decree noted that locusts were a common scourge in the peninsula and that since

it is well to look for the seed [i.e. eggs] that it leaves beneath the earth, and that to this task and expense should contribute all those of the province when and where necessary: we order that the governors, justices and regiments of the cities, villas and towns, that they should apportion among the relevant ecclesiastical and secular [authorities], and our royal hacienda, for the benefit is common, and the cause public, that those who seek to remedy [the problem] should be paid.⁷⁰

⁶⁸ Rebecca Earle, "'If You Eat Their Food...': Diets and Bodies in Early Colonial Spanish America, *The American Historical Review* 115 No. 3 (June 2010), 688-693.

⁶⁹ Enrique Rodríguez-Alegría, "Eating Like an Indian: Negotiating Social Relations in the Spanish Colonies," *Current Anthropology* 46 No. 4 (August-October 2005), 551.

⁷⁰ "Porque... conviene buscar la semilla, que deja debajo de la tierra, y que á esta diligencia y gastos acudan todos los de la provincial quando, y donde la hubiere: Ordenamos á los gobernadores, justicia, y regimiento de los ciudades, villas y poblaciones, que hagan repartimiento entre los interesados eclesiásticos y seculares, y nuestra real hacienda, pues el beneficio es comun, y la causa pública, para que sean pagados los que acudieren al remedio." *Recopilación de leyes de los reinos de las Indias*, lib. 3, tit. 15, law 5, "Que se pueda hacer repartimiento entre eclesiásticos, seculares y real hacienda para extinguir la langosta" (Madrid: Impresor y Librero: 1844), 128.

Echoing the same rudimentary methods that would be common centuries later, the short decree ended by charging “the governors [with] the care of...ploughing the land, or casting upon it pigs that will discover and destroy the seed, before the damage is increased.”⁷¹

Nor were locusts unfamiliar within peninsular Spain itself. Juan Cosme Sanz Larroca’s doctoral dissertation, “Las respuestas religiosas ante las plagas del campo en la España del siglo XVIII,” (“Religious Responses to Agricultural Plagues in Spain in the 17th Century”) examines how early modern Spaniards understood locusts, their origins, and their meaning. He argues that early modern observers came up with a range of explanations for the unpredictable appearance of locusts—comets, eclipses, the alignment of certain planets, spontaneous generation from plant or animal material, or simple sexual reproduction. But all Spanish observers of the eighteenth century viewed locusts as basically instruments of divine punishment. Nevertheless, locusts had to be attacked with both human and divine methods—to rely only on the divine was, he argues, seen as a sign of vanity.⁷²

Available sources show striking similarities between observers in eighteenth-century Spain and later Argentine writers with respect to both how locust biology was understood and the best practices to fight locusts. A short “Instruction” from Valencia described three stages of the life cycle of a locust: “the egg, the fetus, or mosquito, and the adult” (“*hovación, feto, o mosquito, y adulta*”). The instructions called for the “shepherds, laborers, and forest watchmen” to report to the local authorities if they had seen any locusts and if so, where, so that they might take measures against them.⁷³ The instruction advised that it was

⁷¹ *Recopilación* 3.15.5.

⁷² Juan Cosme Sanz Larroca, “Las respuestas religiosas ante las plagas del campo en la España del siglo XVII,” Doctoral Dissertation (Universidad Nacional de Educación a Distancia, 2008), 53-62 82-83.

⁷³ Anonymous, *Instrucción formada sobre la experiencia, y práctica de varios años, para conocer, y extinguir la Langosta en sus tres estados de hovación, feto ò mosquito, y adulta; con el modo de repartir, y prorratar los gastos, que se hicieren en este trabajo, y aprobada por el Consejo año de mil setecientos y cincuenta y cinco*

best to destroy locusts when they were still eggs, i.e. during the fall and winter months, and advised three main ways: first, to plow the land under, thus exposing the small tubes (“*canutos*”) in which eggs were contained to heat and sunlight, which would kill them. The second was to use pigs (“*ganados de Cerda*”) to tread over the land where the eggs had been laid; they would dig them up and eat them, “and would greatly fatten themselves, [the eggs] being so juicy and fatty” thus having the added benefit of providing a food source to the livestock. The third method, which the instruction noted was the most expensive, was to pay laborers per quantity or per day to collect the *canutos* or tubes of eggs, keeping track of who collected them, how many were collected and how much the workers were paid. For this method, it advised, the locusts should be thrown into ditches (“*zanjas*”), burned, and then covered over.⁷⁴

In the second stage, the mosquito, the instruction advised again the use of livestock to trample the locusts; it also suggested burning them, but “taking great care that there is no risk of spreading the fire to the forest.” The locusts could also be encircled by residents who would use whips or straps of leather or other material to corral the mosquito into a confined area where they could be stomped, burned, or buried. As an adult (and this instruction considered a *saltona* to be an adult), the instruction advised that even the usual methods of plowing, stomping, and burning could be used to good effect, provided they were carried out in the early morning, or at night, or during rainy weather; in all of these conditions, the locusts would become lethargic and easy to kill. Lastly, the manual suggested using a device called a *bueytrón*; essentially, this was a wide strip of cloth, at the center of which was a

(Valencia: n.p., 1756), 1r. Biblioteca Valenciana Digital.
https://bivaldi.gva.es/es/catalogo_imagenes/grupo.do?path=1009803

⁷⁴ Anon., *Instrucción*, 1755, 1v-2r.

canvas sack. The sack would be open at the front end to collect the locusts, and the bottom would be tied, but not sewn shut. Once the bag was filled, the locusts could be easily dumped into a ditch by opening the bottom.⁷⁵

Another instruction from 1756, also in Valencia, described the process of remunerating farmers for damages caused by locusts and the efforts that should be taken to minimize corruption. An expert would be assigned to each village; each expert had to be a resident of the town nearest to their post, to avoid any collaboration with the townspeople to inflate the value of the damage; nor could the experts assess the damage in any other town than the one to which they were assigned.⁷⁶

These early reports demonstrate that government officials in metropolitan Spain as well as Spanish America had a basic understanding of the lifecycle of the locust, one that would be refined, but not fundamentally altered, by the end of the nineteenth century. It also reveals that the use of collective labor, financial incentives, and the basic methods of killing locusts—burning, burying, stomping—would likewise remain fundamentally the same until the early twentieth century. Finally, they show that governments that undertook these methods well understood that they could be manipulated for financial gain and took measures to prevent or minimize corruption.

Nation and Province, Town and Country

For much of the nineteenth century, the country's largest, wealthiest, and most powerful city had an ambiguous status as the capital of the province of Buenos Aires. Despite

⁷⁵ Anon., *Instrucción*, 1755, 2r-3r.

⁷⁶ Don Juan Verdes Montenegro, *Instrucción circular que han de observar los Cavalleros Corregidores de las Cabezas de partido de este Reyno en la averiguación exacta de los estragos, donde se huviera padecido la calamidad de la langosta, desde Julio de este año 1756...que ha comunicado el señor Conde de Valparaiso* (Valencia: n.p., 1756), 1v-2r. Biblioteca Valenciana Digital. <https://bivaldi.gva.es/es/consulta/registro.cmd?id=4309>.

early attempts to create a unified, centralized government, Argentina, and Santa Fe in particular, suffered from decades of instability and internecine violence following independence from Spain.⁷⁷ The struggle between national and provincial authority that this engendered would affect debates around the anti-locust program for years after the city was separated from the province and federalized. Proponents of a nationwide anti-locust effort emphasized that locusts did not respect provincial boundaries. Many provincial representatives in the national congress, however, argued that anti-locust programs impinged on their authority and were a harbinger of further expansion of the national state.

Buenos Aires had been designated capital of the Viceroyalty of the Río de la Plata, established in 1776. Following the wars of independence, the leaders of Buenos Aires claimed sovereignty over all the territory of the viceroyalty, which included present-day Uruguay, Bolivia, and Paraguay as well as Argentina. The city sent out several military expeditions to bring these regions under its control, all of which failed.⁷⁸ For several decades after the Wars of Independence, the *caudillo* Juan Manuel Rosas dominated the political scene of the country, but he did so as the head of a loose confederation of largely autonomous provinces rather than as the leader of a nation-state. His official role was as governor of the province of Buenos Aires. That province jealously guarded its control over the city of the same name, especially the customs revenues from the port, which constituted the main source of wealth for the province and, later, the nation. Rosas came to power at a time when the country was ideologically divided between two factions, the Federalists and the Unitarians.

⁷⁷ Ezequiel Gallo, *La pampa gringa: La colonización agrícola en Santa Fe (1870-1895)* (Buenos Aires: Editorial Sudamericana, 1983), 26; Leoncio Gianello, *Historia de Santa Fe* (Buenos Aires: Editorial Plus Ultra, 1978), 312.

⁷⁸ José Luis Roca, *Ni con Lima ni con Buenos Aires: La formación de un Estado nacional en Charcas* (OpenEditions Books: 2016 [2007]), 60-64; John Lynch, *The Spanish American Revolutions 1808-1826: A Unified Account of the Revolutions that Swept over South and Central America in the Early Nineteenth Century* (New York: W.W. Norton and Company, 1986), 89-127.

Broadly speaking, Unitarians advocated for a strong, unified central government based in Buenos Aires, while Federalists wanted a more decentralized political structure in which provinces would largely rule themselves.⁷⁹

Although he initially cast himself as a Federalist, Rosas was not invested in ideological consistency; rather, he represented the new ranching elite that displaced the older commercial elite of Buenos Aires. As John Lynch has pointed out, on the eve of independence, the vast majority of Buenos Aires' exports by value were in silver, not cattle. But the wars of independence, by bringing in British commercial competition, forced a transition to ranching that came to dominate the economy of the Pampas for much of the nineteenth century. Rosas, an *estanciero* (rancher; owner of an *estancia*) since birth, took advantage of the policy, begun in 1822, of renting out public land in the Province of Buenos Aires. According to Lynch, a combination of factors made Rosas unbeatable: he was a wealthy rancher and developed ties to others in that class; he also cultivated a following among the popular classes, both among creoles and Indigenous people of the frontier; and he became head of the militia of the province of Buenos Aires, providing him with the necessary power base.⁸⁰

After peacefully leaving office in 1832, Rosas returned to power in March 1835 only after extracting a grant of total power from the legislature. Before this return to power, however, Rosas undertook to push the southern frontier of the province of Buenos Aires further, to the Río Negro. He carried out this "Conquest of the Desert" in 1833 with 1,500 men. The result of this campaign was to open up thousands of square leagues of territory for

⁷⁹ Peter Winn, *Americas: The Changing Face of Latin America and the Caribbean*, 3rd Edition (Berkeley: University of California Press, 2006), 92; John Lynch, *Argentine Caudillo: Juan Manuel de Rosas* (Oxford: SR Books, 2001), 22, 82.

⁸⁰ Lynch, *Argentine Caudillo*, 6-14.

the expansion of ranching. Abandoning the policy of leasing public land, Rosas began to sell and then to grant public land in this newly expanded territory. Rosas used his power to grant and take land—the main source of wealth—to reward his friends and punish enemies. Under the conditions—scarce labor and abundant land—Rosas was content to import grain from abroad, leaving his *estanciero* allies to dominate the land market.⁸¹ Rosas represented the cattle ranchers of the province of Buenos Aires; he defended that group against the economic pretensions of the interior provinces (namely, their wish for protectionist policies) but otherwise left those provinces to their own devices.⁸²

Like future leaders of Argentina across the nineteenth century, Rosas was deeply concerned with controlling the population. Indeed, laws to eliminate “vagrancy”—that is, to control the mobile, rural, unemployed or underemployed population, preceded Rosas, but he continued and strengthened them.⁸³ Such control was especially important given the seasonal nature of agricultural labor; harvest seasons saw scrambles for a limited pool of labor. This labor scarcity continued to be a major factor across the nineteenth century.⁸⁴ But this goal was never purely an economic one; given the post-independence turmoil in which Argentina found itself mired, mobile and uncontrolled populations were seen as a potential source of danger. The province of Buenos Aires passed its first Rural Code in 1865, but as early as 1815 the province had legislation that men without property could be sent into the army if they were unemployed. Legislation also regulated movement within the province. Such legislation aimed to funnel the scarce existing labor supply into the estancias and the frontier (and later, the Paraguayan front). At the same time, there was a tension between the benefits

⁸¹ Lynch, *Argentine Caudillo*, 16-30.

⁸² Lynch, *Argentine Caudillo*, 63-65.

⁸³ Sabato, *Agrarian Capitalism and the World Market*, 87.

⁸⁴ Gallo, *La pampa gringa*, 225-226.

of controlling the available labor force and the fact that the pastoral and ranching economies generally offered seasonal, not permanent, work. In other words, worker mobility could be construed as a threat stability or an economic necessity.⁸⁵ These laws, as Lynch notes, served to provide cheap labor to *estancieros* and to the military. Peons had to carry papers showing they were employed, or risk being forced to work on an estancia or conscripted and sent to the frontier.⁸⁶

Santa Fe passed its own anti-vagrancy legislation as early as 1816. This resolution, by the acting governor Mariano Vera, laid out the moral basis for anti-vagrancy laws and their repercussions in article 7:

Since the idleness of the citizens is the certain origin of all vices and disorders, and on the contrary the honored destiny and good occupation is what forms the advancement and splendor of the people, everyone who is not occupied in the service of arms [i.e. the militia] should have a paper with him, signed by their respective mayors [“Alcaldes de barrio”], and in the countryside by the commissioned Judges, of the office they occupy and *patrones* whom they serve, under the penalty that those who do not have it, will be added to the military corps, or imprisoned, if they are not good for [military] service.⁸⁷

This passage reveals that control of labor was masked by a concern with “idleness” as a moral shortcoming; by contrast, labor, and more specifically selling one’s labor to a *patron*, was the basis for an orderly society—and for the progress or “advancement” of such a society. Such *patrones* were, in turn, the accepted leaders of rural society, along with *alcaldes* and judges of the peace. Closely concerned with the control of labor was the control of movement, hence the order that people not working, and thus potentially on the move, had

⁸⁵ Sabato, *Agrarian Capitalism and the World Market*, 84-89.

⁸⁶ Lynch, *Argentine Caudillo*, 42, 50.

⁸⁷ “Como es el cierto origen de todos los vicios y desórdenes la ociosidad de los ciudadanos, y al contrario el honrado destino y buena ocupación lo que forma el adelantamiento y esplendor de los pueblos, deberán todos los que no estén ocupados en el servicio de las armas, tener papel consigo, firmado por sus respectivos Alcaldes de barrio, y en la campaña por los Jueces comisionados, del oficio que ejercen y patrones á quienes sirven, bajo la pena que serán, los que no lo tuvieren, agregados á los cuerpos militares, ó encarcelados, si para este servicio no fueren útiles.” Santa Fe, *Registro Oficial de la Provincia de Santa Fe*, Tomo I, 1815 al año 1847 (Santa Fe: Tipografía de «La Revolución», 1888), 10.

to obtain permission merely to be in such a state. Finally, the use of the armed services as a form of punishment that was prioritized over incarceration suggests both the importance of militias and the constant lack of volunteers for such dangerous work.

In 1852, Rosas' erstwhile lieutenant, Justo José Urquiza, defeated him at Caseros 1852. Rosas went into exile, and Urquiza called for a constitutional convention. But the province of Buenos Aires refused ratification and, after withstanding a siege, seceded from the rest of the provinces until 1862. In that year, governor of Buenos Aires province Bartolomé Mitre succeeded in unifying the country. Even after reunification, the province of Buenos Aires refused to release its control over the fount of wealth. The province wrested a concession from the Confederation, which conceded that the city would only be the national capital until a suitable place somewhere else was selected. No city was ever agreed upon, and the national government remained in Buenos Aires. This ambiguous state of affairs, in which Buenos Aires was both the provincial and national capital, was resolved only after the defeat of the provincial militia in 1880 when the capital city wrested from the province.⁸⁸

The perceived need to control the rural labor force did not dissipate after the fall of Rosas. Like most of the country, the province of Santa Fe was relatively sparsely populated, and land was concentrated in the hands of a small elite. Many people were migratory or semi-migratory workers. Nicasio Oroño, an official in Rosario, issued a decree mandating that all unemployed people find work and ordered “the carrying of a document demonstrating such employment that was to be provided on the request of a police captain or landowner” in order to keep tight control over the labor force.⁸⁹ According to Bonaudo and Sonzogni,

⁸⁸ Hilda Sabato, *Historia de la Argentina, 1852-1890* (Buenos Aires: Siglo Veintiuno Editores, 2012), 17-19, 42-44, 87-92, 105-106, 282-284.

⁸⁹ Marta Bonaudo and Elida Sonzogni, “To Populate and Discipline: Labor Market Construction in the Province of Santa Fe, Argentina, 1850-1890,” trans. Andrew Klatt. *Latin American Perspectives* 104, no. 1 (January

“Oroño shared Sarmiento's view of the state as a protagonist in the subdivision and distribution of public lands, the development of cereal grain cultivation, and the formation of an agricultural bourgeoisie with strong representation of small and medium-sized landowners, a project that did not discriminate against criollo producers.”⁹⁰ In other words, economic prosperity and progress, commercial cultivation of crops, especially grains, and control of the labor and mobility of the working population were interconnected goals.

Santa Fe's vagrancy laws and other legislation affecting laborers hewed closely to similar legislation produced in the province of Buenos Aires. Rural codes “imposed the judgment that the lack of work values in itself indicated a predisposition to criminality” and conversely that the only way this could be remedied was by imposing order and labor. This was especially important during the harvest season, as far as elite landowners and provincial governments were concerned. But vagrancy legislation went beyond simply controlling labor—it controlled workers off the clock as well, explicitly banning certain popular games and forms of recreation and seeking to restrict the popular *pulperías*.⁹¹ Recreation, especially that involving alcohol from the *pulperías*, was cast as inherently, if potentially, a threat to public order.

The result of these chaotic decades, beyond devastating Santa Fe's economy, was to highlight the importance of armed forces, especially provincial militias. The militias of Santa Fe participated in several internal Argentine civil conflicts in the period.⁹² The militias themselves reflected the “hierarchy of the land” insofar as “the estancieros were the

1999), 70. For Oroño as jefe político, see Leoncio Gianello, *Historia de Santa Fe* (Buenos Aires: Editorial Plus Ultra, 1978), 317.

⁹⁰ Bonaudo and Sonzogni, “To Populate and Discipline,” 79.

⁹¹ Bonaudo and Sonzogni, “To Populate and Discipline,” 75, 76.

⁹² Leoncio Gianello, *Historia de Santa Fe* (Buenos Aires: Editorial Plus Ultra, 1978), 312.

commanders, the overseers were the officers, and the peons were the troops.”⁹³ People were rounded up from the countryside to serve as conscripts and sent to the frontier; but so many people fled the army that deserters added to the itinerant rural population.⁹⁴ The frontier, according to Marta Bonaudo and Elida Sonzogni, thus “represented two dynamics. On one hand, it was a barrier against barbarism; on the other hand, it was a hothouse generating poverty and marginalization.”⁹⁵ In some sense, then, it was less a barrier than a very permeable boundary guarded by precisely those people that landed elites and political authorities deemed a threat to rural society (by being vagrants, for example). Critics attacked this practice of conscription on two grounds. On one level, they argued that it created such a state of fear among people that they never put down roots in a particular place—thus defeating the avowed purpose of conscription. On another level, critics argued that this practice of impressment was harmful because it took labor away from the private market—and thus drove up the price of labor that workers were able to demand. Rural codes had a similarly ambiguous effect: they sought to regulate and control labor, but in doing so artificially altered the supply and demand of labor.⁹⁶

At the same time, militias formed part of the longer tradition of the “citizen-at-arms” which developed in various republican countries since the French Revolution. Driven by this conception, militias and the provinces that governed them argued that they had a right and an obligation to resist the imposition of tyranny, whether from a foreign invader or the national government. They were bastions of provincial autonomy and thus chronic challenges to the national government's authority. As Minister of War under Avellaneda during the 1880

⁹³ Lynch, *Argentine Caudillo*, 87.

⁹⁴ Lynch, *Argentine Caudillo*, 88-89.

⁹⁵ Bonaudo and Sonzogni, “To Populate and Discipline,” 71.

⁹⁶ Bonaudo and Sonzogni, “To Populate and Discipline,” 86.

revolution, Julio Roca was charged with putting down the uprising. He was also the incoming president at the time, and upon taking office, Roca asserted the control of the national government over provincial militias. Under Roca and his successors, the national government asserted control over Argentina's militias and national guards, and they became more agents of national authority than potential rivals for that authority.⁹⁷

One of the most influential writers of the early nineteenth century, Domingo Sarmiento, cast the first decades of Argentina's independence in terms of a conflict between "civilization" and "barbarism" in his classic 1845 book aptly titled *Facundo: Civilización y Barbarie*. Sarmiento wrote of his homeland that the vast area encompassed by Argentina was a curse. He argued that isolation and instability were hallmarks of life in Argentina that gave Argentines a kind of tough ability to endure and accept violence. Nevertheless, he saw a sparkling future for Buenos Aires, which he predicted would one day become a prosperous and populous city. This was largely, in his view, because it was connected to the civilizing influence and lucrative markets of Europe.⁹⁸ The city of Buenos Aires, then, was the nexus and the barrier between civilization and barbarism.

Despite its fortuitous geographic position, Sarmiento lamented the current political position of the city. Under Juan Manuel Rosas, Buenos Aires had conquered and subjugated the provinces rather than sharing its prosperity and enlightenment with them. The Pampas, according to Sarmiento, were a hindrance to trade in contrast to the underused rivers. He compared Argentina's vast plains and the people who inhabited them to the vast steppes of the Middle East and the caravans that crossed them. The harshness of rule life on these

⁹⁷ Sabato, *Historia de la Argentina, 1852-1890*, 55, 286-288.

⁹⁸ Domingo F. Sarmiento, *Facundo: Civilización y barbarie en las Pampas argentinas* (Buenos Aires: Stockcero, 2003 [1851]), 15-17.

plains, according to Sarmiento, lent itself to government by the strongest. Despite the wide expanses of rural Argentina, according to Sarmiento “civilization” was a characteristic of the cities, of urban life, a binary view that colored Sarmiento’s classic book. In his view, rural folk were not only completely different from urban Argentines—they actively rejected urban civilization. He argued that Argentines lived in isolation, too far apart from one another, to really become industrious. There was no social life; there were only isolated families living far from one another. This was also detrimental to the youth and their education and, thus, to the future of the country, for it inhibited the establishment of schools.⁹⁹

For Sarmiento, this isolation and the banality of violence essentially left the cities, those centers of civilization, at the mercy of the gaucho. This state of affairs, this dichotomy that Sarmiento described, was, according to him, merely a continuation of the period of Spanish rule during which European civilization confronted the barbarism of rural Argentine society which he described as “almost Indigenous” (“*casi indígena*”)—the wars of independence, he thought, had not altered that basic equation. The aims of the revolution were, according to Sarmiento, simply not that interesting to the gauchos who fought in them, and the fact that they participated at all in such struggles was because the violence of war was mostly an extension of ordinary life for them.¹⁰⁰ This ambivalence about rural Argentina, especially the Pampas region, was not limited to Sarmiento: as Roy Hora has written, “the pampas were viewed as being both Argentina’s economic dynamo and an obstacle to the development of civilized life.”¹⁰¹ Much the same could be said of the rural people and communities that fueled the agricultural boom at the end of the century.

⁹⁹ Sarmiento, *Facundo*, 18-24.

¹⁰⁰ Sarmiento, *Facundo*, 44.

¹⁰¹ Roy Hora, *The Landowners of the Argentine Pampas: A Social and Political History, 1860-1945* (Oxford: Clarendon Press, 2001), 33.

All the issues that Sarmiento addressed—the sparse population of rural Argentina, the need for education, the relationship of the (future) capital city to the provinces—would remain salient, though in different ways, by the end of the century when the national anti-locust apparatus emerged. Sarmiento’s geographical determinism would continue to shape views of Argentina decades later when anti-locust efforts foundered as they tried to cover a vast territory. Legislators would point to the difficulty of eliminating locusts when they lay eggs across thousands of kilometers of dense forests, far from agricultural zones. They would emphasize the need for better agricultural education in general, not just to fight locusts, and they would heatedly debate the role of Buenos Aires in the lives of people far from the capital.

Institutions of Government in Santa Fe

In order to understand the creation of a network of anti-locust commissions at the national, provincial, and local level, it is necessary to place them in the context of the authorities, political structures, and rivalries that existed in late-nineteenth century Argentina. For locusts were as much a political, social and cultural problem as a biological or economic one, and addressing the problem was thus much more than a simple technical matter. Locusts, always present in the region, became a problem specifically when Argentina cultivated crops, especially maize and wheat, across much of the pampas in the late nineteenth century. Although in theory anti-locust work was specifically meant to benefit rural communities, in many cases they strenuously objected to the demands of anti-locust commissions.

From the sixteenth century, in the Río de la Plata and elsewhere in Spanish America, the *cabildo*, or town council, served as the standard instrument of local government.¹⁰² The *cabildo* as an institution was abolished in Santa Fe in 1832 under the provincial governor Estanislao López, who issued a decree appointing specific positions to replace it.¹⁰³ From the 1850s in Santa Fe, municipalities (“*municipalidades*”) were established, the first in Rosario in 1858. In 1860, the city of Santa Fe established its own municipality with the Minister of Government (“*Ministro de Gobierno*”) as the head. A reform passed in 1872 stipulated that any settlement with at least 1,500 people should have a municipality. Over the following decades, the population limit for municipalities fluctuated, but the general structure of a council and an executive power remained.¹⁰⁴

At the local level, then most settlements in Santa Fe at least were either municipalities (*municipalidades*) or colonies (*colonias*). Municipalities had councils, while colonies and smaller settlements generally had development commissions (*comisiones de fomento*).¹⁰⁵ These commissions, as we shall see, often engaged in disputes over jurisdiction and labor with the anti-locust commissions (later called agricultural defense commissions). They and the anti-locust commissions appealed to ministers of government and judges of the peace. Those judges were, according to John Lynch, the “key agent of control in the countryside” whose duties had expanded since the establishment of the office in 1821 to a wide spectrum

¹⁰² Edwin Williamson, *The Penguin History of Latin America*, rev. ed. (New York: Penguin, 2009), 80-81, 96-97, 138.

¹⁰³ Santa Fe, *Registro Oficial*, Tomo I, 234, 236-237.

¹⁰⁴ Oscar Luis Ensinck, “El régimen municipal en la provincia de Santa Fe,” in *Historia de las instituciones de Santa Fe Tomo III: Primera Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Talleres Gráficos de la Imprenta Oficial de la Provincia, 1970), 142-147.

¹⁰⁵ Ley autorizando al P.E. para nombrar Comisiones de Fomento donde no exista Municipalidad. Año 1885,” *Historia de las instituciones de Santa Fe*, Tomo III, *Segunda Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Cámara de Diputados de la Provincia de Santa Fe, 2011), 305-307.

of powers.¹⁰⁶ In his study of the *partido* of Coronel Dorrego in Buenos Aires Province, Juan Manuel Palacio calls judges of the peace “the axis around which turned the whole universe of informal arrangements at the local level and the guarantee of their good function.”¹⁰⁷ In Santa Fe province, justices of the peace were established by law in 1833, and made subordinate to political chiefs (“jefes políticos”) in 1854. They engaged in remediation (“conciliación”) in disputes between community members who wanted a resolution before going to court, as well as dealing with minor offenses like drunkenness and fighting.¹⁰⁸

Santa Fe’s development commissions were first established by law in 1883 (in the initial legislation, they were referred to as Commissions of Local Progress; the name was changed in 1885, and subsequent legislation retained the new title). They were to be established in settlements that “are not found in condition to have Municipalities.” The governor would appoint the members of the five-man commission from “among its most honorable and respectable *vecinos*,” and the members would then elect a president amongst themselves. They would serve for a term of one year but could be re-selected at the end of that period or removed at any time. Their work would be funded by an annual tax on vehicles used in the colony, and their central duty would be to take care of roads in and around the colony. They were instructed to inform the governor if any private colonists closed the roads that ran through their property and to order that such roads be re-opened. They were

¹⁰⁶ Lynch, *Argentine Caudillo*, 51.

¹⁰⁷ Juan Manuel Palacio, *La paz del trigo: Cultura legal y sociedad local en el desarrollo agropecuario pampeano* (Buenos Aires: Edhasa, 2004), 191.

¹⁰⁸ Evangelina de los Ríos, “Los jueces de paz y su intervención en conflictos cotidianos: conciliaciones, demandas y sentencias. Rosario (Argentina) 1854-1872,” *Nuevo Mundo, Mundos Nuevos* (October 2020) [online]. <https://journals.openedition.org/nuevomundo/81057>.

empowered to cooperate with commissions in other colonies. Finally, they would also oversee the public schools (“*Escuelas del Gobierno*”) in the colony.¹⁰⁹

The legislation of 1885 expanded their authority, allowing them to “dictate the measures that they believe conducive to the improvement of the pueblos where they live and which have to do with hygiene and public decorum.” It also empowered them to levee further small taxes (“*impuestos municipales moderados*”) provided they did so with the governor’s permission. If colonists refused to pay the taxes, the law allowed commissions to go to a judge who would order the payment. The revised law placed the commissions under the direction of the inspector of colonies, to whom they were to submit a bi-annual report of their activities and expenditures.¹¹⁰

A further expansion of 1895 expanded the term of service for commission members to two years and listed a series of new taxes that would fund the commissions’ work: hunting fees, fees to operate food stalls, fees to slaughter cattle, and fees to operate and maintain brothels. It reiterated that the commissions would be in charge of local schools and instructed the commissions to report regularly on the process of education. The 1895 law instructed commissions to keep track of deaths within their jurisdictions and to regulate new construction of buildings, roads, and sidewalks, and establish regular hunting seasons. The new law instructed commissions to submit regular budgets for approval by the governor,

¹⁰⁹ “Ley-comisiones de progreso local: Creándola en los centros de población,” and “Ley autorizando al P.E. para nombrar Comisiones de Fomento donde no exista Municipalidad. Año 1885,” *Historia de las instituciones de Santa Fe*, Tomo III, *Segunda Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Cámara de Diputados de la Provincia de Santa Fe, 2011), 305-307.

¹¹⁰ “Ley autorizando al P.E. para nombrar Comisiones de Fomento donde no exista Municipalidad. Año 1885,” *Historia de las instituciones de Santa Fe*, Tomo III, *Segunda Parte*, 307.

along with a list of the taxes that were being imposed. It also specified that ten percent of taxes and fines would be used to buy school supplies.¹¹¹

Thus, Development commissions served as the standard form of municipal government in Santa Fe's small settlements and colonies, which were too small to be designated municipalities. They would become intimately involved with anti-locust campaigns, sometimes cooperating with the local locust extinction commissions and sometimes feuding with them. Their primary functions, overseeing road construction and maintenance and education within the colonies, indicate the priorities for these small communities. As successive laws indicate, their roles were increasingly specified and fleshed out, but these priorities remained.

Immigration, Railroads and Agricultural Colonization

In the 1830s and 1840s, a slow recovery began in which Rosario began to grow into the major city it would later become. The population of Rosario grew from about three thousand people in the early 1850s to over 23,000 by the end of the decade. Rosario also became the major port city of Argentina's Confederation during the secession of Buenos Aires.¹¹² By mid-century, however, Santa Fe was still reeling from the effects of decades of political chaos and violence. The province was expanding westward and northward at the expense of Indigenous people, and the provincial government remained the dominant landholder.¹¹³

In the second half of the nineteenth century, massive immigration from Europe, campaigns of conquest against neighboring Indigenous people, and the rapid expansion of

¹¹¹ "Ley autorizando al P.E. para nombrar Comisiones de Fomento donde no exista Municipalidad. Año 1895," *Historia de las instituciones de Santa Fe*, Tomo III, *Segunda Parte*, 308-311.

¹¹² Gallo, *La pampa gringa*, 31-33.

¹¹³ Martirén, *La transformación farmer*, 31-40, 45.

railroad and telegraph networks brought large swathes of land under Argentina's control and facilitated agricultural colonization by creole Argentinians. Crucially, railroads expanded the area of land that could be profitably put under the plow and allowed for greater internal mobility of the labor force, which enabled agricultural colonization.¹¹⁴ According to Gallo and Cortés Conde, about half of the rail freight carried by the early twentieth century was cereal crops.¹¹⁵ The earliest railroad in the province connected Rosario with Córdoba; although this railroad was not built specifically to ship produce, the agricultural boom of Santa Fe was a major factor in making the railroad profitable. During the 1880s, when colonies sprouted across Santa Fe, railroad construction similarly spiked. The two trends were correlated even within the province, as both agricultural colonies and railroads were concentrated in the south and center, in the hinterlands of Santa Fe and Rosario. An 1894 report from the U.S. Department of Agriculture (USDA) noted that it was much cheaper and shorter to ship harvest from Santa Fe to Buenos Aires than it was to ship from the vast interior of the U.S. to ports on the East Coast.¹¹⁶ That advantage would not be enough to catapult Argentina ahead of the vast U.S. interior in agricultural exports, but it certainly helped Argentina compete. As in other places where rail networks developed, the effect was to make overland shipping cheaper than ever before. Wheat (and other agricultural and pastoral products) could then profitably be sent from interior provinces to coastal urban centers for consumption or for export across the Atlantic.¹¹⁷ Railroads were often granted land along their lines with which to attract further settlement.¹¹⁸

¹¹⁴ Roberto Cortés Conde, *El progreso argentino 1880-1914* (Buenos Aires: Editorial Sudamericana, 1979), 177-180, 191-192.

¹¹⁵ Ezequiel Gallo and Roberto Cortés Conde, *Historia argentina: La república conservadora*. 4th ed. (Buenos Aires: Editorial Paidós, 1995), 133-134.

¹¹⁶ Gallo, *La pampa gringa*, 232-236.

¹¹⁷ Scobie, *Revolution on the Pampas*, 4, 11-12.

¹¹⁸ Cortés Conde, *El progreso argentino 1880-1914*, 78-79.

Table 1 Total Extent of Railroad Tracks in Argentina, Selected Years, 1857-1914¹¹⁹

Year	Extension (Km)
1857	10
1860	39
1870	732
1880	2,313
1890	9,254
1900	16,767
1910	27,713
1914	34,534

It was in this context that Aaron Castellanos established the first agricultural colony in Santa Fe at Esperanza in 1856. The following year, the provincial government passed a law allowing the sale of public land specifically to promote agriculture. San Carlos and San Gerónimo were established a few years later. Colonization was slow at first, and these initial three colonies were the most successful out of several colonization projects attempted across the 1850s and 1860s.¹²⁰

Agriculture had always been a part of life in Argentina, but a small part, largely confined to the immediate hinterlands of urban settlements. As the frontier expanded, so did the pastures of sheep and cattle. Although ranching and shepherding remained major concerns, in places like Santa Fe and the province of Buenos Aires, rural people increasingly turned to agriculture. Maize and wheat were among the most popular crops. In Santa Fe and elsewhere, the expansion of agriculture often followed and replaced the expansion of sheep herding. Beginning in the 1880s colonization picked up pace; by 1887 nearly 44% of the provincial population lived in agricultural colonies (many of them immigrants), and by 1895

¹¹⁹ Comisión Nacional, *Tercer Censo Nacional levantado el 1° de Junio de 1914*, Tomo X, *Valores mobiliarios y estadísticas diversas* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1917), 405-406.

¹²⁰ Gallo, *La pampa gringa*, 37, 39; Martirén, *La transformación farmer*, 64-65.

there were more about four hundred agricultural colonies in Santa Fe. The economic crisis of 1890 led to migration out of urban areas and into rural ones, contributing to this growth. By the end of the nineteenth century and the beginning of the twentieth, agriculture had expanded to the frontiers of the country, previously the domain of ranchers.¹²¹ Aaron Castellanos' early efforts thus heralded a major shift in land use in Santa Fe.

The Castellanos contract established a “project of European immigration and colonization of the Chaco, in the territory of the province” of Santa Fe.¹²² The first article stated that the purpose was “to encourage [*dar impulso*] commerce and industry of every kind, preferentially to agricultural industry, principle source of wealth” and called for Castellanos to bring one “one thousand families of European laborers, chosen by Sr. Castellanos.”¹²³ He was to bring two hundred immigrants in the first year and the total number over the course of a decade. Each batch of two hundred families would “form a colony under the direction of Sr. Castellanos” or someone else at his direction. Although this was the first concession of its kind, Castellanos evidently had some experience in terms of agricultural colonization, for the contract stated that this grant was “in recompense for his work in establishing the colonies of this province” and for helping to bring immigrants.¹²⁴ The mention of the Chaco is also interesting since the colony was sited in a place that at most would be considered the fringes of the Chaco today, about twenty-three miles northwest of the provincial capital. The original contract stipulated five colonies, not one, that would be located “on the right bank of the Paraná River and on both banks of the Salado River” with

¹²¹ Cortés Conde, *El progreso argentino 1880-1914*, 61-64, 81-85, 90, 113; Martirén, *La transformación farmer*, 22, 48.

¹²² Santa Fe, *Registro oficial de la Provincia de Santa Fe Tomo II 1848 al año 1858* (Santa Fe: Tipografía de «La Revolución», 1859), 147-148.

¹²³ Santa Fe, *Registro oficial Tomo II*, 150.

¹²⁴ Santa Fe, *Registro oficial Tomo II*, 151.

the precise location chosen by Castellanos. But it does indicate the nexus of European immigration, agricultural production, and colonization of frontier areas, and the proximity of the frontier to the major centers of creole population at the time.¹²⁵

Each family brought over by Castellanos would receive a plot of land from the provincial government. After five years the land would become “the absolute property of each one of them, in return for the improvements [*ventajas*] that are promoted from their industry for the country.”¹²⁶ The contract enumerated precisely what kinds of produce and animals each family would be allotted: six casks (*barricas*) of flour, seeds of wheat, cotton, maize, tobacco, and other crops, and a specified number of draft animals and livestock. The value of these was to be repaid within two years, subject to postponement in case of crop failures. It further stipulated that the families would be responsible for clearing their land; they would plant half the land with the seeds they had been advanced, and the other half however they pleased. The representative of the provincial government would be a judge of the peace who would be chosen from among the colonists themselves. If they wished, the colonists could also select an advisory commission of up to ten people to assist the judge. For the five years of the grant, the colonists would be exempted from all taxes. They were also exempted from military service. They were permitted to form militias, but only for the defense of the colony and its immediate surroundings. Finally, the contract stipulated that Castellanos would receive his own private grant of land adjoining the colony.¹²⁷ The contract was thus fairly specific regarding what each farmer was to grow and which animals they

¹²⁵ Santa Fe, *Registro oficial Tomo II*, 151. For a reference map of the extent of the Argentinian Chaco, see Lucas M. Moretti, Héctor José María Morrás, Fernando X. Pereyra, and Guillermo A. Schulz, “Soils of the Chaco Region,” in *The Soils of Argentina* eds. Gerardo Rubio, Raul S. Lavado and Fernando X. Pereyra (eBook: Springer International, 2019), 150.

¹²⁶ Santa Fe, *Registro oficial Tomo II*, 151.

¹²⁷ Santa Fe, *Registro oficial Tomo II*, 152-153.

were to raise. It provided financial incentives and freedom from the hated draft, but in theory, this would be a colony that paid for itself.

The emphasis on European immigration in the Castellanos contract would become part of a regular trend in immigration policy and debates about immigration. Many government officials in Santa Fe, as elsewhere in Argentina, saw immigration as key to creating a stable workforce. Immigration to Santa Fe, from other provinces and other countries, had already begun to rise even before the railroad boom. Between 1887 and 1890 the national government subsidized the price of the transatlantic voyage for immigrants.¹²⁸ The national government sought to foment immigration from Europe to newly conquered lands, sometimes by offering tax incentives.¹²⁹ To some extent policies of land colonization with European immigrants were part of racist conceptions of *blanqueamiento*, or a goal of whitening the population.¹³⁰ However, Gallo and Cortés Conde have argued that this preference for European immigrants, especially from northern Europe, was more applicable to the presidency of Avellaneda (1874-1880) than to his successors.¹³¹

These schemes to attract immigrants from Europe were not new; successive governments after the Wars of Independence had tried and had limited success after 1850, but mass immigration from Europe (mainly from Italy and Spain) began only in the late nineteenth century.¹³² Most of the newcomers settled in a few provinces, especially Buenos Aires and Santa Fe, as well as the national capital.¹³³ Although most immigrants eventually settled in cities like Buenos Aires and Rosario, some did find their way to rural settlements in

¹²⁸ Cortés Conde, *El progreso argentino 1880-1914*, 68-72, 75.

¹²⁹ Sabato, *Historia de la Argentina, 1852-1890*, 193-194; Gallo, *La pampa gringa*, 39.

¹³⁰ Tanya Katerí Hernández, *Racial Subordination in Latin America: The Role of the State, Customary Law, and the New Civil Rights Response* (Cambridge: Cambridge University Press, 2013), 23-26.

¹³¹ Gallo and Cortés Conde, *Historia argentina: La república conservadora*, 53.

¹³² Scobie, *Revolution on the Pampas*, 29-30.

¹³³ Gallo and Cortés Conde, *Historia argentina: La república conservadora*, 55.

the pampas and other parts of the interior. Not all of them, however, were agriculturalists in their countries of origin, and even for those who were, adjusting to an entirely new climate would prove challenging. This was one reason why wheat became a popular crop; it was relatively easy to grow and sure to bring some return. Moreover, very few of them came with the money to purchase land. Many became long-distance migrant workers, or *golondrinas*, moving between Italy and Argentina, and others returned permanently to their homeland.¹³⁴ And in practice some observers were decidedly unimpressed with the moral qualities of the immigrants who came to Argentina. Some observers even complained that immigrants had assimilated too much—or rather assimilated in the wrong way, adopting the vices of the creole population.¹³⁵ In any case, by 1895 there were just under 45,000 farmers (“*agricultores*”) in Santa Fe, or about 20% of the provincial population. Many agricultural colonies had European immigrants, and the Italian language was commonly spoken. By 1895, over 40% of the province was foreign-born, much higher than the neighboring provinces but lower than the capital city.¹³⁶

Table 2 Population of Argentina, 1869-1914¹³⁷

Year	Argentines	Foreigners	Total Population	Immigrants as % Total
1869	1,526,734	210,292	1,737,026	12.1
1895	2,950,384	1,004,527	3,954,911	25.4
1914	5,527,285	2,357,952	7,885,237	29.9

¹³⁴ Scobie, *Revolution on the Pampas*, 32-35, 53-54, 77.

¹³⁵ Bonaudo and Sonzogni, “To Populate and Discipline,” 81-83.

¹³⁶ Gallo, *La pampa gringa*, 272, 317-319.

¹³⁷ Comisión Directiva del Censo, *Segundo censo de la República Argentina, Mayo 10 de 1895*, Tomo II, *Población* (Buenos Aires: Taller Tipográfico de la Penitencia Nacional, 1898), xl; Comisión Nacional, *Tercer Censo Nacional levantado el 1º de Junio de 1914*, Tomo I, *Antecedentes y comentarios* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1916), 202.

Table 3 Population of the Capital and Selected Provinces, 1914¹³⁸

	Argentines	Foreigners	Total	Immigrants as % of Total
City of Buenos Aires	797,569	777,845	1,573,814	49.4
Province of Buenos Aires	1,362,234	703,931	2,066,165	34.1
Santa Fe	583,699	315,941	899,640	35.1
Córdoba	585,052	150,420	735,472	20.5
Entre Ríos	352,872	72,501	425,373	17
Corrientes	322,593	24,462	347,055	7
National Total	5,527,285	2,357,952	7,885,237	29.9

Colonization companies could be incorporated specifically to found agricultural colonies; others, like the London-based Central Argentine Land Company, were originally founded for other purposes (the Central Argentine was a railroad company). Some who founded agricultural colonies were themselves residents of older settlements; Guillermo Lehmann was a German immigrant and resident of Colonia Esperanza when he established Colonia Rafaela in the early 1880s. This was a pattern not only among those who established colonies; residents of one colony would often purchase land in a new colony. But colonization was always a risky enterprise, at the mercy of internecine political violence, financial crises, droughts, and locusts. The year 1890 brought with it an economic downturn that affected the agricultural sector, including colonization.¹³⁹

¹³⁸ Comisión Nacional, *Tercer Censo Nacional levantado el 1° de Junio de 1914*, Tomo I, *Antecedentes y comentarios* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1916), 202.

¹³⁹ Gallo, *La pampa gringa*, 171-183, 222.

According to Juan Luis Martirén, agricultural colonies were initially intended to produce a wide array of crops for consumption but quickly turned to monoculture production geared towards the export market. The goal of creating a class of bourgeois, middling farmers, as expounded by Sarmiento and Oroño, for example, was cast aside in favor of commercial agriculture. Santa Fe's economy had long been characterized by extensive cattle ranching; such estates usually produced a small number of crops for local consumption. For years, the initial three colonies (Esperanza, San Carlos, and San Gerónimo) struggled financially; although the price of land was quite low, establishing colonies required start-up capital, technical knowledge of the terrain, seeds, machinery, and supplies to carry colonists through to their first harvest, if not longer.¹⁴⁰ Many colonies also endured raids from nearby Indigenous groups during the 1870s.¹⁴¹ This was not entirely a coincidence. At least initially, as Julio Djenderedjian has argued, agricultural colonies had more than an economic purpose. He argues that agricultural colonies "were conceived by provincial elites as strategic and defensive nuclei: they had to be situated in the frontier zone with Indigenous territory or on borders with other provinces. It was expected that they would have a military, and not just solely productive, function."¹⁴² Although eventually, most colonies would be established without the frontier in mind, the first colonies were intentionally located very close to it.¹⁴³ For all these reasons, the enterprise was risky.

In the early 1860s, William Perkins conducted a tour of the early colonies of Santa Fe at the invitation of Governor Cullen. He described Santa Fe's lands as equally productive

¹⁴⁰ Martirén, *La transformación farmer*, 22, 25, 48, 65-67, 134, 142, 213.

¹⁴¹ Gallo, *La pampa gringa*, 45-46.

¹⁴² Julio Djenderedjian, "Del arado criollo al granero del mundo: La transformación tecnológica de la agricultura pampeana argentina, 1840-1900," *Historia Mexicana* 70 no. 1 (July-September 2020), 119.

¹⁴³ Martirén, *La transformación farmer*, 65, 70-76.

compared to those in the province of Buenos Aires, but much more beautiful. Wheat, according to Perkins, was a popular crop among the early colonists. He also had a notably optimistic opinion of the Chaco, arguing that the “finest part of the province lies to the north, and the forests and finely watered plains of the *Gran Chaco* offer inexhaustible sources of wealth to future generations.”¹⁴⁴

Perkins had some criticisms of the colonies he visited. He argued that Argentines did not pay necessary attention to education in the colonies; he suggested that the government should make a provision in every grant that the colony have some land for a school.¹⁴⁵ Perkins also found the government of the colony wanting. He thought that the current judge of the peace was not malignant, but neither was he competent. Perkins thought the provincial government should select a judge from outside the colony. The judge, he thought, “should be in all cases a creation of the Government and not left to be elected by the colonists; he should be President of the Municipality, the latter of course composed of the inhabitants of the colony.” He thought there was “nothing imprudent in allowing them to elect sectional Justices of the peace, as a kind of Municipal officer, but the principal Judge, the highest authority in the community, should certainly be named by Government, and should certainly *not* belong to the Colony.”¹⁴⁶ This tension between autonomy and outside control would come to the fore with the arrival of anti-locust commissions several decades later.

Another fault he found with the colony was the quality of the public space. He wrote that the judge of the peace was opposed to lining the streets with trees because they would

¹⁴⁴ William Perkins, *Las colonias de Santa Fe. Su origen, progreso y actual situación con observaciones generales sobre la emigración a la República Argentina* (Rosario: Imprenta del Ferro-Carril, 1864), 6, 11-12, 24.

¹⁴⁵ Perkins, *Las colonias de Santa Fe*, 16.

¹⁴⁶ Perkins, *Las colonias de Santa Fe*, 30, 31.

bring insects. Perkins argued that “intelligence did not enable him [to] deduce the fact that if the *trees* attract the insects, the *land* will be proportionately free of them.”¹⁴⁷ Perkins believed that treescapes could only help the colony. He suggested that the “great common that divides the German from the Swiss population should have been studded with trees, not only to beautify the Colony, but also to furnish shade for the animals, and attract rains and dews. It is I believe an acknowledged fact that plantations of trees in regions where none existed before, cause notable changes in the atmosphere.”¹⁴⁸ He also thought that trees would attract birds and other creatures that fed on insects. As evidence, he cited “a report presented to the French Government about ten years ago, which stated that the destruction of small birds caused by sportsmen and the ignorant prejudices of the peasants and farmers, had caused the insect tribe to propagate to such an extent, that the crops were seriously endangered.”¹⁴⁹ The cultivation of greenery, then, would bring aesthetic as well as well as material benefits to the colony, and provide a natural way of staving off locusts and other voracious insect pests.

Despite what he saw as these shortcomings, however, Perkins had an optimistic view of the history of colonization. He considered it inevitable that early colonists would face privation, in “some places against the savage aborigine, always more or less at enmity with civilized man; in others against noxious animals and insects.”¹⁵⁰ Over time, however, Perkins thought that the success of colonization was inevitable, not least because nature came to the aid of colonists: “it is an undoubted fact,” he wrote,

that climate adapts itself to all phases of civilization. In places where there is no human life, or where the population is nomad or savage, the climate adapts itself more to the wants of vegetable life than to those of man; but there is extraordinary evidence that the presence of civilization and the labors and

¹⁴⁷ Perkins, *Las colonias de Santa Fe*, 31-32.

¹⁴⁸ Perkins, *Las colonias de Santa Fe*, 31.

¹⁴⁹ Perkins, *Las colonias de Santa Fe*, 32.

¹⁵⁰ Perkins, *Las colonias de Santa Fe*, 22.

changes that it produces, modifies the climate to such an extent as to banish or neutralize the elements which were obnoxious to the presence of the first settlers.¹⁵¹ In this optimistic vision, agricultural settlement would gradually alter the natural environment to a more conducive state. As we will see, the expansion of sedentary agricultural settlements in Santa Fe would certainly not lead to the eradication of locusts.

Table 4 Agricultural Colonies in Santa Fe, Entre Ríos and Córdoba, 1895¹⁵²

Province	Number of Colonies	Total Area of Colonies (Hectares)
Santa Fe	363	3,695,983
Entre Ríos	191	807,042
Córdoba	146	1,415,435

Between 1875 and 1888, the area under wheat cultivation jumped from about 115,000 to 815,000 hectares, and throughout this period, the province of Santa Fe was always in the lead. By 1895, about half of the nation’s wheat was being grown in Santa Fe. Maize production also increased in Santa Fe, although more so in Buenos Aires province. Agricultural colonies, mainly established in Córdoba, Entre Ríos, and Santa Fe—especially the latter—were a major contributor to this growth. In addition to the expansion of rail networks, the costs of transatlantic shipping dropped in the closing decades of the century.¹⁵³

Santa Fe’s wheat economy grew in the 1870s, but the main market for the province’s wheat remained the neighboring province, and especially the city, of Buenos Aires to the south. By the end of the decade however, Argentina as a nation had finally become a net exporter of wheat. One major impetus for this growth was the outbreak of the War of the

¹⁵¹ Perkins, *Las colonias de Santa Fe*, 22.

¹⁵² Comisión Directiva del Censo, *Segundo censo de la República Argentina, Mayo 10 de 1895*, Tomo I, *Territorio* (Buenos Aires: Taller Tipográfico de la Penitencia Nacional, 1898), 660.

¹⁵³ Gallo and Cortés Conde, *Historia argentina: La república conservadora*, 19-28.

Triple Alliance. The massive spike in demand for wheat driven by the need to supply troops, drove colonists at the three initial colonies to break off and established new colonies at Franck, Santa María, Humboldt, Las Tunas, and elsewhere.¹⁵⁴ Another major development was the completion of a rail line from Rosario to Córdoba in 1864, alongside which several new colonies were established. Railroads expanded in tandem with colonies, from just over one hundred kilometers in 1870 to over 3,200 km in 1894.¹⁵⁵

The growth of colonies slowed in the postwar decade, but in the 1880s, new colonies proliferated westward from Rosario and Santa Fe. From 1,600 hectares of wheat cultivation in 1865, the industry expanded to about a million by the end of the century. At the same time, the number of sheep drastically declined, marking a shift in the province's economic base. A confluence of factors, including railroads, immigration, and newly conquered land thus contributed to Santa Fe's emergence as a major agricultural producer, especially in wheat and maize.¹⁵⁶

Population growth drove the agricultural boom in Santa Fe (and vice versa): the province's population increased in absolute numbers and in proportion to other provinces, eventually overtaking Córdoba and Entre Ríos. The wheat-growing regions of Santa Fe grew the most, becoming the most densely populated area of the province by the end of the 1880s. Rosario, the province's major city, grew to about 90,000 people by 1895. By that year, the province of Santa Fe alone contained one million hectares devoted to wheat, over 250,000 hectares of linen, and about 185,000 hectares of maize.¹⁵⁷ Although agricultural colonies

¹⁵⁴ Martirén, *La transformación farmer*, 49, 70.

¹⁵⁵ Martirén, *La transformación farmer*, 51-52, 73; Scobie, *Revolution on the Pampas*, 49-51.

¹⁵⁶ Gallo, *La pampa gringa*, 51, 137

¹⁵⁷ Gallo, *La pampa gringa*, 207, 269-272, 287-288.

initially grew a diverse variety of crops, commercial monoculture became more dominant by the end of the century.

This boom was not a foregone conclusion; few observers at midcentury imagined that Santa Fe province would become a major agricultural producer. One reason was that although the cost of shipping produce to Europe was decreasing, few individuals at the time had the capital, technology and labor to make such a model profitable. The cost of labor was a major impediment; as early as 1864 William Perkins explicitly advocated immigration to bring down the cost of labor. Periodicals devoted to the agricultural sector like *La Semana Rural* advocated this approach as well. Moreover, although in theory land was plentiful, cross-frontier raids by Indigenous groups and the lack of transportation infrastructure limited the actual availability of arable land. Military campaigns of the 1880s and the spread of the railroad network were thus crucial components in making export agriculture possible. Beginning in 1876, the national government began taxing grain imports to protect the nation's nascent agricultural economy.¹⁵⁸

The last twenty years of the century saw a massive outpouring in scientific literature and experimentation on farming, produced by the government, by private authors, and by colonists themselves. Julio Djenderedjian has shown that agricultural colonies were crucial producers of technological knowledge in the second half of the nineteenth century. He has discussed the difficulties of understanding precisely the relationship between ordinary farmers and, for example, experiment stations and other more formal institutions of knowledge. Nevertheless, he emphasizes that farmers were important producers of knowledge through experimentation with different wheat varieties, even though their efforts

¹⁵⁸ Gallo, *La pampa gringa*, 215-218, 226-227.

left scant record in agricultural bulletins. This was no easy task, as he points to “the search carried out by tens, perhaps hundreds, of producers to finally achieve wheat seeds adapted for a great productive expansion, much earlier than the scientific experiments that began after 1900.” Sometimes, colonies would hold fairs that would include side-by-side comparative demonstrations of similar machines to test their effectiveness in different conditions.¹⁵⁹

Additionally, pamphlets, agricultural bulletins, and specialized periodicals began to circulate widely. Moreover, regular agricultural fairs demonstrated new technology. The Ministry of Agriculture, established in 1898, was a major publisher of such bulletins. Those who could not read were not necessarily cut out from this circulation; they learned through conversations. The Instituto Agronómico de Santa Catalina, established in 1887, was one of the first official agronomic stations in Argentina.¹⁶⁰ Anti-locust efforts would, in turn, spark further scientific research to secure agricultural prosperity.

As agriculture boomed, locust invasions became a more serious problem. A particularly devastating locust invasion of 1875 may have destroyed around 75% of the harvest in Santa Fe. Thus, in the years leading up to the establishment of the first anti-locust administration at the provincial level, locusts were becoming a major threat in Santa Fe, not just to agriculture but to the industries that this new economy stimulated.¹⁶¹ As early as 1877, Santa Fe’s Governor Servando Bayo told the provincial legislature in his May address that locusts were but one of a series of afflictions that the provincial agriculture was enduring. He also noted that locusts had been invading the province for the last four years. Locusts, along

¹⁵⁹ Djenderedjian, “Del arado criollo al granero del mundo,” 105, 123.

¹⁶⁰ Djenderedjian, “Del arado criollo al granero del mundo,” 123-124, 134-140.

¹⁶¹ Gallo, *La pampa gringa*, 327-335.

with hail, drought and other dangers, had destroyed up to a third of the last harvest.¹⁶² Bayo's early address, just as Santa Fe's agricultural economy was taking off, anticipated later proponents of anti-locust work by arguing that locusts were a problem that affected the population and economy in general, not just the farmers whose fields they devoured.

At colonia Cañada de Gómez in 1881, Judge of the Peace Cirilo Peralta wrote to the Inspector of Colonies regarding the "great prejudice in the colony and district" that the locusts posed. They were laying eggs throughout the colony that would become a problem when they emerged as *langosta saltona* in a few months. They had done their best to destroy them by digging them up from the dirt, but he warned that if other districts did not do their part, "the result will be that those [locusts] will come to cause us harm" that they sought to avoid. The inspector, in turn, wrote to the minister pointing out that not all districts within the department had anti-locust commissions as stipulated by provincial law, as was necessary for the campaign to be effective. If everyone did their part, "the destruction of the locust that was thought to be a utopia will become in short order a reality."¹⁶³ These concerns highlighted the fact that locust invasions were intractably a problem of collective interdependence; they did not stop at district, department or provincial lines, and certainly not at property lines. The fate of farmers, especially small farmers who could not absorb the losses, was bound up with the fate of their neighbors.

In his May 1891 address, provincial governor Juan Cafferata noted that up to three-quarters of the maize crop had been destroyed by locusts and drought, although the harvest,

¹⁶² "Mensaje del Gobernador Servando Bayo, 1887," *Historia de las instituciones de Santa Fe*, Tomo I, *Tercera Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Cámara de Diputados de la Provincia de Santa Fe, 2011), 45.

¹⁶³ AGPSF. Ministerio de Gobierno. Sección Gobierno. N.º Orden 47. Año 1881. Tomo N.º 103 [Cañada de Gómez. Juzgado de Paz solicita que en los distritos vecinos se adopten medidas para combatir la langosta].

he argued, was still substantial.¹⁶⁴ In an address two years later, Cafferata again noted the challenges posed by locusts, and praised the commission that he had appointed: they had quickly organized around four hundred local commissions spread across the province, employing about two thousand residents.¹⁶⁵ Santa Fe's collective anti-locust efforts would soon be transformed into a nation-wide effort.

Conclusion

Locusts had a long history as destroyers of crops and as food sources in the Río de la Plata. But across the colonial period and for most of the nineteenth century, they were mainly a threat to individual agriculturalists rather than the regional economy as a whole, which was based on commerce and, post-independence, cattle and sheep. The re-structuring of the economy and governing institutions in the late nineteenth century strengthened the national government, but provincial authority and autonomy were still crucial to the maintenance of order, even after the final defeat of federalism as a dominant ideology.

After 1862, the country was politically unified, and after 1880, Buenos Aires was the federal capital, separated from the province of the same name. The army and the estancias drew from a limited, mobile labor supply; controlling the rural workforce was of paramount economic and political importance from the time of Rosas onward. Armed uprisings had been defeated, but their memories lived on, and provincial governments defended their prerogatives in congress. The establishment of a nationwide anti-locust bureaucracy would consequently arouse a great deal of opposition from some provincial representatives in the

¹⁶⁴ "Mensaje del Gobernador Juan M. Cafferata, 1891," *Historia de las instituciones de Santa Fe*, Tomo I, *Tercera Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Cámara de Diputados de la Provincia de Santa Fe, 2011), 319.

¹⁶⁵ "Mensaje del Gobernador Juan M. Cafferata, 1893," *Historia de las instituciones de Santa Fe*, Tomo I, *Tercera Parte*, ed. Comisión Redactora de la Historia de las Instituciones de la Provincia de Santa Fe (Santa Fe: Cámara de Diputados de la Provincia de Santa Fe, 2011), 373-374, 380-381.

Congress, on the grounds that the constitution gave no power to the national government to engage in such an entomological conflict. Anti-locust work would also challenge the sanctity of free labor and private property, as people could be compelled to work by commissioners.

By the 1870s, Santa Fe had largely recovered from the turmoil of the post-independence years. Agricultural colonization, begun in the 1850s, was beginning to take off; the rural areas west of Santa Fe and Rosario became the center of Argentina's agricultural boom. Aided by growing railway networks and immigration, Argentina's agricultural exports became a mainstay of the national economy for the first time, although hides, beef, and wool remained important as well.

In Santa Fe, a series of political chiefs wielded power beneath the governor. The judges of the peace were the main authority at the local level. In small agricultural colonies, development commissions replaced the larger towns' municipalities. But as we have seen, the roles of development commissions were quite restricted. Initially, practically their only major duty was to maintain the roads in the communities. Later, their authorities were marginally expanded. As we will see, the establishment of an anti-locust network was in some ways dependent on these local authorities but also challenged them. In theory, at least in the early years, local anti-locust commissions were supposed to be administered by local authorities, not outsiders.

Chapter 2: Legislating Locusts

Introduction

The creation of a nationwide anti-locust program began in the 1890s in response to a major locust invasion. This legislation was fairly short and simply stated that the president had the authority and a budget to fight locusts. A revised law was passed in 1897, again in response to locust invasions that devastated farmers. This legislation was much more detailed, specifying the creation of a centralized hierarchy of commissions with the authority to compel both labor and property from private citizens and to act in the provinces independently of provincial authorities. Shortly after, in 1898, the legislature created the Ministry of Agriculture.¹⁶⁶ And in 1905, the legislature created Agricultural Defense, a branch of the Ministry of Agriculture. This new institution continued anti-locust efforts but expanded them to address other biological threats to Argentina's agro-pastoral economy, such as the white peach scale ("*Diaspis pentágona*," now also called *Pseudaulacaspis pentagona*, a small insect) and the vizcacha.¹⁶⁷

That this legislation emerged when it did was not just due to the depredations of the locusts but the fact that Argentina was in the midst of an agricultural boom. The port of Buenos Aires, once an entrepot for the export of silver, then jerked beef, hides, and wool, now sent maize and wheat to the world. What was previously only a threat to individual farmers, in a country where farming was a small-scale, subsistence-based activity, was now a threat to large commercial interests and, according to proponents of anti-locust legislation, to

¹⁶⁶ Adrián Gustavo Zarrilli, "Un cuestionamiento al derecho de propiedad. Estado, plagas y agricultura: El caso de la defensa agrícola (1890-1930)," *Revista de Historia del Derecho* 21 (1993), 225, 230.

¹⁶⁷ Comisión Central de Defensa Agrícola, *Memoria de la Comisión Central de Defensa Agrícola, correspondiente al ejercicio de 1907-1908* (Buenos Aires: Establecimiento Gráfico, M. Rodríguez Giles, 1908), 75-77; "Pseudocalipsis pentagona (PSEAPE)," EPPO Global Database, European and Mediterranean Plant Protection Organization, accessed 5 February 2025, <https://gd.eppo.int/taxon/PSEAPE>.

the national economy in general. It was especially important because the agricultural sector was seen as not just a major pillar of the economy, but one of the main sectors that was still thriving even in the wake of the economic crisis of the early 1890s.¹⁶⁸

Table 5 Area Cultivated with Wheat, Maize, and Linen by Province, 1895¹⁶⁹

Wheat		Maize		Linen	
Province	Hectares	Province	Hectares	Province	Hectares
Santa Fe	1,030,898	Buenos Aires	669,007	Santa Fe	266,606
Buenos Aires	367,446	Santa Fe	185,898	Buenos Aires	64,756
Córdoba	293,700	Córdoba	95,217	Córdoba	35,877
Entre Ríos	292,108	Entre Ríos	72,721	Entre Ríos	19,665
Salta	18,760	Corrientes	53,982	Corrientes	186
Santiago del Estero	11,781	Salta	36,537	Catamarca	56
San Juan	10,728	Santiago del Estero	31,825	Chaco	50
Catamarca	5,552	Tucumán	30,259	San Juan	27
Chubut	4,659	San Luis	15,029	La Rioja	19
La Rioja	4,058	La Rioja	12,278	Tucumán	19

¹⁶⁸ Hora, *The Landowners of the Argentine Pampas*, 70-74; Gallo and Cortés Conde, *Historia argentina: La república conservadora*, 4th ed. (Buenos Aires: Editorial Paidós, 1995), 99-100.

¹⁶⁹ Comisión Directiva del Censo, *Segundo censo de la República Argentina, Mayo 10 de 1895*, Tomo III, *Censos Complementarios* (Buenos Aires: Taller Tipográfico de la Penitencia Nacional, 1898), xlv.

Table 6 Area Cultivated with Wheat, Maize, and Linen in Argentina, 1872-1912 (Hectares)¹⁷⁰

Crops	1872	1888	1895	1912
Wheat	73,096	815,438	2,049,683	6,918,450
Maize	130,430	801,588	1,244,184	3,830,000
Linen	34	?	387,324	1,733,330

Nonetheless, anti-locust efforts and the later creation of Agricultural Defense were controversial in congress and in the broader public. Some critics argued that the national government lacked the authority to act on its own within the provinces; others argued that compelling labor and tools from private citizens was immoral or simply unconstitutional. They compared it to the brutal conscription of citizens to fight on the frontier or in the war against Paraguay. This was a cutting criticism, since such conscription had long been used as a means of controlling the rural population and cracking down on so-called “vagrants.” Supporters of anti-locust efforts, for their part, also compared the national anti-locust effort to an invasion in terms of its large scale and its requiring a nationwide, coordinated response. Not surprisingly, the military itself was also employed on occasion to fight locusts in interior provinces.

After the 1892 legislation, criticism was more likely to focus on methods and expenses. Congressional critics argued that the mechanical methods favored by Agricultural Defense were largely ineffective; they alternately suggested biological methods (finding an animal or fungus that attacked locusts) or further scientific research prior to any more spending. Others suggested that anti-locust work had to focus on finding the geographical origin of the locusts, the so-called “permanent zone.” Another major charge was that the

¹⁷⁰ Comisión Nacional, *Tercer Censo Nacional levantado el 1° de Junio de 1914*, Tomo X, *Valores mobiliarios y estadísticas diversas* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1917), 144.

program simply cost too much money; Agricultural Defense, they argued, had been operating for many years, but locusts were still a recurring problem and, at the same time, agricultural production was still increasing. One of the most persistent and serious criticisms, however, was that employees of the locust commissions, and later, Agricultural Defense, were corrupt. Stories abounded in the press of officials who extorted citizens or abused their position in some way.

Agricultural Defense, of course, had its supporters—after all, the program survived. Supporters conceded that the methods used were not ideal, and usually agreed that further research was needed to produce better methods, be they biological or chemical, or identifying the permanent zone. At the same time, they insisted that anti-locust efforts had made real progress and made a difference in the lives of ordinary farmers. They did not deny that there had been shortcomings and that some personnel had abused their authority, but they argued that such problems were common to every public institution, not just Agricultural Defense.

The Crises of 1891-1892

President Carlos Pellegrini told congress in 1891 that locusts were devastating the nation's agricultural provinces. He asked congress to pass a bill according to which "every farmer [*agricultor*] or rancher of the locality invaded by the locust" would have to contribute to anti-locust efforts.¹⁷¹ Pellegrini told the senate in his opening address that maize, a major contributor to the nation's agricultural exports, had been "almost destroyed" by droughts and

¹⁷¹ Cámara de Senadores, *Diario de sesiones de la Cámara de Senadores, Año 1891* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1892), 516.

locusts.¹⁷² Pellegrini's administration established a national anti-locust commission for the first time.¹⁷³

This first national law was fairly straightforward. It authorized the president "in agreement with [*de acuerdo con*"] the governments of the provinces" to organize anti-locust efforts. It also made it "obligatory for every farmer or rancher in a place invaded by locusts" to cooperate with authorities in those efforts.¹⁷⁴ The law was based on earlier provincial laws passed in Santa Fe, the province at the heart of Argentina's agricultural economy. In a decree of 10 November 1877 issued in Santa Fe during a locust invasion, the governor noted the urgency of the situation. Locusts threatened "the provincial wealth" and moreover, the damages "would keep away the immigration of hard-working men that so benefit the province" thus adding to the economic impact.¹⁷⁵ Concern about locusts scaring away prospective migrants was to be a common refrain in the coming decades. As we have seen, immigrants were a key factor enabling the agricultural boom in Argentina, and the provincial government of Santa Fe was keen to ensure that the province remained an attractive destination. This decree explicitly charged existing local officials with enforcing the law, naming "Judges of the Peace, Political subdelegates and district Commissioners" to carry out the organization and execution of anti-locust work as they saw fit. The relative effectiveness of recruiting provincial authorities versus establishing a professional bureaucracy was another long-term subject of discussion; in later years anti-locust programs would tend towards a separate, centralized bureaucracy. Also a common pattern in the future, the law

¹⁷² Senadores, *Sesiones, 1891*, 11.

¹⁷³ Miguel Ángel de Marco, "Pellegrini contra las langostas, 1891-1892" *Todo es Historia* 27 no. 311 (June 1993), 64-65.

¹⁷⁴ Senadores, *Sesiones, 1891*, 1111-1112.

¹⁷⁵ Santa Fe, *Registro Oficial de la Provincia de Santa Fe Tomo IX 1875 al año 1877* (Santa Fe: Tipográfico de la Revolución, 1890), 443.

called upon all “useful men” to participate, but offered exemptions for those who paid a fee. Those who did not contribute or pay to be exempted would be fined by the commissary, and the fees would be used to fund the anti-locust program.¹⁷⁶ The decree was confirmed by the provincial legislature in 1880.¹⁷⁷

A decade later Santa Fe issued new legislation as locusts again invaded the province. According to a decree of 22 October 1890, political chiefs would now appoint their own anti-locust officials within the “head locality” (“*localidad cabeza*”) of each department; and in “colonies or towns” (“*Colonias o Pueblos*”) such officials would be appointed by “the development commission or judges of the peace, these being considered public offices.” The law gave broad authority to these local officials, allowing them to choose what strategy or techniques to employ, as well as “the number of people that each family must contribute.” It also charged each official with helping out neighboring districts in case of need, including by sending laborers from one district to another. The leader of each district or colony commission was charged with sending lists of their staff, as well as reports on locusts in their jurisdiction, to the provincial department of agriculture.¹⁷⁸

Finally, in late August 1891, following the passage of the national anti-locust law, the provincial government in Santa Fe revisited its anti-locust legislation once more. The new law established a “Central Commission” (“*Comisión Central*”) in the provincial capital (also called Santa Fe), composed of Florentino Loza, Ignacio Crespo, Federigo Wagner, German Shenck, and Rodolfo Brühl. This provincial commission would coordinate with the national

¹⁷⁶ Santa Fe, *Registro Oficial de la Provincia de Santa Fe Tomo IX*, 443-444.

¹⁷⁷ Santa Fe, *Registro Oficial de la Provincia de Santa Fe Tomo X 1878 al año 1880* (Santa Fe: Tipográfico de la Revolución, 1890), 388.

¹⁷⁸ Santa Fe, *Registro Oficial de la Provincia de Santa Fe Tomo XVIII año 1890* (Santa Fe: Tipográfico y Encuadernación “Nueva Época,” 1892), 47-48.

anti-locust commission, and would work with the provincial government to establish sub-commissions. The sub-commissions in turn would cooperate with municipalities. A few days later, another decree named twelve departmental commissions; in all but one case, the head of the departmental commission was the political chief.¹⁷⁹

Locusts invaded various agricultural provinces again in 1892.¹⁸⁰ So Pellegrini supported a new bill: he noted that the previous year, Santa Fe and Buenos Aires had been saved by anti-locust work, but other provinces had been seriously affected. He warned that the present locust invasion was proceeding even in cold weather, and he expressed concern that they were adapting to the temperatures of the agricultural regions, which could make them a year-round problem. He cited as precedents laws from countries that had similarly been affected, as well as the *Novísima Recopilación*, a collection of laws published in 1805 when the country was still part of the Viceroyalty of the Río de la Plata. This law, he argued, obliged citizens not only to defend their own communities but those within three leagues distance; it was time to reinstate this commitment to collective security. The 1892 bill called for ordinary residents to inform authorities when they saw locust swarms and to use their own tools and livestock to help fight locust invasions; it called for the creation of a central commission and a network of regional commissions; and it allowed the president to call up the national guard if the president deemed it necessary.¹⁸¹

Deputy Indalecio Gómez of Salta, a supporter of the new legislation, warned that in the main agricultural provinces, much of the upcoming harvest was in danger.¹⁸² Interior

¹⁷⁹ Santa Fe, *Registro Oficial de la Provincia de Santa Fe Tomo XIX año 1891* (Santa Fe: Tipográfico y Encuadernación “Nueva Época,” 1892), 76-78.

¹⁸⁰ *La Prensa*, September 1891—May 1892.

¹⁸¹ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1892: Sesiones Ordinarias* (Buenos Aires: Empresa General Belgrano, 1892), 512-513.

¹⁸² Diputados, *Sesiones Ordinarias, 1892*, 525.

Minister José Zapata insisted that the law was necessary because the one passed in 1891 fell short by only mandating labor contributions from the agrarian sectors; he argued it was not fair that labor obligations targeted them alone because locusts threatened everyone, even if only indirectly.¹⁸³ This would be a major point of debate in anti-locust legislation: who benefited from the work? Large landowners or small-time *chacareros*? Just farmers? Or the nation as a whole?

Deputy Rufino Varela from the province of Buenos Aires, on the other hand, described the proposed legislation as “unconstitutional from start to finish.”¹⁸⁴ He argued that the proposed remedy was far worse than the disease:

We find ourselves in the presence of a bill that, under the pretext of fighting the locust—a truly destructive plague—tramples every institution we have: our system of government, division of power, rights of individuals, the inalienable rights bestowed upon man by the constitution, in the Republic of Argentina.¹⁸⁵

Varela acknowledged the danger that locusts posed but insisted that this program threatened individual liberty and thus was even more dangerous. The bill did not say how the labor would be paid for, or who would pay the participants if their tools broke or their livestock fell ill or died (in fact, the bill did not mandate any reimbursement).¹⁸⁶ More directly, he argued that forcing people to use their property in a specific task was unconstitutional theft.¹⁸⁷ Varela declared that the “bill is fundamentally unitarian, in a federalist nation.”¹⁸⁸

The use of seemingly outdated terms such as “unitarian” and “federalist” suggest that opposition to the newly centralized power of the national government still lingered (even

¹⁸³ Diputados, *Sesiones Ordinarias, 1892*, 823.

¹⁸⁴ Diputados, *Sesiones Ordinarias, 1892*, 811.

¹⁸⁵ “Nos hallamos en presencia de un proyecto de ley que, so pretexto de perseguir á la langosta,—plaga verdaderamente dañosa á los intereses públicos—atropella todo cuanto tenemos de de [sic] instituciones: nuestro sistema de gobierno; division de poderes; los derechos individuales, los inalienables derechos consagrados por la constitucion al hombre, en la República argentina.” Diputados, *Sesiones Ordinarias, 1892*, 817.

¹⁸⁶ Diputados, *Sesiones Ordinarias, 1892*, 819-820.

¹⁸⁷ Diputados, *Sesiones Ordinarias, 1892*, 848.

¹⁸⁸ Diputados, *Sesiones Ordinarias, 1892*, 811.

with the same national government); for others, the program was the natural extension of the political processes of the last century. Deputy José Olmedo of Córdoba likewise declared that the labor draft was unconstitutional “even in Russia!”¹⁸⁹ Even if every citizen were drafted into the anti-locust brigades, he declared, it would be in vain. The French sent “their entire colonial army” (“*todo el ejército residente en Africa*”) to fight locusts in Algeria and failed.¹⁹⁰ His comparison to French North Africa showed that legislators were keenly aware of locusts as a global pest and followed anti-locust efforts elsewhere.

In the end, opponents of the bill won out. The final law of 1892 stated only that the president had the authority to spend up to 500,000 pesos to fight locusts, an amount that would be allocated to provinces and territories “in the proportion corresponding to their necessities.”¹⁹¹

The Legislation of 1897 and 1898

Locust swarms returned to Argentina a few years later. In an article titled “National Calamity,” *La Prensa* declared, echoing a common response to the locust infestation, that Argentina needed a collective response as vigorous as that to an epidemic or a foreign invasion.¹⁹² Speaking before the Chamber of Deputies, Deputy Indalecio Gómez repeated the phrase from *La Prensa*, declaring the locusts “a national calamity,” and attributed rural poverty and instability to locust invasions. According to Gómez, the locust catastrophe told the prospective immigrant that “here crops are sown for locusts.”¹⁹³ The failure of the

¹⁸⁹ Diputados, *Sesiones Ordinarias, 1892*, 835.

¹⁹⁰ Diputados, *Sesiones Ordinarias, 1892*, 831.

¹⁹¹ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores período de 1892* (Buenos Aires: Compañía Sud Americana de Billetes de Banco, 1893), 641.

¹⁹² *La Prensa*, 12 February 1897, 3.

¹⁹³ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1897: Sesiones Ordinarias* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1897), 205-206.

previous provincial and national laws had shown that neither individuals nor provincial authorities commanded enough labor and resources to take on locusts.¹⁹⁴

Gómez told his colleagues that farmers were so overwhelmed that, having lived through one locust attack and seeing no remedy, they saw no point in expending effort in fending off future invasions. The provinces that did not have serious locust problems or major agricultural interests did nothing and contributed nothing, so locusts passed through, settled, and laid eggs in those provinces unmolested. Gómez introduced a detailed bill that he described as an improvement on the 1892 law which, he said, faced so much opposition that it became a dead letter. In his own bill, he rejected the use of soldiers, saying they were not trained or equipped for anti-locust work. On the other hand, he criticized the “obsession with liberty” (“*prurito de libertad*”) which drove some to oppose mandatory labor drafts; he argued that such efforts were justified by the constitutional provision of eminent domain (“*dominio eminente*”).¹⁹⁵

Like the original 1892 bill, Gómez’s bill called for a central commission to direct nationwide efforts. The central commission would disseminate printed information to the public, research and publish maps showing locust migration patterns, set pay-scales for laborers, and award cash prizes for innovative technology. The central commission would appoint commissions at the departmental level. Those commissions would set up local sub-commissions where necessary. Provincial governments were legally obliged to render assistance to any of these commissions if asked to do so. The proposal would also institute a labor draft for all adults in any area invaded by locusts. Each person would serve up to twenty days at a time, with at least one month separating each twenty-day period, for a

¹⁹⁴ Diputados, *Sesiones Ordinarias, 1897*, 206.

¹⁹⁵ Diputados, *Sesiones Ordinarias, 1897*, 206-207.

maximum of three times out of a year, with remuneration. This bill mandated the burning of fields in which locusts had laid eggs, although victims of this policy would be paid back.¹⁹⁶

As in 1892, the bill sparked fierce opposition in the chamber of deputies regarding its provision for coerced labor and control of property. Deputy Mariano Demaría, like Rufino Varela a representative of Buenos Aires province, declared that coerced labor was unconstitutional and compared it to the conscription of civilians to serve in the militias that guarded the frontier against raids from Indigenous people, a widely unpopular, but common, policy across the nineteenth century.¹⁹⁷ Deputy Santiago O'Farrell of Buenos Aires supported the bill, emphasizing the need for a coordinated program in which everyone contributed, regardless of whether locusts personally impacted them: "it helps nothing if a person exterminates the locust on their property, if their neighbor does not cooperate, nor can be obligated to do so."¹⁹⁸ O'Farrell pointed to the limitations of individual action when faced with a collective threat: those who contributed their labor could still be affected by locusts if others allowed locusts to pass by unhindered. Demaría countered that this was an unfounded concern, as the since anyone affected by locusts would see it in their self-interest to participate, but O'Farrell responded that he knew not everyone had actually done so.¹⁹⁹ Locusts easily crossed all borders of property, provinces, and nations, complicating the sanctity of private property and personal freedom.

Another legal issue the bill presented was the authorization of the central administration to work in provinces independently of provincial authorities. Deputy José Miguel Guastavino of Corrientes proposed the phrase "in agreement with the provincial

¹⁹⁶ Diputados, *Sesiones Ordinarias, 1897*, 208-213.

¹⁹⁷ Diputados, *Sesiones Ordinarias, 1897*, 223, 275.

¹⁹⁸ Diputados, *Sesiones Ordinarias, 1897*, 250.

¹⁹⁹ Diputados, *Sesiones Ordinarias, 1897*, 250-251.

authorities” when speaking of establishing provincial commissions.²⁰⁰ He declared that if the bill were passed, “the authority of provincial governments, even the local governments, would no longer stand; the very municipalities would completely disappear.”²⁰¹ The national government’s commissions, acting within provinces and, in theory, above provincial authorities, would render the provinces legally impotent. As we will see, anti-locust commissions did arouse resentment among local authorities.

Supporters of a national eradication program countered that Argentina was no longer a confederation of sovereign provinces: with the conquest of the desert, the growth of railroads and telegraph lines, and a booming economy, “the state that was called a confederation has become a new state, concentrically organized, vibrant, articulate, in a word, in this new and great nation, which is at once our pride, our hope, and our security.”²⁰² The Minister of Justice argued that the problem was not that one province was unable to eradicate locusts within its borders; the issue was that no province could carry out anti-locust work in neighboring provinces, and so it fell to the national government to coordinate all efforts.²⁰³

Demaría defended provincial sovereignty, and raised the specter that the law could lead to other assertions of authority: the law gave the national government license, “under the pretext of killing the locust, to interfere in the territory of the provinces to do as it wishes.”²⁰⁴ Like others, he thought that the law would deprive provinces of any real legal meaning, all power and laws emanating from the capital city.²⁰⁵ On the other side of the spectrum, Deputy

²⁰⁰ Diputados, *Sesiones Ordinarias, 1897*, 244.

²⁰¹ Ibid.

²⁰² Diputados, *Sesiones Ordinarias, 1897*, 207.

²⁰³ Diputados, *Sesiones Ordinarias, 1897*, 244-245.

²⁰⁴ Diputados, *Sesiones Ordinarias, 1897*, 247.

²⁰⁵ Diputados, *Sesiones Ordinarias, 1897*, 247.

Emilio Mitre of Buenos Aires declared that the proposal actually spread authority over too many bodies. He argued that the executive branch should appoint *all* commissions, rather than having each level appoint the members beneath it according to the current bill. He claimed that in Cyprus, the British authorities gave one engineer absolute powers, and eradicated locusts from the island in a few years.²⁰⁶ Locusts posed a challenge to provincial authority in an age when the national government was asserting ever more power, but provincial loyalties and identities were still strong.

When it finally passed, the 1897 law, unlike that passed in 1892, kept most of the controversial ideas from the proposed bill. It laid out a network of commissions operating at the local and provincial levels that answered to a central commission under the control of the president; it called upon all residents, including foreigners, to contribute paid labor to their local commissions, for up to twenty days at a time, when those commissions demanded it (except for government officials, the infirm, and railroad workers); it sanctioned the razing of fields in which locusts had lain eggs (with reimbursement); it authorized the president to call upon the regular army, but not the national guard, to fight locusts; and it established an office of entomology to study locusts.²⁰⁷ A further reform of 1898 strengthened the powers of the commissions, notably by allowing anti-locust officials to enter private property in the course of their duties.²⁰⁸

²⁰⁶ Diputados, *Sesiones Ordinarias, 1897*, 226.

²⁰⁷ Cámara de Senadores, *Diario de sesiones de la Cámara de Senadores, Período de 1897* (Buenos Aires: Imprenta del Boletín Oficial), 697-699.

²⁰⁸ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores período de 1898* (Buenos Aires: Imprenta del “Boletín Oficial”, 1898), 940-943.

The Creation of Agricultural Defense

In 1905 the national government decided to create a new institution within the Ministry of Agriculture that would deal with all biological entities deemed pests. In an address to the Senate, President Manuel Quintana drew a direct link between this new Commission for Agricultural Defense and the existing anti-locust apparatus: “With the offices and personnel used to fight locusts, the Executive Power has available a specially-qualified corps for the execution of any tasks necessary” for protection of crops and livestock, “without additional burden on the current budget and with the same resources destined” for the anti-locust fight.²⁰⁹ One of the proponents of the idea, Senator Salvador Macía of Entre Ríos, supported the idea, noting that locusts only struck every few years, and in the long interim the commissions dissolved, workers found other jobs, and institutional memory lapsed. The establishment of a Commission for Agricultural Defense would mean a standing institution to fight not only locusts, but diseases that damaged cotton, the rabbits that were overwhelming the pampas grasses, and other “plagues.”²¹⁰

The 1905 Senate debate on Agricultural Defense was less heated than the debates on locust commissions in previous years. Senator Bernardo de Irigoyen of Buenos Aires maintained that the power to prevent the entry of animals or plants into provinces and prevent their transfer between provinces lay with the respective provinces, not the executive. He insisted that the president’s power was limited to regulating the importation of plants and animals into national ports and national territories.²¹¹ His opposition led to no extended

²⁰⁹ Cámara de Senadores, *Diario de sesiones de la Cámara de Senadores, Año 1905: Sesiones Ordinarias* (Buenos Aires: Establecimiento Tipográfico “El Comercio,” 1906), 684.

²¹⁰ Senadores, *Sesiones Ordinarias, 1905*, 686-687.

²¹¹ Senadores, *Sesiones Ordinarias, 1905*, 689.

debate, however, and the law ultimately gave the president the power to regulate inter-provincial trade when pests might be introduced.

The new legislation made several other stipulations. Following the anti-locust law, it allowed Agricultural Defense commissions to force landowners (and tenants and occupants) to assist officials when carrying out duties on their property and to burn sown fields if they were infested with any biological entity declared a pest. It also extended the obligation to report sightings of locusts (now any pest) to the nearest authorities. Although it provided for compensation in the case of property destruction, such compensation would not be offered to those who failed to comply with anti-locust measures. Nor would compensation be offered to those whose fields were so infested by an agricultural plague that they were doomed anyways (although it did not specify who would be empowered to make such an assessment). The organized, collective labor and tools of legal compulsion pioneered by the anti-locust effort were thus expanded to eradicate or control other animals, plants or fungi that might harm agriculture, as the legislation made clear when it declared that the president would enforce the law “through the authorities charged with the destruction of the locust by law no. 3708” and that the “resources allocated to fulfilling Law No. 3708 will also be [allocated] to the present law.”²¹²

Concurrently, in March 1906 the Sociedad Rural Argentina began to plan for a congress to establish a permanent organization to study locusts. The Sociedad Rural had been established in 1866 as a kind of lobbying group or association for collective action,

²¹² Cámara de Senadores, “Leyes sancionadas en el período legislativo de 1905,” *Diario de sesiones de la Cámara de Senadores, Año 1905: Sesiones Extraordinarias* (Buenos Aires: Establecimiento Tipográfico “El Comercio,” 1906), cxxxv-cxxxvi.

representing the growing sector devoted to sheep raising.²¹³ Roy Hora has shown how they evolved from a small organization, somewhat unpopular even among their own constituency, to a political force in Argentina by the early twentieth century, although one that never had more than limited success on the national stage. The organization was also, he shows, a major supporter of attempts to use scientific research to improve and modernize Argentina's ranching sector.²¹⁴ Although they were in the main focused on ranching, the Sociedad Rural also concerned itself with agriculture and the problem of locusts. In April 1906 the Vice President of Rural Society of Argentina, Pedro Ezcurra, wrote to the Governor of Tucumán. He informed the governor that the Rural Society was about to convene a "National Conference on Agricultural Defense" in Buenos Aires, "under the auspices of the Minister of Agriculture" and requested that the governor appoint a representative from his province. The main purpose of the conference was to "decide...what are the most appropriate principles, and which are the most effective systems, that should be applied in the Republic of Argentina for the destruction of the locust."²¹⁵

An undated document following this note described the goals of the Rural Society in setting up this conference. The meeting, scheduled to open in mid-May 1906, would bring together representatives from Agricultural Defense, from all the provinces and territories of Argentina, from various provincial rural societies, from "each of the railroad companies," from "each of the municipalities or colonies that the Rural Society of Argentina determines, taking into account the regions that have been most invaded by the locust and whose interests are not already represented" as well as anyone else the Rural Society saw fit to attend. The

²¹³ Sabato, *Agrarian Capitalism and the World Market*, 27; Hora, *The Landowners of the Argentine Pampas*, 9-12.

²¹⁴ Hora, *The Landowners of the Argentine Pampas*, 19, 21, 226.

²¹⁵ AHPT. Sección Administrativa Tomo Cuarto, 310. Año 1906. Foja 235.

conference attendees would discuss, in addition to the best way of dealing with locusts, whether or not to establish a prize of a thousand pesos for the discovery of a “specific method” to kill locusts, and the importance of setting up an international meeting to coordinate regional policies.²¹⁶

The conference organizers announced that the congress would have representatives from “the provinces that the locust directly affects, that is, Buenos Aires, San Juan, San Luis, Mendoza, Córdoba, Entre Ríos, and Santa Fe.”²¹⁷ The next day, *La Nación* reported that representatives of agricultural interests from Buenos Aires province, Córdoba and Santa Fe had signed an open letter to generate public interest in the idea. The paper argued that in general it was a much-needed idea, “but it strikes one that the *sociedades rurales*, whose leadership commissions are the most ideal for understanding such an important question, are excluded from the provisional committee.”²¹⁸ Unfortunately the paper did not give a reason for this omission, and it is unclear what this could mean since the Sociedad Rural was one of the organizers; but, tentatively, I suspect that the article was referring to provincial rural societies, operating somewhat independently from the Sociedad Rural Argentina.

The Sociedad Rural Argentina planned their congress for 15 May 1906. They invited Minister of Agriculture Dr. Ramos Mexía to be the president of the congress, which he accepted.²¹⁹ Simultaneously, the Sociedad Rural Santafesina was preparing a report on their studies of the locust problem, which they planned to send to the congress.²²⁰ The day before the congress began, *La Nación* reported optimistically on the progress that had been made in

²¹⁶ AHPT. Sección Administrativa Tomo Cuarto, 310. Año 1906. Foja 236.

²¹⁷ *La Nación*, 21 March 1906, 7.

²¹⁸ *La Nación*, 22 March 1906, 6.

²¹⁹ *La Nación*, 2 May 1906, 5.

²²⁰ *La Nación*, 2 May 1906, 6.

organizing anti-locust efforts, characterizing the campaigns of 1898-1899 as chaotic, ineffective, and weak. Despite noting improvements, the paper criticized the current system for employing mostly people based on their political allegiance rather than their qualifications. It also noted that high turnover in anti-locust work was an ongoing problem and advised: “the economy [of means; that is, saving money] must consist in the suppression of favorites and of useless employees.” Money could also be saved, the paper noted, by storing anti-locust equipment indefinitely in the places where it was to be used, rather than returning it to central storage at the end of each campaign.²²¹

Given these concerns, one of the main purposes of the conference was the reorganization of the bureaucratic apparatus of anti-locust work. In Rosario, a writer for *La Nación* spoke “with various colonists of the departments neighboring [the department of] Rosario.” The colonists were in general optimistic and attributed their good harvests to the efforts of anti-locust commissions thus far. But, he wrote, they feared “that if [the agricultural congress] recommends and adopts other different systems, confusion prejudicial for agricultural production will result.”²²² The following day, however, the same journalist interviewed Cornelio Casablanca, the acting president of the Sociedad Rural Santafesina, who contradicted this assessment. The colonists, he informed the journalist, were mistaken in their belief that their own labor had saved their crops. Rather, it was merely good fortune that the wind changed direction, and had it been otherwise, none of their efforts would have saved them. Casablanca confirmed that “The creation of residential commissions [“comisiones vecinales”], formed by merchants, farmers and *hacendados* of the invaded districts, is of

²²¹ *La Nación*, 14 May 1906, 6.

²²² *La Nación*, 18 May 1906, 6.

course necessary, as, motivated in guarding their own interests, and along with them those of others, it will be a guarantee of zeal and hard work.”²²³

After about four days of discussion, the special commissions at the Agricultural Defense Congress issued their recommendations. They recommended against the idea of offering prizes for new inventions, but they did argue for reforming the current system: “We recognize that the present system of locust extinction, by exclusively official administration, is inefficient and should be eliminated... We consider a mixed system more efficient,”—more specifically, they explained, a system that combined centralized administration with a degree of independence for provincial commissions.²²⁴

At the congress, one of the attendees, Méndez Casariego, asked for clarification on what was meant by a “mixed system.” One attendee, Bouquet explained it as follows: “in a mixed system the best of all systems employed thus far is taken; the funds are drawn from the government, but administered by sectional commissions.” Carlos Frers defended “the efficiency of the present methods of destruction used against the locust.” Bouquet countered that the statistics Frers was using were suspect. Others also criticized the current system and then “began to discuss the autonomy of the sectional commissions.” Bouquet argued that “the autonomy is only in the means [*a los efectos*] of destruction,” and not, I suppose, a designation of total independence from oversight. In any event they approved the measure.²²⁵

According to *La Nación*, the new institution of Agricultural Defense (*Defensa Agrícola*) would be made up of a central commission, provincial commissions, and “local sub-commissions.” The Central Commission would be placed within the Ministry of

²²³ *La Nación*, 19 May 1906, 6.

²²⁴ *La Nación*, 20 May 1906, 8.

²²⁵ *La Nación*, 22 May 1906, 8.

Agriculture and would be obliged to send monthly expense reports. The Central Commission would also be empowered to fix the salary for “permanent employees and for those named in commission, that will lend their services as long as there are plagues to combat.” The central commission was empowered to offer bounties for locusts or employ the “direct killing by the means that the central commission finds convenient.” For whatever reason, the Ministry of Agriculture would also be suspending all the current “paid personnel” (“*personal rentado*”) and rehiring only those who have proved their worth “with their conduct.”²²⁶ Perhaps this was a house-cleaning effort in response to the persistent accusations of corruption against anti-locust employees (see Chapters 3 and 4).

The following day, on 6 June 1906, *La Nación* interviewed Minister of Agriculture Ramos Mexía. Mexía clarified that the Central Commission would be authorized to use the bounty system if and when it deemed appropriate; it would not be used everywhere. He also emphasized that previous employees of anti-locust commissions “that have made themselves worthy,” would be given first priority in the re-hiring process. Only those “that by their moral condition, are not worthy of occupying a national post,” would be replaced. When asked whether he was worried about these reforms failing, he, oddly, disclaimed responsibility. He said, according to the paper, “it would not be the fault of the ministry but rather that of the members of the agricultural conference that have advised and requested the remedies that the decree contains.” Ramos Mexía continued, adding that “the farmers demanded a direct intervention in the campaign against the locust. So if it results in failure, it will be the fault of those who took part in the conference of agricultural defense.”²²⁷

²²⁶ *La Nación*, 5 June 1906, 5.

²²⁷ *La Nación*, 6 June 1906, 9.

La Nación reported unfavorably on the changes adopted. The paper noted that the congress had decided on “the change of the centralized official system that is currently used. In exchange is proposed the establishment of autonomous sectional commissions with a central commission providing funds; obligatory killing [of locusts] and compensated by kilo of locust or eggs, according to an established price, and by the methods and procedures that the local commissions adopt.” The paper continued: “The reform responds, no doubt, to the complaints made by local residents against the national employees, for negligence or incompetence in the discharge of their duties.” However, the paper opined that these reforms were misguided and would fail. “To give to local commissions,” went the article, “leadership of the killing [of locusts] and to the central [commission] the administration of funds, would be to foment disorder and irresponsibility in execution.” The existing system, by contrast “can be resented for its deficiencies and even abuses, but in its favor is the fact of having confronted successfully the invasions, and this is enough not to condemn it completely.”²²⁸

The paper also cautioned that reintroducing the bounty system would be a waste. It referred to a report done by one Lahitte the previous year in which he described the onerous process, according to the paper (which apparently was quoting him verbatim): “These operations rob the workers of precious time that they invest in collecting and cleaning the locusts or eggs, so that they are not mixed with dirt and other things, bagging them, loading them in carts, transporting them to a place of reception, sometimes located at a great distance, unloading them to weigh, afterwards to transport them further to the place where they are buried or burned, unloading them again, and then waiting to receive their receipt and then be

²²⁸ *La Nación*, 23 May 1906, 7.

reimbursed.”²²⁹ Such a system, which might be thought to be meritocratic in terms of rewarding people according to their efforts, in fact was punitively long and tedious.

A further editorial from *La Nación* came from an anonymous writer who called himself “old farmer” (“*chacarero viejo*”). In what was probably a fictionalized or imagined dialogue, he related a scenario in which rural folk discussed the proposed changes in the organization of anti-locust efforts and the search for the permanent zone. The author opined that although politics was ostensibly an effort to serve the general good, in fact it was nothing more than “the art of ensuring that, except for appearances, the interest of the majority of producers is sacrificed to the narrow convenience of a minority, an influential guild, a small political group.” The “old farmer” feared that “the local commissions that are being instituted will inevitably [*por ingénita estrechez de criterio*] make vanish more money than locust.” One of the participants in the dialogue, referred to only as Simón, told his colleague, asked the reader to picture a man lying flat on his stomach on the ground, and instead of eyes he had only microscopes with which to see. Such a man would have quite a circumscribed point of view. Just so, the “residential commissions” would only act with narrow field of view. He predicted that their new government jobs would merely enable them to “take some personal gain” or give them an advantage in personal disputes.²³⁰

The next day, 7 June 1906, one writer argued in *La Nación* that the fight against locusts had to be reformed. “With the method of attacking the locust in the republic thus far,” he wrote, “due to deficiencies in the law and its regulations, one supposes the plague will continue to worsen for a long time if the direction [of the anti-locust efforts] is not changed.” Interestingly, he blamed Argentina’s system of landholding for exacerbating the problem:

²²⁹ *La Nación*, 6 June 1906, 9.

²³⁰ *La Nación*, 27 May 1906, 3-4.

turning ourselves to the distribution of land, in the system of agricultural colonization, and in the vast extensions that are encompassed by property dedicated to cattle, many of which are dozens of square leagues, and the small number of people that populate them, we will realize the exact magnitude of the enterprise. It is observed as well that the proprietors of lands dedicated to cattle, since the damages of the plague are of little account to them, are resistant to employ all necessary means of combatting them, apart from the fact that [such efforts] would be deficient given the small number of personnel that cattle establishments employ.²³¹

Ranching left large areas of land unpopulated, whereas a denser population could provide more labor to fight locusts; and the ranchers allowed locusts to lay eggs in their vast expanses because they would not suffer much damage from them in any case. Different modes of land use led to different incentives with respect to anti-locust work.

According to this writer, locusts had always lived in Argentina, but they were only recently a problem:

If before we were not as alarmed as we are now, it was because the damages were not as great as they are now. The colonization of the country was limited, as one could say that it only dated to 1856, the first agricultural colony being founded at Esperanza in Santa Fe, and at that time the farmers had to fight the plague of the locust, as the foundation of the colony coincided with one of the periods of invasion, which nearly caused the enterprise to fail.²³²

Drawing on what he claimed was his own extensive experience as witness to locust swarms and long study in Morocco and Algeria, he proposed that locusts came not only from the Chaco but from “the plains of Brazil in the upper reaches of the Paraná river.” He argued that in North Africa there was similar confusion about the geographic origins of locusts, with some pointing to the Sahara and others pointing further south to Lake Chad. The cause, he hypothesized, was that solar flares caused heavy rains, which in turn caused

²³¹ “fijándonos en la distribución de la tierra, en el sistema de colonización agrícola, y en las vastas extensiones que en sí encierran las propiedades dedicadas á la ganadería en que muchas se cuentan por decenas de leguas cuadradas, y el reducido número de personas que las pueblan, nos daremos cuenta exacta de la magnitud de la empresa. Se observa también que los propietarios de terrenos dedicados á la ganadería, como los daños de la plaga son poco estensos para ellos, se resisten á emplear todos los medios de combate que son requeridos aparte de que resultarían deficientes dado el poco personal que se emplea en los establecimientos ganaderos.” *La Nación*, 7 June 1906, 5-6.

²³² “Si antes no nos causaba la alarma que en la actualidad, era porque sus estragos no nos perjudicaban en la misma magnitud que hoy. La colonización en el país estaba limitada, pues puede decirse que data únicamente del año 1856, siendo la primera colonia agrícola que se fundó la Esperanza en Santa Fe, y entonces tuvieron que luchar sus agricultores con la plaga de la langosta, pues coincidió la fundación de dicha colonia con uno de los períodos de invasión, causa por la que estuvo á punto de fracasar la empresa.” *Ibid.*

flooding, and as the natural habitat of locusts was flooded out, they were driven to search out new territory. Eschina described positive results using flamethrowers: “Employed by a worker, [a flamethrower] can attack a plague even into the rockiest gorges, where other devices driven by animals cannot reach.” He also described a curious machine: “I also witnessed the testing of a portable machine similar to wheat harvesters, it forms a kind of elevated path which, placed at an angle to the zinc barriers, serves the same purpose as pits [“*substituye á los fosos*”], because as the locusts enter, they are elevated and ground up by the rolling pins.” The drawback to this machine was that it was noisy and thus scared the locusts.²³³

Anti-locust campaigns relied on the mobilization of vast numbers of people, willingly or unwillingly. Thus, the campaigns were bound up in questions of legitimate authority and gave rise to constant disputes, even and especially amongst the people that the campaigns were ostensibly meant to benefit. They also raised questions of what, precisely, constituted the common good or, put in contemporary terms, the national interest. Rafael Eschina proved prescient in drawing attention to the Chaco and to technological advances in locust destruction, as Argentines sought to find a more effective way to address the plagues of locusts.

The establishment of Agricultural Defense was one aspect of a broader trend towards a stronger, more centralized national government. In 1911 Deputy José Fonrouge of Buenos Aires Province elucidated the change that had occurred in perceptions of autonomy and national authority, and used this as an argument for a new census:

we see that the Congress has written laws to kill the locust, to destroy ants, to exterminate pests; in a word, all the enemies of the livestock and agricultural wealth of the Republic. This has also given rise to certain sentimental, misguided manifestations of *autonomismo*...doubtlessly, within the essence

²³³ Ibid.

[“índole”] of the Constitution if one wanted to interpret it with the rigidity of another era, who knows how an inspector that had gone to kill locusts or to destroy anteaters would have been received in the provinces. They would in no way have been permitted to commit such an attempt upon [provincial] autonomy. Meanwhile, today it appears the most natural thing...the same thing occurs with this issue related to representation.²³⁴

Accusations of infringement on provincial autonomy had largely lost their power since 1891, and the national effort against locusts was cast as a precedent for a new national census. Nonetheless, Deputy Fonrouge underestimated the degree to which anti-locust personnel were welcomed and accepted in the provinces. As we will see, the “inspectors” to which he referred were indeed often lambasted and attacked, in the provinces and in the capital.

Conclusion

From 1892 to 1905, the national government created a large, complex bureaucracy designed to mobilize and organize labor to fight locusts. Although the first law was short and bereft of details, the 1897 and 1898 laws created a centralized, hierarchical organization based in Buenos Aires with a series of provincial and local sub-commissions. These laws enumerated a series of powers for anti-locust commissioners to compel people to give their labor and property. In extreme cases, farmers could be obligated to destroy their own fields.

Anti-locust legislation faced opposition from various quarters on numerous grounds throughout this period. It was cast as an unconstitutional infringement on the authority of the provinces, and as a violation of personal liberty and property. Others argued that efforts would be better focused on scientific research to find a more effective remedy, or that all

²³⁴ “veremos que el Congreso ha dictado leyes hasta para matar la langosta, para destruir las hormigas, para exterminar las alimañas; en una palabra, todos los enemigos de la riqueza agrícola y ganadera de la República. Eso también ha dado lugar á ciertas manifestaciones sentimentalistas del autonomismo mal entendido... Indudablemente, dentro de la índole de la Constitución si se hubiera querido interpretar con la rigidez de otra época, quien sabe cómo habrán recibido en las provincias á un inspector que hubiera ido á matar langosta ó á destruir hormigueros. No le habrían permitido de ninguna manera cometer semejante atentado á la autonomía. Mientras tanto, hoy parece la cosa más natural.” Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1911 Tomo III Sesiones de Prórroga* (Buenos Aires: «El Comercio», Imprenta y Encuadernación, 1912), 120.

efforts would be wasted until the permanent zone could be located. Others did not pretend to know an effective way of fighting locusts but argued that the anti-locust efforts had been proven to be more costly than the locusts themselves. Numerous congressional deputies and senators accused anti-locust employees of being corrupt; this accusation persisted beyond the establishment of Agricultural Defense in 1905. Anti-locust officials were accused alternately of extorting farmers, or of simply drawing a salary for not doing anything.

Defenders of the new institution insisted that it had had a positive impact on agriculture regardless of shortcomings. They pointed out that although it was tremendously expensive in the early years, anti-locust efforts had steadily decreased in expense over time. Nevertheless, by the early twentieth century, Agricultural Defense was firmly established within the Ministry of Agriculture. It was tasked not just with fighting locusts but with protecting Argentina's agricultural and pastoral sectors from any pests or pathogens that might threaten them.

Chapter 3: Buried, Crushed, and Burned: The Work of Killing Locusts

Introduction

For several decades, anti-locust work focused on corralling large numbers of people to participate in labor-intensive tasks such as collecting locusts from trees and crops; crushing them underfoot, with cattle, or rollers; shoveling them into ditches, or burying them. Some workers used flamethrowers, and eventually anti-locust officials began to experiment with chemical sprays.²³⁵ In many cases, commissions offered bounties by the kilogram for locusts and locust eggs. This would be a source of controversy, as accusations arose of people filling bags with dirt in order to earn more money, and some critics argued that even without such corruption, paying a bounty was a huge expense for the treasury.²³⁶ In this chapter, I argue that anti-locust efforts became embroiled in local politics and their reception (cooperation or resistance) depended on highly specific local circumstances—there was never a uniformly positive or critical response to anti-locust work. Some observers castigated anti-locust efforts as hopelessly insufficient; others insisted that the problem was that some residents were shirking their duties.

In the first section, I give an overview of the early campaigns in Santa Fe and at the national level. These early campaigns were rather quickly planned and executed in response to locust invasions. Florentino Loza, in his report on the invasion of 1891-1892, noted persistent difficulties in gaining the support and cooperation of various constituents, whether

²³⁵ Junta Administradora Autónoma de Lucha contra la Langosta, *Memoria y balance general de la Junta Administradora Autónoma de Lucha contra la Langosta en la provincia de Entre Ríos* (Paraná, Entre Ríos: n.p., n.d.), 53; Carlos Lizer y Trelles, *La lucha moderna contra la langosta en el país* (Buenos Aires: Academia Nacional de Agronomía y Veterinaria, 1940), 32.

²³⁶ *La Nación*, 5 November 1905, 7.

hiring peons or getting help from railroad companies. In the next section I discuss complaints of laziness, corruption, or incompetence leveled at anti-locust commissions in various provinces. In the third section I discuss the process of recruiting or conscripting labor—local people and soldiers, but also women and children and in at least one case, Chilean workers—and the opposition such efforts generated. Several different groups participated in anti-locust work at different times: the commissions and the people who were conscripted, but also various public officials and, occasionally, some units in the army contributed their labor. In the final section I focus on local accounts of anti-locust efforts in Santa Fe and, to a lesser extent, Córdoba and Tucumán. I examine the complaints that local development commissions and anti-locust commissions lodged against each other and the reasons for these disputes.

The Anti-Locust Campaigns of 1891-1906

Florentino Loza became the head of the Santa Fe commission for the destruction of locusts in 1891, along with Rodolfo Brühl, German Shenk, and Ignacio Crespo. The head of the national locust commission was Nicasio Oroño, who was at the time the Director of Land and Colonies.²³⁷ Within a couple of weeks they managed to set up sub-commissions throughout the province, eventually reaching four hundred commissions with a total of two thousand employees.²³⁸ In his 1892 report, Loza praised the assistance of the press to the anti-locust cause and singled out the *Nueva Época* in particular.²³⁹ Dissemination of knowledge to the general public, including new laws, methods of fighting locusts, and information about locust migrations, was key to anti-locust efforts.

²³⁷ Florentino Loza, *Memoria de los trabajos realizados contra la langosta* (Santa Fe, Argentina: Tip. y Enc. Nueva Época, 1892), 4-5.

²³⁸ Loza, *Memoria*, 25.

²³⁹ Loza, *Memoria*, 6.

He noted that he and his colleagues had expected community members to be uninterested or actively opposed to their efforts but were surprised to find a great deal of support instead. This he attributed to a sense of common interest that was especially strong in “agricultural peoples” such as that of Argentina. By contrast, the cities of the region, including Santa Fe and Rosario, had *not* been cooperative, according to Loza.²⁴⁰ As we shall see, not everyone shared his positive assessment of the cooperation of the agricultural community in locust extermination. He also thanked the telegraph and railroad companies (often one and the same) for their assistance.²⁴¹ He did, however, specifically one English-owned railroad for their refusal to cooperate. At one point, after the railroad refused to transport bags of locust eggs unless the commission paid the fees, Loza admitted that he simply had to leave the rotting bags at the train station.²⁴² Coordinating with private entities like railroads was crucial to the success of anti-locust campaigns, for transporting personnel, equipment, and information. In general, though, Loza believed that most governing officials understood the importance of agriculture for Argentina’s national prosperity.²⁴³ In many cases railroads were more than willing to help, offering discounted fares for employees of anti-locust commissions, and in some instances railroads provided their own employees to fight locusts.²⁴⁴

The head inspector of schools started an educational initiative on locusts. School children even participated in the work of killing locusts, making “a fun game out of a chore” if Loza is to be believed. These unpaid laborers managed to collect 53,700 kg of locust

²⁴⁰ Loza, *Memoria*, 7.

²⁴¹ Loza, *Memoria*, 11.

²⁴² Loza, *Memoria*, 20-21.

²⁴³ Loza, *Memoria*, 16.

²⁴⁴ Loza, *Memoria*, 11-12.

eggs.²⁴⁵ Anti-locust efforts concerned children both as a potential auxiliary work force and as future citizens to be educated in the necessity of exterminating locusts to protect agriculture. Religious figures and ceremonies also played a role. In late September as many as six thousand people gathered in the streets of the provincial capital, “carrying in procession the image of the Nativity” to the main plaza of the city. Some evidently took advantage of credulous and perhaps desperate people, by selling them “scapularies and holy cards” to ward off the locusts.²⁴⁶ President Carlos Pellegrini himself visited the afflicted colonies of Santa Fe. He tried to go in disguise, but throngs of people greeted him at the train stations anyways. The people of the town, including its large immigrant communities, threw a two-day welcome for the president.²⁴⁷

While in Santa Fe, President Carlos Pellegrini wrote to his acting president, Dr. Nougés, in Buenos Aires. He recalled fondly his trip through the grain-producing regions of the United States, when he traveled from Chicago to St. Louis, and how he had wondered when Argentina would reach that stage. That time, he wrote, had now come, and Santa Fe was now a major grain producer with the requisite rail and telegraph infrastructure. The founding colonies had expanded into industrial pursuits. He lauded the efforts of the people of Santa Fe, and especially the efforts of Loza. He had instructed the railroads to create their own squads (“*cuadrillas*”) to dig pits in which to bury the langosta saltona. Thankfully, he noted, a certain species of fly was also a natural predator of the locusts. Despite everything, he wrote, the farmers were optimistic and expected an abundant harvest.²⁴⁸

²⁴⁵ Loza, *Memoria*, 8-9.

²⁴⁶ Loza, *Memoria*, 13, 15.

²⁴⁷ Loza, *Memoria*, 42.

²⁴⁸ Loza, *Memoria*, 48-50.

By December, locusts had spread across twenty-five million square meters in and around the capital. Even so, the sub-commission had trouble hiring peons to kill the invaders. The difficulty of finding volunteers might seem surprising, but the challenge of coordinating a collective action, the immediate benefits of which might be hard to see for the average worker even in rural areas, was a persistent challenge in anti-locust campaigns. The sub-commission eventually rounded up a small group of twenty-one workers, but they quickly gave up from exhaustion. So Loza and a couple colleagues round up a group of children as young as eleven years old, and with two “Sicaire machines” they had gathered fifteen tons of langosta saltona. Loza emphasized that material for combating locusts (and, for that matter, cholera and yellow fever) had to be supplied in advance so it could be deployed immediately upon the arrival of the threat, rather than waiting until a locust invasion to request material.²⁴⁹ Loza’s comparison to fighting pathogens that affected humans suggests suggested that locusts were often cast as a national disease that had to be cured.

According to Loza, at first they received relatively little guidance from the Central Commission. In fact, he complained, the Central Commission had merely forwarded some literature from the Sociedad Rural Argentina that went so far as to say that killing locusts “while they were in the stage of *voladora*” was a hopeless endeavor, a stance that Loza opposed.²⁵⁰ So they sought out the guidance of one Alvear Guerra, and they also reviewed laws on the subject dating to the colonial period. One early measure they took was to ban the hunting of animals that naturally fed on locusts.²⁵¹ The reliance on a variety of natural predators would be promoted or criticized several times over the following decades. In late

²⁴⁹ Loza, *Memoria*, 13-14, 17.

²⁵⁰ Loza, *Memoria*, 24.

²⁵¹ Loza, *Memoria*, 23-24.

March 1906, *La Nación* reported that Dr. Lahille had gone on a tour of Mendoza, Santa Fe, and Salta to study a worm that infected and killed locusts, carrying with him cages to take samples. The paper reported that he would be helped by local employees of Agricultural Defense.²⁵² In Catamarca, the locusts were reportedly being devastated by the worm.²⁵³

Ultimately, attempts to use natural predators were generally unsuccessful. As *La Nación* reported of such an attempt by Kunkel d'Herculais, his ingenious scheme to use a kind of fungi to fight locusts was a failure and extermination efforts returned to “the least scientific method in the world, which is to say, with sticks [*palos*].”²⁵⁴ When natural predators did destroy large quantities of locusts, it was more providential than intended, as when seagulls devoured locusts at a place called Venado Tuerto, or when a species of worm infected locusts in Córdoba in early 1906.²⁵⁵ It could also backfire: *La Nación* reported that in Santa Fe’s colonia Matilde, not even “the trade in chicken eggs that previously was important in these colonies can be done now, because these birds, feeding voraciously on the saltona, transmit to the eggs an ugly, bloody color and a nauseous and repulsive odor.”²⁵⁶ Even though chickens might be considered a biological weapon against locusts, consuming them drastically reduced their marketability.

Carlos Frers, the head of Agricultural Defense, wrote an editorial in *La Nación* in April 1906 in which he argued that all efforts at biological control of locusts had failed, and for a simple reason: “The area of geographic dispersion of the enemies of locusts is always limited; that of the migrating locusts is enormous,” and this disparity posed a challenge to

²⁵² *La Nación*, 27 March 1906, 7.

²⁵³ *La Nación*, 27 March 1906, 8.

²⁵⁴ *La Nación*, 6 February 1906, 4.

²⁵⁵ *La Nación*, 21 January 1906, 11; *La Nación*, 13 February 1906, 4.

²⁵⁶ *La Nación*, 19 December 1905, 4.

proposed biological methods of fighting locusts. Additionally, such predators often posed their own problems. Regarding the flies that attacked locusts, for example, Frers noted that when they matured, they often attacked warm-blooded animals, including humans, and thus were a potential disease vector. Fungi, aside from being only effective in their localized habitat, could also end up devastating the bee and silkworm populations. He ended with an interesting conclusion:

To abandon the locust to its natural enemies, hopeful of propagation that Mother Nature impedes, would be a dereliction, removing one of the supporting points of equilibrium, and would be equally as dangerous as surrendering the entire national production to the locust. This is the reason for which we must continue destroying the locust by mechanical means classified as ‘extremely primitive,’ but which are excellent for the aims that correspond to men, to maintain natural equilibrium.²⁵⁷

La Nación reported that in Entre Ríos “the general opinion is favorable to mechanical measures to destroy the locust.” The paper wrote that there remained “the memory of the repulsive farce that was done here [in Entre Ríos] in 1899 with the experiments practiced on the *saltona* with the Cape fungus.”²⁵⁸

A week later, a farmer from Tucumán wrote in to *La Nación* to question Frers’ conclusions. This man blamed boys (“*muchachos*”) with slingshots for hunting birds that ate locusts. The slingshots were especially deadly because unlike, for example, shotguns, the slingshots were silent. These young men were especially egregious because they hunted only for sport, not for sustenance or commerce. The man concluded, “it would be well to recommend to school masters that they make some intervention in the matter.”²⁵⁹

²⁵⁷ “Abandonar la langosta á sus enemigos naturales, esperanzados en propagaciones que la madre Naturaleza impide, importaría una deserción, quitando uno de los puntos de apoyo del equilibrio y equivaldría á entregar al acridio para su consumo toda la producción nacional. He ahí la razón por qué debemos seguir destruyendo la langosta por los medios mecánicos clasificados de «hartos primitivos», pero que son excelentes á los fines del concurso que al hombre le corresponde, para mantener el equilibrio de la naturaleza.” *La Nación*, 9 April 1906, 4.

²⁵⁸ *La Nación*, 11 April 1906, 7.

²⁵⁹ *La Nación*, 16 April 1906, 8.

Loza's 1892 report included a set of instructions for how to kill locusts at different stages of their development. In general, trampling them, driving them into ditches and burying them, or burning the trees on which they settled, were the preferred methods.²⁶⁰ These rather low-tech methods would remain standard practice until the advent of widespread insecticide use in the 1940s. Physical, manual destruction remained the main tool; the key was to organize labor to make such destruction efficient. Loza also went personally with Oroño to two colonies near the town of Recreo to see the locusts in person. There, they found a large ombú tree covered in locusts; but they quickly discovered that it was relatively easy to kill them in the early morning and evening.²⁶¹ Across anti-locust campaigns, the morning and evening hours were always the focus of the efforts of the commissions, as this was when adult locusts were more or less immobile. The Santa Fe commission offered rewards for new inventions to kill locusts. Unfortunately, the incentive had relatively little impact, and Loza claimed that would-be inventors spent much more on their contraptions than the commission paid out in prizes.²⁶²

A major problem that Loza saw was the inefficiency of the central commission. This, he argued, was a problem intrinsic to all voluntary organizations whose rules and obligations were not spelled out in law. In the six months after the founding of the commission in 1891, it only met five times, and only one member besides Loza attended every meeting. Loza accused two members, Leiva and Brühl, of trying to undermine him.²⁶³ Another organizational problem that Loza pointed out was the placement of the anti-locust commission under the Department of Agriculture. The secretary of that department, Domingo

²⁶⁰ Loza, *Memoria*, 57-60.

²⁶¹ Loza, *Memoria*, 24-25.

²⁶² Loza, *Memoria*, 21-23, 25.

²⁶³ Loza, *Memoria*, 27-29.

Abásolo, was too busy and overburdened with other tasks to devote enough attention to the work of the commission, which Loza saw as absolutely necessary. As a result, Abásolo resigned within a month.²⁶⁴ Many commissions did not keep a close record of how much money they spent or how many kilograms of locusts they collected, so he had ordered the central commission and all sub-commissions to send him detailed reports of their efforts and progress.²⁶⁵ Nevertheless, Loza applauded the spirit of the workers who did their best despite the meager wages they were paid. In one instance, workers at a colony even donated their wages to the completion of the local church tower.²⁶⁶

The magazine *Caras y Caretas*, whose satirical cartoons will be discussed in the next chapter, also called for a more organized anti-locust corps. An 1899 article in the popular periodical called for the formation of a highly-disciplined cadre to fight locusts, that would be trained with

exercises to fight the locust, with as much or more effort as that which is dedicated to form troops for the difficult combat between humans, more and more peaceful, despite the barbaric reversions that over in old Europe move one of the most cultured nations to sustain by pure voracity a double war of conquest.²⁶⁷

Several years later, *Caras y Caretas* did indeed wax poetic about the chief of Agricultural Defense, Carlos Frers. A full-page drawing showed Frers, face towards the viewer, wiping the blood from a sword as a large locust lay at his feet. In a nod to classical tradition, the caption dubbed Frers “the Herod of the locust.”²⁶⁸ The rather graphic, yet comical,

²⁶⁴ Loza, *Memoria*, 30.

²⁶⁵ Loza, *Memoria*, 32-33, 35.

²⁶⁶ Loza, *Memoria*, 31-32.

²⁶⁷ “ejercicios para combatir á la langosta, con tanto ó más ahinco que el que se dedica á formar tropas para problemáticos combates entre la humana especie, cada vez más pacífica, mal que pese á las reversiones bárbaras que allá por la vieja Europa mueven á una de las naciones más cultas á sostener por pura voracidad una doble guerra de conquista.” “Para la destrucción de la langosta,” *Caras y Caretas*, 2 December 1899, 30.

²⁶⁸ “Caricaturas Contemporáneas,” *Caras y Caretas*, 20 January 1906, 51.

illustration is a playful take on the common depiction of anti-locust work as comparable to a ruthless military campaign, requiring persistence, planning, and coordination.

Despite Loza's enthusiastic optimism about the program, Loza described scenes of animosity and open resistance. In late September 1891, he noted, the judge of the peace in the town of Cavour reported that "the colonists completely refused to comply with the laws that oblige them to leave their homes to kill the locust, [and] that the commissions named for that purpose, share the same idea and refuse to comply with the dispositions of the central commission." The fact that the local anti-locust commission itself refused to carry out its own mission highlighted the challenges of mobilizing coerced collective action. The judge was too scared to do anything, so Loza had to come personally to restore order, though he did not clarify in his report how he accomplished this.²⁶⁹ In another town the inhabitants likewise refused to comply with the new measures, but the judge was able to restore order by himself.²⁷⁰ In early October, Loza received word that people of Carmén del Sauce were in a state of insurrection ("sublevando contra la autoridad").²⁷¹

In Santo Tomé, the local judge of the peace reported that "the employees of the English Railroad Company absolutely refused to cooperate," citing the provisions of the national law that required only farmers and ranchers to cooperate. Loza successfully used a provincial law to resolve the impasse, but again he did not explain how he managed this.²⁷² Shortly after that incident, he received an urgent message about another protest in the colony of Guadalupe. In this case, the protesters were in fact participating in the anti-locust efforts.

²⁶⁹ Loza, *Memoria*, 36.

²⁷⁰ Loza, *Memoria*, 36.

²⁷¹ Loza, *Memoria*, 37.

²⁷² Loza, *Memoria*, 37.

What made them angry were the remainder of the population and their refusal to help.²⁷³

Thus the degree of local cooperation with anti-locust commissions varied from place to place. Local people, locust commissions, and judges of the peace sometimes cooperated and sometimes clashed depending on their perceived interests. Despite these incidents, Loza emphasized that in most cases local populations were happy to help in the anti-locust efforts.²⁷⁴ Moreover, the harvests of 1891 were quite bountiful in Santa Fe, so much so that the railroads found themselves out of capacity, and crop prices fell.²⁷⁵

Loza recorded several personal feuds. In addition to his accusations against Leiva and Bruhl, he accused the head of the central commission and the head of the Santa Fe branch of the national bank of obstructing execution of the orders of the president himself, thus preventing Loza's commission from receiving its funding. Loza complained that he had to spend three weeks merely reassuring colonists that the help that was promised them would in fact arrive. He also traveled in person to Buenos Aires to meet with President Pellegrini and Santa Fe governor Juan M. Cafferata. Another attendee of the meeting, Nicolás Oroño, promised Loza help and support but then, according to Loza, did not follow through on his commitment. Only after much effort was he finally able to secure funding for his commission at the end of October. Only the support of the local populace allowed him to make any progress before that.²⁷⁶

He declared that the central commission would never be effective as long as it was “an accessory part attached to other purposes of greater importance,” in other words, a

²⁷³ Loza, *Memoria*, 38.

²⁷⁴ Loza, *Memoria*, 39.

²⁷⁵ Loza, *Memoria*, 39-40.

²⁷⁶ Loza, *Memoria*, 41.

dependent part of another department or ministry.²⁷⁷ He insisted that the national commission should be independent and should have wide-ranging powers for its mandate. He lauded Nicasio Oroño and Julio Victorica, the heads of the national central commission, for their long record of public service, but said they were too burdened with other duties. It wasn't just the leadership; the rank-and-file members of the agricultural department, the immigration department, and the department of land and colonies, all had enough to do already without worrying about locusts.²⁷⁸ An independent organization would be able to devote all its time and resources to the locust problem.

Loza bemoaned the difficulties of getting the network of commissions to function cooperatively. Delays in the work of district commissions caused delays all the way up the chain. To help remedy this, Loza insisted that all commissions and sub-commissions send him regular reports of their progress. As of his writing, he noted that most had complied with this request, and praised the local “jefes politicos” for their cooperation. He suggested that the province of Santa Fe should be divided into three regions, with each one being assigned “a traveling inspector” to supervise the efforts.²⁷⁹

The report concluded with a list of the membership of all the province's commissions, organized by department. Aside from the city of Santa Fe and its environs, there were departmental commissions in Rosario, San Lorenzo, and Reconquista, with each department overseeing smaller commissions for towns and colonies. Departmental commissions were generally run by the local political chiefs (they were identified as such, as “Gefe Político” on the list itself), so the locust commissions were embedded into the functions of local

²⁷⁷ Loza, *Memoria*, 43.

²⁷⁸ Loza, *Memoria*, 43-45.

²⁷⁹ Loza, *Memoria*, 46-48.

government.²⁸⁰ Thus the various attempts to centralize anti-locust efforts frequently clashed with the realities of local politics and power struggles. Loza's report cast light on other major issues that would remain relevant: the importance of coordination with private rail companies, the need for labor, and the constant negotiations with local interests and stakeholders.

Although the legislation of 1892, in theory, affected the entire nation, anti-locust efforts became truly national in scope with the revised legislation of 1897. In a letter written in October 1897 by José Francisco Acosta, the head of the Central Commission, to the Minister of Justice, Luis Beláustegui, Acosta wrote that across Córdoba, Entre Ríos, and Santa Fe provinces, and the Chaco Territory, the newly established commissions collected 18.6 million kilograms of locusts and 30,000 kilograms of eggs.²⁸¹ He reported on the utility of the *carcaraña*, a scooping device that could be dragged along the ground by draft animals to collect locusts (see Fig. 2).²⁸² This letter was re-printed in an 1899 report by the Central Commission for the Destruction of Locusts that described the early actions and history of the anti-locust commissions. The report noted that over 1,500 district commissions were soon established under thirty-five provincial commissions, employing a total of about 8,000 people.²⁸³

The 1899 report detailed the work done by commissions to gain the cooperation and support of the railroads. A major step taken was a January 1898 meeting of the Central Commission with several major railroad executives. They reached an agreement whereby

²⁸⁰ Loza, *Memoria*, 60-69.

²⁸¹ Comisión Central de Extinción de Langosta, *Memoria de los trabajos realizados durante el 1.er ejercicio con un informe especial de la inspección general, 1897-1898* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1899), 67.

²⁸² Comisión Central, *Memoria...1897-1898*, 64.

²⁸³ Comisión Central, *Memoria...1897-1898*, 19.

railroads would give free transportation of all telegrams and other correspondence between the commissions, give discounted fare to equipment and people involved in anti-locust work as well as free fare for members of the central commission, and send daily reports on locust sightings by railroad personnel.²⁸⁴

The report also praised the work of the army, noting that twenty-one battalions had participated, and were given equal rank to district commissions. Although the report does not specify what kind of labor the army carried out, it is safe to assume that the methods of fighting locusts did not change radically whether the laborer was a civilian or a soldier. In Acosta's letter, he noted that using the army would not only save money, but it would also be more effective in sparsely populated areas.²⁸⁵ This was important because the responsibility for fighting locusts generally fell on those in the vicinity; thus, locusts could fly vast distances unmolested until they came to a relatively densely populated area. The army and the railroad companies would continue to play a role in future campaigns, and would be a focal point of popular dissatisfaction with the campaigns as well.

The 1899 report by the Central Commission also included the initial instructions sent out by the Central Commission to the provincial commissions in September 1897, which delineated the duties of the latter. The provincial commissions would oversee establishing the district sub-commissions and appointing their members. They would also establish procedures for tracking the locusts and warning districts of their approach. They would direct the district commissions in delineating areas in which locusts had laid their eggs; they were also empowered to offer a bounty of not more than 12 centavos per kilogram of eggs to encourage citizens to collect eggs on their own. The focus would be on destroying the eggs

²⁸⁴ Comisión Central, *Memoria...1897-1898*, 32-33.

²⁸⁵ Comisión Central, *Memoria...1897-1898*, 34-35, 65.

and the young larvae, before they reached the *saltona* stage, the stage prior to reaching adulthood.²⁸⁶

The instructions of 1897 included a description of different ways to kill locusts. Overall, it emphasized, it was best to kill them as early as possible, but the specific methods employed depended on the circumstances, especially the age of the locust. For destroying eggs, the basic method of plowing the land, and thus burying the locusts, was effective, but the eggs had to be buried under at least fifteen centimeters of soil so that, once hatched, the larva could not make it to the surface. The report also discussed the method of digging up the eggs and exposing them to sunlight for a few days but cautioned that this method was quite expensive and labor-intensive, and not always effective. Eggs could be collected by hand, but this was also less effective than plowing, and more expensive (for the government paying the bounties).²⁸⁷

The report concluded its instructions with advice on fighting the *saltona*, the adolescent stage that lasted about forty to fifty days from birth, and the *voladora*, or adult locust. Especially in the later days of the *saltona* stage, the locusts became extremely voracious. The *saltona* could be plowed, crushed, set on fire, or collected by hand for later interment. One of the most effective methods was to drag a metal barrier across a field with ditches on either side, so that the locusts were forced into the ditches. Zinc and tin were ideal because they were lightweight; some farmers had taken metal from their own sheds to construct the barriers. The new generation of locusts, once it reached adulthood, could stay one week before emigrating, or much longer. The report instructed farmers that scaring them

²⁸⁶ Comisión Central, *Memoria...1897-1898*, 69-71.

²⁸⁷ Comisión Central, *Memoria...1897-1898*, 82-91.

off with noise or with bonfires containing a small amount of sulfur was an effective defensive measure.²⁸⁸

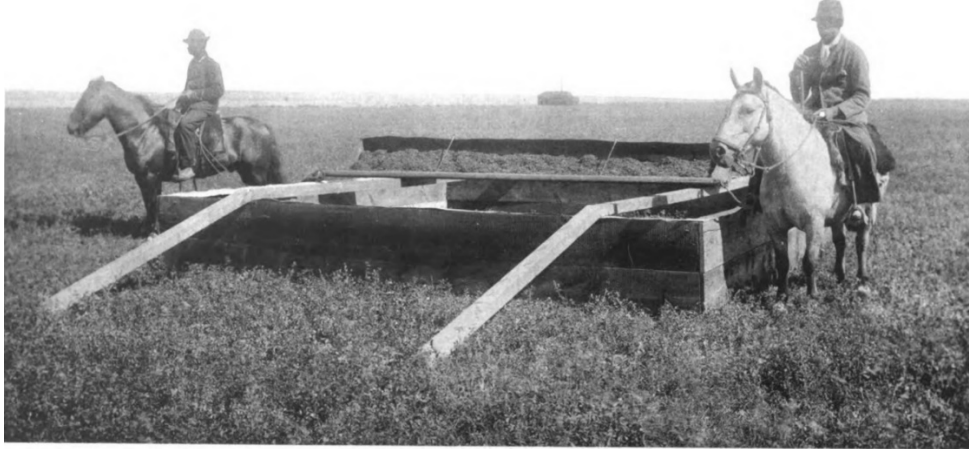


Figure 2 Using the “carcaraña” to collect locusts. From Comisión para la Destrucción de la Langosta. Informe de la Comisión para la destrucción de la langosta, 2a circunscripción, Rosario: J. Ferrazini y Cía., 1897.

Local Commissions, Local Opposition

The creation of a national anti-locust apparatus involved, fundamentally, the assertion of the authority of the national government over both provincial and local powerholders. This did not, of course, mean that all such authorities willingly cooperated in anti-locust efforts. To the contrary, this effort created the conditions for innumerable conflicts, accusations of corruption, and stubborn resistance.

Many people were uninterested in doing anti-locust work, and, as the 1899 report noted, people of means could simply pay the fee to be exempted. This resulted in the possibility (the report did not say if it had actually happened) that a wealthy farmer whose property had been invaded by locusts could pay the fee to exempt himself from labor, while the local locust commission would demand labor of neighboring residents who, not being

²⁸⁸ Comisión Central, *Memoria...1897-1898*, 93-95, 97, 101.

able to pay their way out, would clear the farmer's fields for him.²⁸⁹ *La Prensa* reported that anti-locust commissions were intruding on the lives of farmers, and that local commissions charged with enforcing labor contributions often had ties, including "commercial relations," to the communities for which they were responsible.²⁹⁰ This represents a departure from criticisms that anti-locust officials were outsiders oppressing local people; here, the very fact that anti-locust efforts had to rely on local authorities represented a weakness.

In another article, *La Prensa* reported an "uprising" of people in Córdoba, outraged that the local sub-inspector was fining people out of a "personal vendetta."²⁹¹ A 1905 article in *La Nación* reported that residents in the provinces of Santa Fe and Córdoba who were fined for not participating did not deny that they had refused to work; they were upset because they already had to work long hours to save what the locusts had not eaten and didn't want to spend long hours on other people's land, much less money to pay fines.²⁹² Not everyone viewed anti-locust commissions with such frustration; farmers in Rosario expressed hope that the government would continue anti-locust efforts even though their harvest this year was secure because they feared the effects of locust swarms in coming years.²⁹³

Nor were the leading classes of rural society always interested in lending a hand to the work. In Rosario, Santa Fe, *La Nación* reported, the large landowners who had already harvested their wheat and linen "cross their arms leaving those who risk losing their maize fields to fight the locust on their own account, with help from the commissions of extinction" as best they could.²⁹⁴ The Sociedad Rural Santafesina called for landowners to be held

²⁸⁹ Comisión Central, *Memoria...1897-1898*, 8.

²⁹⁰ *La Prensa*, 3 February 1899, 6; *La Prensa*, 5 March 1899, 5.

²⁹¹ *La Prensa*, 5 February 1900, 4.

²⁹² *La Nación*, 3 February 1905, 5.

²⁹³ *La Nación*, 11 February 1905, 6.

²⁹⁴ *La Nación*, 5 January 1906, 6.

responsible for damage caused by locusts that they allowed to grow on their property, but practically speaking this would not be easy to enforce.²⁹⁵ As *La Nación* pointed out, locusts were much more of a threat to small farmers than large ones, and could destroy the livelihood of the former.²⁹⁶ In Entre Ríos the same indifference was reported among “some large landowners [“*algunos latifundistas*”] that have, as always, ignored the law of [locust] extinction.”²⁹⁷ The agriculture minister criticized the Liga Agraria and the large landowners it represented, for their indolence. suggesting “the convenience of arousing interest in participation by large landowners and hacendados in combatting the *mosquito* and *saltona* locusts as effectively as possible on their properties,” since those were both the easiest stages to deal with and potentially the most dangerous for agriculture.”²⁹⁸

The national government noted popular anger at anti-locust officials. A 1908 report by the Commission for Agricultural Defense noted that local commissions faced public ire; coerced labor was, unsurprisingly, a popular source of grievance. In other cases, some residents declined to fight locusts even on their own land—challenging the perception that self-interest was the best motivator—and raised armed opposition when the local commission tried to do so.²⁹⁹ The authors of the 1908 report described this reaction as stemming from “that regional *caudillismo* which has remained as a residue of past epochs and which has been such a hindrance to the development of national wealth.”³⁰⁰ They thus explicitly connected local opposition to an early age in Argentina’s history, in which *caudillos* and their followers responded with violence to attempts by Buenos Aires to impose its authority.

²⁹⁵ *La Nación*, 10 January 1906, 9.

²⁹⁶ *La Nación*, 10 January 1906, 6.

²⁹⁷ *La Nación*, 8 January 1906, 7.

²⁹⁸ *La Vanguardia*, 22 September 1905, 1.

²⁹⁹ Comisión Central, *Memoria...1907-1908*, 12-14.

³⁰⁰ Comisión Central, *Memoria...1907-1908*, 14.

The authors of the report argued that agricultural defense would have to mitigate and/ or supersede these regional identities and ties. Locusts represented a challenge to the national government, as did provincial caudillismo, so a national anti-locust administration became a way to assert authority over the provinces and command the loyalty and obedience of the population.

The report also discussed other problems with specific anti-locust commissions. In Salta province, the head of one local commission was often absent from his job. An investigation by the Central Commission concluded that this commission existed only on paper; other locations reported similar problems. The Commission of Agricultural Defense emphasized the importance of winning support by educating the public about the dangers of locusts and the benefits of participating in anti-locust efforts. They thus suggested that the alleged indifference of many people, even rural communities, stemmed from ignorance.³⁰¹

As part of an outreach and education effort, the Agricultural Defense Commission also began publishing a monthly bulletin they sent to the provinces. They also sent the bulletins to Europe to assure prospective immigrants that Argentina was making progress in its fight against locusts and that it was an attractive destination. They developed a primer (“*cartilla*”) for use in elementary schools, as part of their educational program so that school children would learn about locusts (and the benefits of Agricultural Defense) from a young age. The report noted that “it is necessary to prepare new generations, educate them and inculcate in them the great duty that they have to defend the wealth of the nation from a devastating plague.”³⁰² These efforts highlighted public education as a way of increasing public awareness of and support for agricultural defense over the long term.

³⁰¹ Comisión Central, *Memoria...1907-1908*, 15-17, 20-21.

³⁰² Comisión Central, *Memoria...1907-1908*, 39-41.

The relations between the local population, the anti-locust commissions, and the military varied from place to place. The correspondents of *La Nación* disparaged the local commission employees in Mendoza province: “The employees of the commission of extinction installed here do nothing, nor do they travel to the invaded areas to direct the work of destruction of the locust, which lays its eggs in peace across extensive zones without being bothered.”³⁰³ At Curuzú-Cuatiá, in Corrientes, *La Nación* flatly declared: “Little or nothing has been felt from the the actions of the personnel of locust extinction, perhaps because it is in the hands of police [empleados policiales] who disregard even their actual duties.”³⁰⁴ This frank criticism of police forces reveals the broader mistrust of authority that was sometimes associated with critiques of anti-locust efforts.

By contrast, in Paraná, the capital of Entre Ríos province, the same paper reported “the most perfect harmony between the troops [sent to fight locusts] and the employees of the commission.”³⁰⁵ In that province, commissary Juan B. Achiary had at his disposal twenty commission employees, four hundred soldiers, and the “commissaries of rural police” to carry out his work, which was quite successful in protecting the fields.³⁰⁶ In Salta, locust work took priority over other important tasks. Soldiers who were employed in the construction of Fort Belgrano were diverted to locust work. In Santa Fe, linen growers sent their workers to fight locusts despite being in the midst of the harvest.³⁰⁷

As the 1905-1906 campaign wore on, even those who participated in the fight were tiring. *La Nación* reported in early 1906 that in Entre Ríos, “the residents now fight the locust

³⁰³ *La Nación*, 7 November 1905, 7.

³⁰⁴ *La Nación*, 19 January 1906, 9.

³⁰⁵ *La Nación*, 7 November 1905, 7.

³⁰⁶ *La Nación*, 14 November 1905, 8.

³⁰⁷ *La Nación*, 13 November 1905, 4.

but little, tired of three and a half months of struggle and having little to save, as the drought has little by little done away with the alfalfa and maize fields.”³⁰⁸ Even those who worked hard, whether willingly or not, could be driven to resignation and indifference by the seemingly interminable waves of locusts. In Tucumán, just as residents imagined they had exterminated the pest, their lands were “newly invaded by the swarms of locust that emerge from the forests.”³⁰⁹ This new invasion was most likely from the second generation, those that had been born during the outgoing migration. In Jujuy, the locust problem was so severe that farmers had despaired of planting for fear that their efforts would be in vain. “In other years at this time,” *La Nación* reported of that province, “the fields were in their apogee.” Now, the fields were largely barren.³¹⁰

As the spring of 1905 advanced, the commissions were running short on supplies. In a place called Victórica, in the territory of Pampa Central (now La Pampa province), farmers, lacking any other supplies, resorted to burning fields that had been infested by locusts.³¹¹ *La Nación* reported that the policy of the anti-locust commissions had previously been to distribute metal barriers to whoever requested them, free of charge. Now, however, they only distributed them to small farmers who could not afford to purchase them directly, and for work on public roads. Wealthier farmers were obliged to pay for them (and could not simply do without them, per the law).³¹² In Bella Vista, Corrientes, residents lacked supplies to participate in exterminating locusts, so the work was stalled. In Lehman, Córdoba, *La Nación* reported fears that they would lose up to 50% of the crop to locusts.³¹³

³⁰⁸ *La Nación*, 10 February 1906, 4.

³⁰⁹ *La Nación*, 15 February 1906, 8.

³¹⁰ *La Nación*, 17 December 1905, 8.

³¹¹ *La Nación*, 14 November 1905, 7-8.

³¹² *La Nación*, 17 November 1905, 4.

³¹³ *La Nación*, 20 November 1905, 4.

There was little to be done, however, because the main coercive measure available was the fine provided for by law, but “those who are fined protest, publishing in the papers, and since some are pardoned, others take this as an excuse [“*cobran alientos*”] to cross their arms, letting themselves be fined only to pull strings [“*mover influencias*”] and not pay, abandoning those who plant maize to their fate.”³¹⁴ Those with means, it appears, could pay the fines or use connections to avoid paying them, either way doing nothing to fight locusts. When they did contribute, they often demanded the government grant them supplies: “It is unfortunate,” wrote *La Nación*, “that the large landowners and farmers should be the most demanding in requests,” for supplies from the central depot at Rosario, even as that depot ran increasingly short of material.³¹⁵

The laws themselves, and the obligations they imposed on different parties, were the subject of some confusion. At a place called Aguadita, *La Nación* criticized the local commission for going too far, saying that they were demanding that landowners not just destroy locusts on their land but prevent them from invading their neighbor’s land, which was not possible in practice.³¹⁶ *La Nación* reported that some inhabitants of San José de Feliciano in Entre Ríos “have written us a letter asking what obligation owners or renters of invaded lands have, and what [is the obligation of] the commission employees.”³¹⁷ Finally, despite the heavy reliance on the cooperation of the private sector, not all companies were willing to help, and this was more difficult to legally compel. *La Nación* reported that the central anti-locust commission “has sent a complaint to the ministry of agriculture against the

³¹⁴ *La Nación*, 13 January 1906, 7.

³¹⁵ *La Nación*, 14 January 1906, 9.

³¹⁶ *La Nación*, 16 January 1906, 9.

³¹⁷ *La Nación*, 19 November 1905, 9.

navigation company of Mihanovich, which according to the complaint, has refused to transport material to fight the locust.”³¹⁸

The local commissioner in Matilde complained that the head of the development commission, one Eusebio Cassini, refused to carry out orders to plow the roads. According to the complaint, if he wanted the roads plowed, “let the bishop come to plow them!” The authors of the article professed ignorance as to the meaning of the joke. The article appeared sympathetic to the locust commissions, and expressed dismay that their work was being impeded. The paper also chided the government for only just now reacting to the locust invasion. This critique, repeated over and over during locust invasions, pointed to the need to be prepared in advance of any locust invasion.³¹⁹ Cassini, for his part, may have been hesitant to destroy the roads because, as other colonies in Santa Fe had pointed out, this impeded harvests themselves and slowed transportation of the harvest to the train stations.

Destroying locusts posed a unique challenge to public health. In Paraná, concerns spread that locusts could infect the water supply and the health inspector asked for cooperation from the locust commissioner Juan B. Achiary.³²⁰ Fortunately, a few days later *La Nación* reported that efforts to prevent water contamination were successful.³²¹ It was not only living locusts that posed a problem. In Rosario, *La Nación* reported a recommendation that the government

call the attention of the health council and the development commissions regarding the serious danger, with the strong heat of the season, posed by the miasmas given off by great quantities of locusts killed by the commissions of extinction, left to the elements. It is recommended that the locusts accumulated in ditches and wells be burned.³²²

³¹⁸ *La Nación*, 19 November 1905, 9.

³¹⁹ *La Nación*, 8 November 1905, 7.

³²⁰ *La Nación*, 6 December 1905, 8.

³²¹ *La Nación*, 9 December 1905, 4.

³²² “se insinúa la conveniencia de que el gobierno interese la atención del consejo de higiene y de las comisiones de fomento sobre el serio peligro que con los fuertes calores de la estación ofrecen para la salud pública los miasmas despedidos por grandes cantidades de langosta muerta por las comisiones encargadas de su extinción y

In Chumbicha, Catamarca province, *La Nación* reported that dead locusts, “and large quantities of residues that fall into the river [arroyo] convert the drinking water, which is not filtered, into a public health threat. There are no employees of agricultural defense to fight these invasions.”³²³ Even the success of an anti-locust campaign could present its own problems in the form of ditches full of rotting locusts in hot weather.

Observers alternated between cautious optimism and pessimism; it seemed difficult to accurately predict the damages the locust would inflict or the degree of success that anti-locust commissions enjoyed. Sr. Lahitte lead the charge from Rosario, and he was optimistic that the maize crop could be saved just as the wheat crop was saved. By mid-December, the locust commissions finally began distributing zinc barriers to affected areas. They had had to buy up all the zinc they could find in major cities like Montevideo and Buenos Aires. In fields that had been cleared of trees and shrubs, there were no draft animals to do the planting because they were all being employed against locusts. *La Nación* reported starkly that the current invasion was one of the largest yet seen in Argentina.³²⁴ And yet, the very next day, the same paper reported optimistically that “the results will be better than what was feared months ago from the immense swarms of locusts that came down from the north and the extreme frosts in the south.”³²⁵

Frustration coexisted with optimism. In Rafaela, one anti-locust inspector reported that while he was confident that anti-locust efforts would be successful, the local population and the development commission were not contributing at all to the work being done by his

dejadas á la intemperie. Se indica la conveniencia de que la langosta acumulada en zanjas y pozos sea quemada.” *La Nación*, 13 December 1905, 8.

³²³ *La Nación*, 20 March 1906, 9.

³²⁴ *La Nación*, 19 December 1905, 4.

³²⁵ *La Nación*, 20 December 1905, 6.

locust extinction commission.³²⁶ Reporting from Entre Ríos *La Nación* wrote that most of the maize crop that had been planted early had already been harvested, but much of the maize planted later had been destroyed by locusts. The locust attacks in that province were exacerbated by a drought. Citing a government statistics report, the paper declared that the combination of locusts and drought had destroyed about five-sixths of what would have been the total maize production.³²⁷ The paper reported similar devastation at Chañar Ladeado in Santa Fe, where the maize harvest would have been twice as productive were it not for locusts.³²⁸

Some observers were rather ambivalent about how serious the locust threat really was. In December 1905, a journalist for *La Nación* interviewed “a strong foreign merchant” regarding the locusts. The businessman said that the harm caused by locusts had been exaggerated. He said the foreign press in North America had cried doom unnecessarily, and that the crops of maize, wheat and linen were thriving. He added, however, that the personnel enlisted to fight locusts were not always well-qualified. The same journalist interviewed the Minister of Agriculture Torino at the train station in Rosario. The journalist reported that Torino was happy with the work of the locust commissions, “but the same is not true respecting the colonists, *hacendados*, and other people that, according to him, show themselves reticent to comply with the law, to such a point that in Rafaela, where the invasion is enormous, only a single colonist has cooperated with the efforts of the personnel of extinction and the troops, which he praises.” He continued, according to the article, saying that “many wealthy farmers, that benefit greatly from the harvest, are the ones that most

³²⁶ *La Nación*, 21 December 1905, 4.

³²⁷ *La Nación*, 24 March 1906, 5.

³²⁸ *La Nación*, 29 March 1906, 3.

complain, requesting barriers,” from the government rather than purchasing them with their own funds. As for ranchers, he said, “they do nothing to persecute the locust, letting them advance to the cultivated zones.” Ranchers were perhaps less self-interested in fighting locusts than wheat farmers, but even the farmers, he claimed, wanted succor from the government when they should have been willing to bear some of the costs themselves.³²⁹

Frustration simmered in Argentina’s northwestern provinces as well. *La Nación* reported a pessimistic outlook for Jujuy; the head of the Sociedad Rural in that province had requested more funds to deal with the locusts and had been turned down. This did not bode well for, according to the paper,

it is notorious that the sub-commissions of these regions obtain no practical benefit insofar as they lack the necessary funds and with only purely theoretical dispositions, they can do nothing effective. It is inexplicable that, with so many millions allotted for the extermination of the locust, this province is denied [*se mezquine*] the resources it requests.³³⁰

The same paper reported that the employees of anti-locust commissions in Jujuy, “find themselves unpaid for quite some time, and do not have the funds to pay for the most pressing needs of life.”³³¹ In Salta, residents were reportedly unhappy with the current system of anti-locust work, “the process of paying squads, as was done before, is considered much better, rather than paying luxurious salaries to many useless employees.”³³² In San Juan province, *La Nación* recommended that it would be “convenient that the personnel that are named [to the commissions] be from this same region, so that the campaign should have greater success.”³³³ Although the paper did not give a reason for this assertion, it seems

³²⁹ *La Nación*, 23 December 1905, 6.

³³⁰ “es notorio que las sub-comisiones destinadas á estas regiones, ningún beneficio práctico obtienen por cuanto tampoco ellas disponen de los fondos necesario y con puras disposiciones teóricas nada eficaz puede hacerse. Es inexplicable el hecho de que habiéndose destinado tantos millones con el objeto de exterminar el acridio, se mezquine á esta provincia los recursos que solicita.” *La Nación*, 21 December 1905, 4.

³³¹ *La Nación*, 4 April 1906, 6.

³³² *La Nación*, 27 December 1905, 3.

³³³ *La Nación*, 25 December 1905, 8.

likely that locust commissioners were viewed as outsiders or interlopers when they were sent in from other provinces.

In Córdoba in early 1906, *La Nación* reported that the “losses in some fields have been caused by the proprietors, that have not wanted to combat the *voladora* with the necessary efficiency, because the fields invaded were for [local] consumption and of little importance.”³³⁴ But in general, according to the paper, anti-locust work had been effective in Córdoba. At San Juan de la Esquina, for example, locusts had not done much damage, “due to the well-organized works for destruction, the official squad having impeded the advance of the huge swarms from the province of Córdoba.”³³⁵ Elsewhere in Córdoba, officials estimated that, “a million pesos in the vineyards of Caroya station, province of Córdoba, have been saved from the locust, and two million kilos of maize from station Tirolesa.”³³⁶

In an article titled “The Duties towards the Community,” *La Nación* lauded the successes of the anti-locust campaign but lamented the lack of communal spirit. The agricultural colonists, the paper decried, maintained “the false notion that it is incumbent upon the national government, and not on themselves, to guard their own interests.” This was part of a broader societal problem, or rather two “defects” in particular: the tendency to rely on the government for everything, and the inability to see beyond one’s narrow individual interest. These two problems prevented Argentina from becoming a “great people” (“gran pueblo”). These problems were indeed the basic underlying problem of collective action that had plagued anti-locust efforts from the beginning. The article further added that this applied not only to the problem of locusts but that of “the abuses of arbitrary and irresponsible

³³⁴ *La Nación*, 10 February 1906, 4.

³³⁵ *La Nación*, 8 February 1906, 4.

³³⁶ *La Nación*, 5 February 1906, 2.

government.”³³⁷ The failure of collective action against locusts was part of a larger lack of collective spirit in the national community.

Commissions and Vecinos, Soldiers and Peones: Recruiting Workers

Although the techniques used for fighting locusts—plowing, crushing, gathering by hand, burning, warding off with smoke—remained the same over the next few years, anti-locust officials expended a great deal of effort in recruiting and organizing the labor needed to perform these tasks. One successful innovation was the transportation of laborers from one region to another. During the 1905 locust invasion, *La Nación* reported that the commissions had decided to start hiring workers for locust work and that if they could not find any willing in the “interior,” then “the commission would hire peons in the provinces of the north and would transport them to the places attacked by the locust.”³³⁸ In response to labor shortages in several key provinces, the locust commissions decided to recruit fifty workers from Santiago del Estero, though *La Nación* did not report where they were sent.³³⁹ The Commission for Agricultural Defense moved about eight hundred laborers from La Rioja and Catamarca to the littoral provinces of Córdoba, Entre Ríos and Santa Fe. The latter provinces were in harvest season, and thus had a shortage of labor. Even with the threat of locusts, if it was harvest season, the anti-locust commissions were competing with landlords. The transfer of manpower was a big accomplishment because, according to the commission, the peasantry

of the interior of the republic generally resist leaving their native soil, above all when their destination is unknown. The love of the homeland and the lack of confidence in the promises that are made to them are two causes that hold them back with incontrovertible force. They prefer misery, with all its inconveniences, before risking the vagaries of an unknown future or the uncertainties of a precarious life.³⁴⁰

³³⁷ *La Nación*, 27 December 1905, 5.

³³⁸ *La Nación*, 26 November 1905, 9.

³³⁹ *La Nación*, 3 December 1905, 5.

³⁴⁰ “Las peonadas del interior de la república resisten generalmente á salir del suelo nativo, sobre todo cuando el punto de su destino les es desconocido. El amor al terruño y la falta de confianza en las promesas que se les hace, son dos causas que las retienen con fuerza incontrastable. Prefieren la miseria, con todo su cortejo de

The commission argued that rural folk, specifically those from the “interior” had a close attachment to their locales and were skeptical of outsiders and central authority, so much so that they would prefer poverty rather than look toward a better future. The commission strongly implied that this attitude had to be changed, both to succeed in the struggle against locusts and to modernize Argentina. The effort to literally uproot peasants, to imbue them with an attachment to the nation rather than to their hometown, was thus a crucial part of anti-locust efforts.

The commission also optimistically predicted that the alumni of this program would spread the word about the good pay that the program carried back to their home provinces. In the future, they wrote, such labor deputations should be organized in advance so they would be ready when locusts attacked. These labor teams were more than short-term band-aids; they were a mechanism of social reform as well. “A civilizing work of brotherhood will be achieved,” the commission wrote, “which will extend a common benefit, at the same time as an exchange is established which is necessary to stimulate in peoples that within our own frontiers maintain themselves in isolation and misery.”³⁴¹ Here again, the commission emphasized that their work would have ancillary effects beyond and perhaps more important than protecting crops from the locust: their work would contribute to integrating the disparate peoples of the Argentine nation.

This perspective was a fairly rosy-eyed prediction of the way that people might respond to such a program. Although armed uprisings were largely a thing of the past by this

inconvenientes, antes de correr los albuces de un porvenir obscuro ó las eventualidades de una vida incierta.” Comisión Central de Defensa Agrícola, *Memoria de la Comisión Central de Defensa Agrícola, correspondiente al ejercicio de 1907-1908* (Buenos Aires: Establecimiento Gráfico, M. Rodríguez Giles, 1908), 23-24.

³⁴¹ “Se realiza de este modo una tarea civilizadora, de confraternidad y de provecho y se extiende un beneficio común, al mismo tiempo que se establece un intercambio que es necesario estimular con pueblos que dentro de nuestras propias fronteras se mantienen en el aislamiento y la miseria.” Comisión Central, *Memoria...1907-1908*, 25.

time, it was not so long ago that country was torn between two rival factions, the Unitarians, largely coming from the elite, especially from Buenos Aires, and the Federalists, more popular in the interior. As Ariel de la Fuente has written, Unitarians, through the national military, waged a ruthless war of repression against federalist caudillos and their followers in the 1860s. Strategies included large-scale arrest of women and children, and the use of exemplary violence, including summary execution or assassination. He also notes that the War of the Triple Alliance provided a welcome pretext to enact mass conscription, in such a way that soldiers were treated more or less as prisoners, transported in chains to Paraguay.³⁴²

It was important but difficult for the commission to find honest, hard-working people for the job—especially because the work was temporary. But the work of fighting locusts required experience: it required “a long apprenticeship, a general preparation and the experience that is only acquired through constant work, to form a well-organized corps, of iron discipline, which will not lack at any moment the necessary energy, combined with the wisdom tempered by instruction.”³⁴³ What was needed was a corps of workers with military-like organization and discipline, to be ready at all times, which could not be supplied by temporary workers. This was especially important because such workers, as experience demonstrated, would invariably have to deal with intransigent local populations and officials.

Despite the threat that locusts presented, commissions often had trouble recruiting labor even in the midst of an invasion. At Mackenna, in Córdoba province, *La Nación* reported that either the province had to hire more peons, or the military had to step in as soon as possible before the situation worsened.³⁴⁴ The paper reported a shortage of peons to do

³⁴² De la Fuente, *Children of Facundo*, 164-170.

³⁴³ Comisión Central, *Memoria...1907-1908*, 26.

³⁴⁴ *La Nación*, 28 December 1905, 6.

anti-locust work in the 1905 campaign. They were working hard with the commissions, however, even though “the great landowners of the *campo* pay little or no attention to the law.”³⁴⁵ In response, the head of the central commission, Dr. Emilio Lahitte, decided to convene “a meeting with the owners of large holdings in the Pampa, with the purpose of agreeing on the best method to fight locusts on their lands.”³⁴⁶

There was also a shortage of potential locust exterminators in Corrientes. This was significant because, as *La Nación* pointed out, this was a mainly pastoral province, and the workers were mainly occupied in shearing season. But for the sake of neighboring provinces it was expected, or at least hoped, that some could be spared to join anti-locust brigades.³⁴⁷ In Mendoza, Carlos Frers reported strong progress. *La Nación* reported that “the national and provincial employees, and the troops, conduct themselves well, in perfect harmony.” On the other hand, even there, the commissions faced difficulty finding hired labor, despite offering “elevated salaries” for the work.³⁴⁸

Oftentimes local people held rather dismissive views of the anti-locust campaigns. In Rafaela, Santa Fe, the paper reported that the commissioner had to take precautions to prevent “some ill-disposed *vecinos* from lifting and breaking [anti-locust] barriers during the night.”³⁴⁹ This fascinating, ambiguous reference suggests a serious frustration with anti-locust efforts, and that not everyone was satisfied even with the idea that it was necessary to fight locusts. In Catamarca, *La Nación* reported, several people “opine that the employees of the commission for locust extinction that come to this region are incompetent, for they pass

³⁴⁵ *La Nación*, 21 November 1905, 7; *La Nación*, 22 November 1905, 9.

³⁴⁶ *La Nación*, 23 November 1905, 8.

³⁴⁷ *La Nación*, 23 November 1905, 8.

³⁴⁸ *La Nación*, 25 November 1905, 4.

³⁴⁹ *La Nación*, 24 December 1905, 8.

most of the time in urban centers, because they are unused to the hot climate of the province. Thus it would be better to look in this area for employees who know the fields and who can bear the rigors of the climate.”³⁵⁰ A correspondent for *La Nación* reported traveling to colonia Caroya in Córdoba, where locust eggs covered the ground in places. Two thousand people were working to destroy the locusts, but the correspondent guessed that at least ten times that number would be needed to be effective. And precisely because locusts had become a major problem, few people came to the colony for work than had come in previous years, thus making the problem harder to solve.³⁵¹

In the colony of Carlos Pellegrini in Santa Fe, *La Nación* reported that people were not responding with sufficient enthusiasm, “it being necessary to use threats so that they do any work” (“siendo necesario la amenaza de los empleados para que trabajen algo”).³⁵² In Esperanza colony, Santa Fe province, Commissioner Storni reported, according to *La Nación*, that the inhabitants, “do not lend help and it is difficult to find peons to form squads.” The people doing the work were “the soldiers, a municipal squad, and another [squad] of the railroad.”³⁵³ Convincing or conscripting people to work near their homes was difficult enough, but fighting locusts was especially difficult in sparsely inhabited or uninhabited areas, often with dense vegetation. In Esperanza, a key colony in Santa Fe, *La Nación* reported that anti-locust work “is carried out dutifully but without real success. In the populated areas the locust is fought; by contrast, the fields with forests are full of *saltona*.”³⁵⁴ In Rosario, Santa Fe, the paper reported that various parts of the colony were frustrated with

³⁵⁰ *La Nación*, 1 October 1905, 6.

³⁵¹ *La Nación*, 23 October 1905, 6.

³⁵² *La Nación*, 26 November 1905, 9.

³⁵³ *La Nación*, 2 December 1905, 8.

³⁵⁴ *La Nación*, 4 December 1905, 7.

the inaction of the government. Specifically, they wanted the provincial government to spend money “in the organization of squads...that would support the soldiers and personnel from extinction commissions, in the destruction of the *voladora* and *mosquita*.”³⁵⁵

One article in *La Nación* claimed that the success of anti-locust campaigns was being vastly exaggerated by the commissions themselves out of self-interest. The article further claimed that farmers and ranchers in affected zones were well aware of this. The article called for greater transparency, and for the commissions to issue regular, public reports on progress.³⁵⁶ In another article, *La Nación* stated flatly: “It is useless to hide it. The locust invasions this year reach extraordinary proportions.” Locusts were on the verge of invading Buenos Aires province, and provincial farmers were disillusioned while the government made grandiloquent speeches and proclamations of national prosperity: “The government has not shown itself thus far up to the challenge” (“*a la altura de las circunstancias*”).³⁵⁷ The locust commission apparently responded to these accusations, though I have not been able to locate their response. *La Nación* clarified that they agreed that anti-locust efforts had been in some measure successful but reiterated that locust commissions should be closely supervised.³⁵⁸

Even among people who were personally interested in the destruction of locusts, approval of the anti-locust commissions was not universal. In late October 1905, *La Nación* printed two letters, one defending and one criticizing the work of the commissions. The critique was authored by one “D.J. Sasiavsky, manager of an important grain exporting concern” and focused on remuneration. He said that he knew the bounty system was

³⁵⁵ *La Nación*, 27 November 1905, 8.

³⁵⁶ *La Nación*, 27 October 1905, 7.

³⁵⁷ *La Nación*, 27 October 1905, 6.

³⁵⁸ *La Nación*, 29 October 1905, 7.

ineffective but emphasized that people who did the work had to be paid—that was the bottom line. But he was at a loss for how to solve the problem, declaring that it was “necessary to oppose the legions of invaders with other legions of combatants, and how is this possible in such a sparsely populated country? That is the question.” For his part, Carlos Frers, the head of the central commission, argued that there had always been a misconception of the part of the “great landowners” who seemed to think that the law entitled them to infinite support from the government. He insisted that the central commission “maintains personnel within a rigorous discipline in military style” and that their methods of calculating numbers of locusts destroyed were sound.³⁵⁹

In many cases farmers and residents desperately wanted and requested the help of the military in fighting locusts. In Entre Ríos, the paper called on the military to send support, since most civilian laborers were already engaged in the harvest, and commissions were lacking in necessary equipment.³⁶⁰ Calls for government assistance, especially from the military, came from Corrientes and Tucumán as well.³⁶¹ In November 1905 General Godoy assured the president that the military was ready to lend any necessary assistance to fighting locusts.³⁶² One article from *La Nación* listed several military units employed in anti-locust work: the 5th Infantry, 10th Infantry, 14th Infantry, 6th Cavalry, and 1st Artillery in Santa Fe; the 7th Infantry in Santa Fe and Córdoba; the 11th Infantry in Córdoba; the 13th Infantry in Entre Ríos and Santa Fe; the 7th Cavalry in Entre Ríos; and the 11th Cavalry in the Chaco Territory.³⁶³ In Pueblo Brugo, Entre Ríos, soldiers were working diligently but *La Nación*

³⁵⁹ *La Nación*, 31 October 1905, 7.

³⁶⁰ *La Nación*, 25 November 1905, 4.

³⁶¹ *La Nación*, 29 November 1905, 4; *La Nación*, 1 December 1905, 8.

³⁶² *La Nación*, 4 November 1905, 6.

³⁶³ *La Nación*, 6 November 1905, 7.

predicted their efforts would be for nothing, because the residents “have not cooperated at all; they expect everything from the action of the national government.”³⁶⁴ In a place called Cañada Verde, possibly in Córdoba province, “there are employees of the locust commission that say they are preparing to combat [the locust]; but up to now the measures taken amount to little, and will be completely ineffective, unless an army battalion cooperates, because the invasion is enormous.”³⁶⁵

In the western province of Mendoza, then as now the heart of Argentina’s wine country just east of the Andes, the 1905 invasion threatened that lucrative product. The Centro Vitivinícola Nacional hired Ricardo J. Beltramin, who traveled north to San Luis province to observe the locusts there. He warned that the locusts currently in San Luis were laying eggs, so the new generation could invade Mendoza in about 100 days. That was the window within which winegrowers had to act. He concluded by emphasizing the important role of the military. The locusts were laying eggs over a vast area in which even access to water could be difficult, and what was needed was the capability to respond rapidly. So, Beltramin concluded, “the only way to liberate the province would be to obtain the decisive support and efficient collaboration of the ministry of war, which must provide sufficient troops for the defense just as it has done in Entre Ríos and Santa Fe.”³⁶⁶ Mendoza’s concern for their crop is a reminder that locusts devoured virtually any vegetable matter, not simply wheat or maize. It is also an indication of the fact that anti-locust measures were often pushed forcefully by organizations of producers, perhaps suggesting that criticisms of anti-locust work as serving the interests of the wealthy were not entirely out of place.

³⁶⁴ *La Nación*, 6 December 1905, 8.

³⁶⁵ *La Nación*, 19 November 1905, 9.

³⁶⁶ *La Nación*, 11 November 1905, 4.

In an interview with *La Nación*, commissioner Carlos Frers told a reporter that the use of soldiers in such work “was effective because the conscripts are citizens and many of them residents of the agricultural regions, that realize the importance of their mission and work with determination” in exterminating locusts.³⁶⁷ The role of soldiers was important but they were in some ways tied to their barracks. *La Nación* reported that in Paraná the return of the soldiers to their quarters “every Saturday afternoon until the following Monday, hinders considerably the progress of work against the locust, in addition to the great costs of transportation that weekly occasion such movements.”³⁶⁸ In response, a few days later, General Uriburu told the commissary Achiary in Paraná that the soldiers “can be relieved, without retiring them or abandoning their work for a moment.”³⁶⁹ The soldiers were so crucial as labor power that the government even postponed the discharge (“licenciamiento”) of conscripts so that they could be used to exterminate locusts in the key provinces of Santa Fe and Buenos Aires.³⁷⁰

But another article in *La Nación* in early 1906 questioned the propriety of engaging the army in such work. The article listed the duties of the armed forces in descending order of importance: to defend the nation against foreign invaders, to restore public order, and to help in times of unforeseen disasters like earthquakes. Locusts, however, were only unpredictable to a point. The paper argued that this year’s invasion was months in the making, and it was more than likely that locusts would return next year. Argentina’s army was smaller, and the obligatory service shorter, than that of many European nations. If the military was a useful source of manpower for any kind of labor, the article argued, then there was really no reason

³⁶⁷ *La Nación*, 6 December 1905, 8.

³⁶⁸ *La Nación*, 12 December 1905, 8.

³⁶⁹ *La Nación*, 16 December 1905, 9.

³⁷⁰ *La Nación*, 12 December 1905, 6.

to keep a standing army at all. It concluded: “Today it is the locust, tomorrow it will be an urgent public work or a strike prejudicial to the public, or some other thing.”³⁷¹ The article suggested that using the military in such a way was a slippery slope to employing them in any and all kinds of non-military jobs that would detract from their main purpose. This was one of the rare public criticisms that *La Nación* published of the role of the military in fighting locusts. More frequently it reported on local demands for more involvement, not less, in locust eradication. If anything, people expected and wanted the military or other government actors to address the problem so that they would not have to, or at least their efforts would be subsidized.

In several provinces, there was such a shortage of laborers that they had resorted to hiring women. This was usually framed as an unfortunate measure of last resort: “in Entre Ríos and in Esperanza (Santa Fe)... it has been necessary to hire women.”³⁷² In Paraná, people had accepted “the convenience of employing women and children to form squads.”³⁷³ Mendoza also employed over one hundred children between 11 and 16 years old, “paid by the provincial government and divided into eleven squads of between ten and fifteen [workers], each one supervised by a captain.”³⁷⁴ The use of children showed a degree of desperation in Mendoza at the lack of available adult labor.

Mendoza province also resorted to hiring workers from abroad, which I have not seen elsewhere. *La Nación* reported that the province had hired from Chile “three hundred and ninety peons....to kill locusts in the departments of the south.” Thus, provincial governments addressed labor shortages not just by importing workers from other provinces but from

³⁷¹ *La Nación*, 9 January 1906, 5.

³⁷² *La Nación*, 3 December 1905, 5.

³⁷³ *La Nación*, 6 December 1905, 8.

³⁷⁴ *La Nación*, 10 January 1906, 9.

across the Andes as well. Unfortunately, the paper reported, all the efforts in Mendoza would be useless “if [the locust] is not combatted equally in the province of San Luis” the neighboring province to the north.³⁷⁵ The workers from Chile were not well regarded in Mendoza. *La Nación* wrote of these peons, “they don’t serve for absolutely anything in the work of destroying the locust, constituting rather a serious danger to the tranquility of the *vecindario* where they currently are.” The paper recommended that they be moved from the rural areas they currently occupied to the cities so that the police could better watch them, because “it is feared that they should perpetrate robberies, assaults, etc.”³⁷⁶ The paper also alleged unspecified problems caused by the migrant workers, writing “alarm has been caused by the news arriving from Mendoza about grave disorders promoted by the Chilean peons hired to kill locusts. Different versions are circulating, some believing that the facts have been of a more serious character than what has been announced by telegraph.” Unfortunately, the paper declined to specify what those “desórdenes” were.³⁷⁷

Locust Commissions

The records of the provincial commission in Santa Fe offer insight into local reactions to the anti-locust efforts. In one instance, residents protested to the minister of government that the locust sub-commissions “without reaching an agreement with any local authority, have, ordered under penalty of fines, all the colonists and *vecinos* to plow [arar] all the public and private roads without exception,” regardless of whether any locusts had actually laid eggs on those roads. This made the roads unusable; it made the harvest difficult and, even if they could accomplish that, they would not be able to transport their produce to the train station.

³⁷⁵ *La Nación*, 9 December 1905, 4.

³⁷⁶ *La Nación*, 29 December 1905, 9.

³⁷⁷ *La Nación*, 23 December 1905, 5.

The political chief confirmed the veracity of their complaint in his own letter and warned that if such actions continued the harvest would be impossible. In response, the locust commission simply informed the minister of government that this had happened in a few other places as well, and was the result of a misunderstanding on the part of the local sub-commissions; they were not supposed to order the destruction of roads if no eggs had been laid on them.³⁷⁸

In some cases communities under one Comisión de Fomento requested the establishment of another, independent one for themselves. In 1907, for example, inhabitants of Castro wrote to the Minister of Government that the roads of their community had become impassable because of the rains. What was more, the flooding led to the accumulation of stagnant pools that posed a public health risk. The problem, they wrote, was that they were subject to the Comisión de Fomento of Casas, “which always preoccupies itself with collecting taxes, which are invested in the beautification of that town, to the detriment of the interests of this town, which always remains forgotten and in an incredible state of abandonment.” As an added support for their request, they noted that they had recently built the first public elementary school in the community, but parents found themselves unable to send their children to school when the roads were flooded.³⁷⁹ In response, the development commission of Casas insisted that the proposal was unnecessary, and the only reason the roads had not been repaired was because it was currently too expensive to do so. The three main roads into and out of Castro, according to the commission, crossed large gullies

³⁷⁸ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 8. Año 1905. Tomo N.º 426. [Vecinos de Providencia denuncian que los empleados nacionales de extinción de la langosta han ordenado la destrucción de los caminos, 27 October 1905].

³⁷⁹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 47. Año 1908. Tomo N.º 455 Vol. 2 [Vecinos de Castro, F.C.C. y R. to Ministro de Gobierno, March 1907].

(cañadas), and the commission simply lacked the funds to fix the roads at the moment. And the roads within the colony, he argued, were in no worse condition than the roads of Casas. The commission insisted that there were no cases of disease or infection in Castro that would be caused by stagnant water. They concluded by noting that they were a recently formed body and simply could not address every matter at once.³⁸⁰ After consulting with the department of engineers, the minister of government resolved not to accept the petition to create a new Comisión de Fomento.³⁸¹

The community of San Eduardo also requested the establishment of a Comisión de Fomento in a 1906 petition to the provincial government. The authors emphasized that the community had grown and prospered in the seven years since its establishment. However, it was imperative to establish a school. As they argued, it was well known that “in the dispersed population centers, where the number of inhabitants multiplies year by year, without any means of education for the proletarian class, is where criminality is most severe [dónde más reina la criminalidad],” and in this very colony, they argued, illiteracy was a major driver of crime.³⁸² They also emphasized the importance of maintaining roads and the current poor state of public health: the roads were “in complete abandon, nor is there anyone who will care for the hygiene of the urban area, whose abandonment facilitates the development of whichever contagiousness sickness may arise,” all of which pointed to the necessity of establishing a Comisión de Fomento.³⁸³ Thus infrastructure, education, and civil society were all inextricably tied together; invasions of locusts complicated this drive to develop colonies

³⁸⁰ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 47. Año 1908. Tomo N.º 455 Vol. 2 [Antonio [illegible] to Ministro de Gobierno, 30 May 1907].

³⁸¹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 47. Año 1908. Tomo N.º 455 Vol. 2 [Note by Calixto Lassaga, Minister of Government, 30 April 1907].

³⁸² AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 32, folio 2v. Año 1906. Tomo 455 Vol. 2 [Vecinos de San Eduardo to the Governor of Santa Fe, March 1906].

³⁸³ Ibid. folio 3r.

by demanding, according to Agricultural Defense, destruction of public roads. In this case, the provincial government granted the request to establish a local Comisión de Fomento in San Eduardo.³⁸⁴

A common initial reaction among local communities was confusion. In Villa Chabás, the local anti-locust official Manuel Velasco abruptly asserted his authority in a letter to the Comisión de Fomento in early November 1906. Velasco declared that he had received instructions to carry out destruction of eggs laid in public roads, “and nothing having been done up to this moment, the term of 48 hours will be fixed for this Comisión de Fomento to comply with art. 7 of Law 4863, after which the [anti-locust] Subcomission over which I preside will effect the removal of the *desoves* [i.e. the eggs deposited in the ground by adult locusts] at the expense of the authorities on which the roads depend” i.e. the Comisión de Fomento itself.³⁸⁵ This rather harsh note appeared to imply that the Comisión de Fomento should already have been carrying out this work as part of its normal duties.

The development commission of Chabás wrote to Minister Lassaga in November 1906: “We have a squad of peons fixing the edges of the town, work entirely necessary for public transport [viabilidad pública], and from today another squad begins that is dedicated exclusively to the destruction of *desoves* in public roads closest to this population by order of the Commission of Agricultural Defense of this locality.”³⁸⁶ In a bizarre situation, the commission argued that it had two separate work gangs essentially working at cross-purposes. The letter continued: “As it would be impossible for this Comisión de Fomento to

³⁸⁴ Ibid. folio 18r-18v.

³⁸⁵ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 11. Año 1908. Tomo 455 Vol. 1 [Manuel Velasco to Comisión de Fomento of Villa Chabás, 8 November 1906].

³⁸⁶ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 11. Año 1908. Tomo 455 Vol. 1 [Comisión de Fomento de Chabás to Minister Lassaga, 13 November 1906].

attend to all the public roads in its district in terms of destroying *desoves* and we do not intend to contract debts while we are at the head of this Corporation [i.e. the Comisión de Fomento], we request that you indicate to us the process to follow as we have stated.”³⁸⁷ The sheer number of public roads made the completion of Agricultural Defense’s orders impossible.

In Colonia Santa Clara Daguier, the Comisión de Fomento received a similar note, also with a forty-eight hour timeline. They wrote to the minister of government to ask if they had to foot the bill for this work themselves, or if they could pass the cost on to Agricultural Defense.³⁸⁸ Not receiving a response, they sent another note repeating their request for guidance from the minister of government in November 1906. They explained that, “as this commission finds itself without funds, having had to complete very necessary works both in embankments as well as repairing the cemetery, and given that this commission has not received any authorization from you with respect to the destruction of locusts, [the commission] has worked two and a half days with 7 men” to satisfy the requirements of Agricultural Defense.³⁸⁹ They insisted that in that short time they had spent what they had collected in a year, so they were forced to halt their efforts. They were unhappy that the sub-commissioner, one Barrera, was demanding of them, “that [we] put squads to destroy *saltonas* in the public roads that belong to the C. de Fomento” so they decided to consult the minister of government for assistance.³⁹⁰

³⁸⁷ Ibid.

³⁸⁸ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 12. Año 1908. Tomo 455 Vol. 1 [Santa Clara Daguier Comisión de Fomento en consulta sobre nota pasada por Defensa Agrícola, 30 October 1906].

³⁸⁹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 13. Año 1908. Tomo 455 Vol. 1 [Santa Clara Daguier Comisión de Fomento reitera nota anterior sobre comunicación pasada por D. Agrícola, 19 November 1906].

³⁹⁰ Ibid.

In Chañar Ladeado, the Comisión de Fomento likewise complained that they simply did not have the money to do what Agricultural Defense was demanding of them.³⁹¹ The Comisión de Fomento in Recreo took a different tack and simply asked for a subsidy. This came in response to a note from the sub-commissioner. This note, rather than simply demanding compliance within forty-eight hours, asked for the contribution of “a certain number of peons, or if not...a portion of funds, in order to maintain for the necessary time, a gang with the exclusive goal of destroying locusts that invade the roads and public places.”³⁹² In Pavón Arriba, the commission protested that they lacked the money, “for the little revenue [pocas entradas] that it has have been spent in fixing the roads and bridges” so they wrote to the minister for help.³⁹³ In Estación Galvez the beleaguered Comisión de Fomento also pleaded lack of funds, and even attached a chart showing their income and expenses to prove it.³⁹⁴

The Comisión de Fomento at Colonia Piamonte also wrote to the Minister of Government, Julian Pera in 1904, asking for guidance about how to proceed with the new locust commissions. The anti-locust commission had demanded “five peons” to be placed at their service, and “not knowing that there was a law or at least that we know of,” they requested more information, “if it is the law that the peons they request should be given.” In a brief response, Pera enclosed “the pertinent part of the national law declaring obligatory the

³⁹¹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 15. Año 1908. Tomo 455 Vol. 1 [Chañar Ladeado Comisión de Fomento to Minister of Government, 9 November 1906].

³⁹² AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 16. Año 1908. Tomo 455 Vol. 1 [Sub-Commissioner to Presidente de la Comisión de Fomento Dn. Carlos Antoniazzi, Recreo, 15 November 1906].

³⁹³ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 17. Año 1908. Tomo 455 Vol. 1 [Pavon Arriba Comisión de Fomento to Minister of Government, 12 November 1906].

³⁹⁴ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 18. Año 1908. Tomo 455 Vol. 1 [Estación Galvez Comisión de Fomento to Minister of Government, 16 November 1906].

destruction of the locust” thus confirming the need to comply with the anti-locust commission.³⁹⁵

Colonia Rufino also sought clarification from the provincial government. In response, the minister of government clarified that the Comisión de Fomento, “is not obliged to take the initiative in killing the locust, but should give all aid to the Commissions of the National Ministry of Agriculture that they require” thus they were still subordinated to the new anti-locust commissions.³⁹⁶

In their own complaint to the provincial government, San Gerónimo’s Comisión de Fomento wrote that “the plowed roads lie completely destroyed, making transit impossible, and in addition, this Commission does not have sufficient funds to fix them again, in view of which we would appreciate it if you would inform us if Agricultural Defense” had the authority they claimed.³⁹⁷ The colony found themselves the worse off for the efforts of Agricultural Defense, and confused about the scope of the authority that the new anti-locust commissions held.

The commission in Las Tunas argued that the anti-locust work was unnecessary in their community:

Such work could be necessary in the cities and population centers of some importance, but not in the colonies, like this one, for example, which only count two or three businesses [casas de negocio] and the population...greatly dispersed, which clearly indicates that in order to effect work that would impede the advance of the *saltona*, it would have to be done in an extensive zone, which would absorb all the revenue of this commission without any practical result.³⁹⁸

³⁹⁵ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 1. Año 1904. Tomo 404 [Comisión de Fomento of Colonia Piamonte to Minister of Government Julián Pera, 5 January 1904].

³⁹⁶ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 46. Año 1906. Tomo 432 Vol. 1 [Minister of Government to Comisión de Fomento of Colonia Rufino, 29 January 1906].

³⁹⁷ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 1. Año 1910. Tomo 475 [Comisión de Fomento of San Gerónimo to Minister of Government, 9 October 1909].

³⁹⁸ “Pueden ser necesarios dichos trabajos en las ciudades y centros poblados de alguna importancia, pero no en colonias, como esta, por ejemplo, en que solamente cuenta con dos otras casas de negocio y la población...bastante diseminada; lo que indica claramente que para efectuar trabajos tendientes á impedir el avance de la *saltona* habría que hacerlos en una extensa zona, lo que absorbería las rentas de la Comisión sin

In this case, Agricultural Defense was demanding intensive labor from a tiny and widely dispersed community; Argentina's population dispersal was a persistent obstacle to the kind of mass coordination that Agricultural Defense sought to impose.

Even in cases where locusts posed an imminent threat to a colony, they were often caught off-guard and had to request financial help from the provincial government. The Comisión de Fomento in Rufino issued such a request on 23 December 1906. Their situation, they wrote, was exacerbated by the fact that they had already spent all their funding in combating “the last viral epidemic” and had nothing left to carry out the orders of Agricultural Defense.³⁹⁹ In a follow up note, the commission requested two thousand pesos and explained the cost: “the scarcity of labor and high cost of day-work [*jornales altos*] that would have to be paid, being in the part of the year in which, due to the harvest and multiple other field labors, makes them expensive.”⁴⁰⁰ In this case, between the urgency of fighting locusts and the urgency of collecting the harvest before it rotted in the fields; the latter was clearly the priority. In a note one year later, the anti-locust commission actually rebuked the Comisión de Fomento directly, telling Minister of Government Calixto Lassaga that “the Comisión de Fomento of this town has always been noted for its carelessness and lack of enthusiasm [*falta de voluntad*] to accomplish the extinction of the locust” in their jurisdiction. They tried to get by with minimum effort and always left the hard work to “*la Seccional*” i.e. the local anti-locust commission, and “the goodwill of the residents” of the colony.⁴⁰¹

ningún resultado práctico.” AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º 2. Año 1910. Tomo 475 [Comisión de Fomento of Las Tunas to Minister of Government, 27 October 1909].

³⁹⁹ AGPSF. Ministerio de Gobierno, Sección Agricultura. N.º Orden 14. Año 1908. Tomo 455 Vol. 1 [Comisión de Fomento of Rufino to Minister of Government, 23 December 1906].

⁴⁰⁰ AGPSF. Ministerio de Gobierno, Sección Agricultura. N.º Orden 14. Año 1908. Tomo 455 Vol. 1 [Comisión de Fomento of Rufino to Minister of Government, 12 January 1907].

⁴⁰¹ Ibid.

In Colonia Sastre, the Comisión de Fomento wrote to the minister of government in mid-October 1908 to explain their plight. They wrote, “the many and great rains of the past season have left the roads of this Colony useless, and notwithstanding all our good efforts [*buena voluntad*], this year we cannot build even half of the embankments necessary to facilitate the accessibility [*viabilidad*] which is the principal object to which Development Commission should tend.”⁴⁰²

In Carreras, several residents wrote to the provincial government to complain about their development commission. They argued that the commission “does not fulfill a purpose of public utility [*no responde á fines de utilidad pública*] but to narrow interests [*menguados intereses*] of another order that must necessarily devolve in favor of the private interests to the detriment of all principles, even those of moral order.”⁴⁰³

In Lehmann, the Comisión de Fomento pointed out another problem: where to put all the dead locusts? As they wrote to the provincial government, they needed guidance as to “the manner of providing interment for Agricultural Defense for the destruction of the locust, given that this Honorable Commission lacks the land to do it and the colonists oppose making the pit in the public street, so we hope for your resolution shortly.”⁴⁰⁴

In San Martín, Santa Fe province, three brothers launched a complaint against the sub-commissioner Ángel Ferrari. The political chief of San Martín sent one Juan Cruz to investigate. When Cruz arrived, he was greeted by “more than twenty *vecinos*” who asked him to forward their complaints about the local sub-commission to the provincial

⁴⁰² AGPSF. Ministerio de Gobierno, Sección Agricultura. N.º Orden 57, 3v. Año 1910. Tomo 3 [Comisión de Fomento of Sastre to Minister of Government, 21 October 1908].

⁴⁰³ AGPSF. Ministerio de Gobierno, Sección Agricultura. N.º Orden 58. Año 1910. Tomo 3 [Vecinos de Carreras to Minister of Government, 30 November 1908].

⁴⁰⁴ AGPSF. Ministerio de Gobierno, Sección Agricultura. N.º Orden 37. Año 1910. Tomo 3 [Comisión de Fomento of Lehmann to Minister of Government, 22 August 1909].

government.⁴⁰⁵ The three brothers in question alleged that the sub-commissioner Ferrari had extorted them. The commission argued that each of the brothers should be fined fifty pesos for infraction of the law on locust extermination, and the brothers were given six days to comply. Specifically, they were alleged to have not collected enough locust eggs. They countered that they had done so and provided copies of receipts proving that they had fulfilled their obligations. More than that, the receipts showed they had turned in 238 kilos of locust eggs, “that is to say eight times more than what the Sub Commission...is ordering every resident to turn in.” They asked the judge to reject the fine “inasmuch as it is no more than a grudge [*una venganza*] of this Subcommission, and to bring this abuse to the attention of the superiors” in the provincial government.⁴⁰⁶ They further alleged that Ferrari had offered to “discount” their fine if they would recant their complaint and sign a note in his favor. When they refused, he told them, “that it would cost them much more, that they would have to pay five hundred pesos.”⁴⁰⁷

Ferrari was the subject of numerous complaints. Genaro Bautista, “Italian of 33 years, single farmer,” complained that Ferrari had shorted him 8 kilos of locust eggs and then fined him for failing to turn in the correct amount. When Bautista threatened to turn in future egg collections somewhere else, Ferrari threatened to throw him in prison. Later, Ferrari offered

⁴⁰⁵ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Juan Cruz to Minister of Government, San Martín, 29 October 1897].

⁴⁰⁶ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: Expediente iniciado en el juzgado de Paz de Pueblo Casas por la Subcomision de la Extincion de la langosta contra los vecinos Martin, Julio y Bautista Mauro, 2v-3r].

⁴⁰⁷ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: Expediente iniciado en el juzgado de Paz de Pueblo Casas por la Subcomision de la Extincion de la langosta contra los vecinos Martin, Julio y Bautista Mauro, 3v-4v].

him “a receipt [un vale] for twenty kilos of eggs” if he signed a note in Ferrari’s favor.⁴⁰⁸

Two other young Italian colonists, José Brunetti and Pedro (also given as Pietro) Serravalle, alleged that Ferrari had ordered them to bring “twenty kilos of locust each one and in the period of three days” but when they brought him 19 kilos the following day and asked for a receipt, he refused. They also threatened to take their eggs elsewhere, and he threatened them with retaliation. Serravalle also alleged that Ferrari “made him work three and a half days building ditches [zanjas] without giving him a receipt [vale]” and eventually offered to pay him only in “artículos de la casa” that is, goods from his (Ferrari’s) store.”⁴⁰⁹

Pedro Gaboto, “Italian of 27 years,” testified that he had seen a notice that every resident had to turn in twenty kilograms of locust eggs within three days. Gaboto had already collected ninety kilograms on his own initiative, but when he turned them in Ferrari shorted him as well and refused to give him a receipt “because he did not bring the eggs the same day that the notice was posted on cards in various places,” for which reason Gaboto filed his complaint.⁴¹⁰ Juan Polano and Antonio Brisso complained that Ferrari shorted them “half of the weight [of locusts] telling them that [the bags] contained dirt, without even checking the bags to see if this was the case, that Ferrari did this undoubtedly” because they did not buy things from him.⁴¹¹ In another instance he justified not paying a farmer, Juan Polano, the full

⁴⁰⁸ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 1r-1v].

⁴⁰⁹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 2r-2v].

⁴¹⁰ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 3r-3v].

⁴¹¹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 3v-4r].

amount that he was due by claiming that the man owed him “for carting wheat the previous year, which is not true.”⁴¹² Another plaintiff, José Benedetto, corroborated this accusation, saying that he was only paid for 16 rather than 26 kilograms, and when he protested, he was forced to pay a fine by purchasing goods at high prices from Ferrari’s shop.⁴¹³ In other cases, presumably with people who did patronize his business, Ferrari allegedly paid them for the full weight in eggs *despite* there being copious amounts of dirt in the bags.⁴¹⁴

Bautista Silvestre, a seventeen-year-old in Pueblo Casas, alleged that he had turned in 35 kilos of eggs and Ferrari refused to pay him. Ferrari justified this by saying he hadn’t worked the first two days. Although the law required colonists to turn in twenty kilos of eggs within three days, it’s not clear why Ferrari thought it was justifiable to refuse payment when he did, after all, turn in more than the required amount. Silvestre argued that Ferrari knew that he couldn’t work because his mother was sick. When he complained, Ferrari threatened that if he kept protesting, “he would kick and hit him” (*le iba dar de [sic] patadas y trompadas*) Ferrari insisted that Silvestre would have to take half the value of his payment in goods from Ferrari’s store. As the others did, Silvestre decided to take his eggs to Colonia Castro.⁴¹⁵

⁴¹² AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 3v-4v].

⁴¹³ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 5v-6r].

⁴¹⁴ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 4r-4v].

⁴¹⁵ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 7r-8v].

Gerónimo Noé reported a similar experience with Ferrari's subordinate, Ysmail Villavicencio. Villavicencio was apparently in league with Ferrari, if Noé was to be believed, for he made the same demand that Noé accept payment in store goods.⁴¹⁶ Carlos Noé (possibly related to Gerónimo) turned in 12 kg but was only given credit for half that amount, Ferrari alleging that there was dirt in the bag, without even looking in the bag. Ferrari claimed himself to be “the father of the Colony and sought to ruin him by any means because he hated him” (*buscaba todos los medios de [h]undirlo porque le tiene mucho odio*).⁴¹⁷ Twenty-nine year old José Gastaldi, listed as a “jornalero” in the suit claimed that at the beginning of the anti-locust campaign, Ferrari “threatened him with imprisonment if he did not build a ditch for free” and even though they eventually agreed upon a price, Ferrari never paid him. He then brought 58 kg of locusts to Ysmail Villavicencio who refused to accept them, “telling him that he did not accept locust eggs from *pícaros*, as a result of which he had to take his eggs to the neighboring colony of Castro,” which was no small inconvenience because it was two leagues away.⁴¹⁸

Ferrari, in his initial complaint of 18 October, had asked the judge, Menotti, to fine the plaintiffs fifty pesos each, as the law provided, for failure to turn in the minimum weight of eggs. He also alleged that they had cursed at him and the other members of the commission (*denigrando con frases incalificables el proceder de los que suscriben en su calidad de miembros de la SubComisión nombrada*). They (the Sub-Commission) asked the

⁴¹⁶ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 8v-9v].

⁴¹⁷ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 11v-12v].

⁴¹⁸ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: actas levantadas ante el juzgado de paz en el Pueblo Casas denunciando procederes incorrectos de la sub-comision de la Extincion de la langosta y reclamando de ellos, 10r-11v].

judge to impose the fine and remit the proceeds to the commission. Menotti initially approved the fine but offered the plaintiffs the opportunity to appeal in a federal court in Rosario.⁴¹⁹

The plaintiffs, Gerónimo and Carlos Noé, and Juan Dalmaso, in their initial complaint, alleged that Ferrari had a personal grudge against them and the fine was merely a result of “the spite and hatred that the president of the said Sub-Commission and the other two members of the same, have for us, for commercial reasons as is proven by the accompanying note.” The “note” in this instance was, I believe, the receipts showing that they had turned in the minimum weight of locust eggs. They argued that between them they had turned in 319 kg of locust eggs, many times the required amount, and described the fines as an “immeasurable abuse”. The judge, noting that the plaintiffs were able to prove that they had turned in the appropriate weight of eggs, found in favor of them.⁴²⁰

In an intriguing postscript, the case file includes a brief note from Ferrari addressed to the Minister of Agriculture of Santa Fe province, Juan M. Cafferata. The note stated that the entire case should not have been brought in the first place. It went before a *juez de paz*, Santiago Menotti, when the national law on locust extinction provided that “the only one who can initiate [the complaint] is the immediate Federal Judge, after payment of the imposed fines, without which no appeal is allowed.” The judge in the case had no jurisdiction; the note advised that the minister should take measures “so that this case is not repeated and, to the contrary, the authorities of the Province should lend all their help to the

⁴¹⁹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: Expediente iniciado en el juzgado de Paz de Pueblo de Casas por la Sub-Comisario de la extincion de la langosta, contra los vecinos José Dalmaso Carlos y Gerónimo Noé y Luis Marnetto, 1r-2v].

⁴²⁰ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Copia: Expediente iniciado en el juzgado de Paz de Pueblo de Casas por la Sub-Comisario de la extincion de la langosta, contra los vecinos José Dalmaso Carlos y Gerónimo Noé y Luis Marnetto, 6r-6v].

Sub Commissions in fulfillment of the national law.”⁴²¹ Whatever the outcome, allegations of cheating the bounty system by weighting bags with dirt were quite common; by September 1905, at least, the locust commissions had ended the policy of paying a bounty for locusts and locust eggs.⁴²² According to Carlos Frers, that policy, which had been instituted in 1897-1898 was both ineffective and easily abused by mixing in soil and rubble with locusts to increase weight.⁴²³ In April of 1906, the newspaper *La Nación* reported from Santa Fe that an “old farmer” warned against bringing back the bounty system of paying people per kilo of locusts that they turned in. This informant argued that the system was a major source of fraud, and that when in place, “many rural authorities in connivance with unscrupulous people, earned in a little time thousands of pesos.”⁴²⁴

According to the evidence I have gathered, reactions to anti-locust work at the local level in Córdoba, another important agricultural province, paralleled those in Santa Fe. As early as 1875, a representative of the Central Argentine Land Company, a division of the Central Argentine Railroad Company⁴²⁵ wrote to the Minister of Government in Córdoba complaining about locusts attacking colonists at Colonia Tortuga on railroad-owned land. These families, the note argued, resided on one of the most prosperous colonies, and their mulberry trees were being seriously damaged by locusts. “What the colonists need is food,” the representative wrote, “and they will continue working.” Significantly, the whole purpose of the note was to ask the provincial government for help in footing the bill: “This colony has cost the Company 40,000 pesos so far, and of course the colonists cannot be left unprotected

⁴²¹ AGPSF. Ministerio de Gobierno. Sección Agricultura. N.º Orden 74. Año 1899. Tomo 333 [Nota No. 7 Ángel Ferrari to Señor Juez de Paz del Distrito Casas].

⁴²² *La Nación*, 23 September 1905, 8.

⁴²³ *La Nación*, 30 September 1905, 8.

⁴²⁴ *La Nación*, 11 April 1906, 7.

⁴²⁵ James R. Scobie, *Revolution on the Pampas: A Social History of Argentine Wheat, 1860-1910* (Austin: University of Texas, Austin, 1964), 36.é

in this predicament. But the Company believes that in a case like this, the entire burden should not fall on it [i.e. the company] but that the government, which will derive later such a great benefit from the colonies, should help them in a misfortune like the present one.”⁴²⁶

In 1890, one owner of several colonies wrote to Córdoba’s Minister of Government saying it was extremely important that the province pass an anti-locust law. He noted that not only were they in the midst of an invasion of locusts, but because they were laying eggs they presented “a danger for the coming years”—a point which he appeared to emphasize while also noting that the current wheat crop was apparently not in immediate danger because it was too far grown. He also explicitly referred to the recent passage of the law in Santa Fe province as a model for Córdoba.⁴²⁷ Whether in response to this or for other reasons, Córdoba did in fact pass a provincial anti-locust law in 1891, but it was even more bare-bones than the Santa Fe law. Without specifying any concrete measures or personnel, the law simply allocated ten thousand pesos from the budget, authorizing the governor to use the money “in the work of extinction of the locust.”⁴²⁸

In Córdoba as in Santa Fe, anti-locust officials sometimes clashed with local authorities. In one complaint from 1900, the head of the Sectional Commission of Villa María complained of obstruction he faced from the judges of the peace in two locations, Ballesteros and Leones. The commission employees charged with imposing fines found themselves unable to carry out their duty because the judges of the peace in those two

⁴²⁶ AHPC, Ministerio de Gobierno, 1875, Tomo 5, Mensuras. Asuntos Diversos, Folio 43.

⁴²⁷ AHPC, Ministerio de Gobierno, 1890, Tomo 11, Solicitudes y Receptorías, Folio 145.

⁴²⁸ AHPC, Ministerio de Gobierno, 1891, Tomo 4, Legislatura y Bancos, Folio 94.

communities “have made themselves instigators and defenders of the fined [people]” and in Ballesteros had even declared the anti-locust law to be unconstitutional.⁴²⁹

A sub-commissioner in Córdoba, Augusto Fernández, wrote to Minister of Government Juan Carlos Pitt in August 1905 instructing him to make sure that the “Political Chiefs of the Departments give immediate notice to the offices of this commission of the appearance of the locust and that they also give their most effective cooperation to the employees of this commission, whenever it is needed of them.”⁴³⁰ Shortly thereafter, he wrote again to Pitt, requesting that the provisions of the current anti-locust law be posted in public places throughout the province.⁴³¹

Conclusion

The practice of anti-locust work was grueling, controversial, and, for the most part, of very limited efficacy. Anti-locust campaigns experimented with various ways of propagating animal species and fungi that might prey on locusts, but to no avail. The techniques used to kill locusts were “mechanical”—plowing them under, burning them, crushing them. The use of metal barriers became one of the most common and most effective ways of fighting locusts; though it did not kill locusts, it protected fields from the *saltona*.

The coordination of labor was another challenge. Anti-locust campaigns relied on a combination of salaried officials and local labor; many communities were reticent to contribute their labor and property. On occasion, groups of workers were moved from one province to another. Proponents of anti-locust efforts hoped that participating in such work

⁴²⁹ AHPC, Ministerio de Gobierno, 1900, Tomo 5, Ministerios y Reparticiones Nacionales. Gobernadores de Provincia, Folio 173.

⁴³⁰ AHPC, Ministerio de Gobierno, 1905, Reparticiones Nacionales, Tomo 6.

⁴³¹ AHPC, Ministerio de Gobierno, 1905, Reparticiones Nacionales, Tomo 6.

would imbue citizens with a sense of collective responsibility and identity, but on the ground, it was hard to see such sentiments.

In small rural, agricultural communities in Santa Fe, anti-locust commissioners collided with development commissions and judges of the peace. Development commissions balked at complying with orders in a program which, in their view, they received little actual help; they lacked funds and available labor power for the kind of large-scale effort that Agricultural Defense employees exhorted them to. In several cases Agricultural Defense, according to the complaints, simply gave orders and a window of forty-eight hours to comply. Development commissions also hesitated to destroy public roads, the construction and preservation of which, as we have seen, was one of their most foundational purposes.

Criticisms of Agricultural Defense were not limited to Santa Fe. As we will see in the next chapter, across the country, locusts and anti-locust efforts became a kind of prism through which to view national political disputes and government ineptitude. They became a kind of metaphor for wider frustrations with bureaucratic ineptitude, waste, and greed across the country.

Chapter 4 Agricultural Defense and Its Critics

Introduction

From its inception in 1905, Agricultural Defense was as controversial as the earlier anti-locust efforts had been. However, much of the criticism came to center around alleged inefficiencies and corruption; earlier debates about the authority of the national government to act independently in the provinces had by this point largely subsided. Criticisms of Agricultural Defense dovetailed with criticisms of broader efforts at agricultural reform, as seen in, for example, a program to distribute seeds among farmers, and projects for agricultural education through the establishment of schools devoted to the subject. Thus, anti-locust efforts joined a wider array of efforts to modernize agriculture in this period that were multi-faceted, incorporating education, scientific research, and labor—but these efforts consistently faced opposition. With the advent of the Radical government of Hipólito Yrigoyen beginning in 1916, opposition members of congress charged that Agricultural Defense employees were using their posts in some way to garner electoral support for the ruling party.

In popular magazines like *Caras y Caretas* and *PBT*, locusts were used as a metaphor for overspending, inefficiency, and corruption in government. In several cartoons, these magazines mirrored congressional critics and those in the press by portraying anti-locust efforts as worse than the cure. Most critics, however, on some level agreed that locusts were a serious problem. Thus, legislators proposed various solutions: some continued to advocate the use of biological methods or finding a predator of the locust. Others placed their hopes in the newly established Institute of Entomology. In general, critics looked at the years of anti-locust campaigns and sought a longer-lasting solution, even as supporters of Agricultural

Defense argued that, in fact, the cost of these campaigns had gone down over previous decades.

Agricultural Defense Under Attack

In Matilde, a colony that *La Nación* described as “one of the most important colonies,” of Santa Fe, the paper wrote that “the theme of the day is not politics, but locusts, even though in reality the one must be linked to the other.”⁴³² Locust policy was indeed a contentious political issue rather than a merely technocratic one. Locusts also provided a potent metaphor for critiques of wasteful government spending, heavy-handed bureaucracy, and military force. In at least one instance, a battalion of infantry that had been sent to colonia Rafaela was diverted to Rosario to end the strike. The socialist paper *La Vanguardia*, made the connection between the two phenomena explicitly: they opined that for the propertied classes, “the worker agitation for the improvement of labor conditions is a national calamity only comparable to the locust.”⁴³³

A 1905 letter to the editor of *La Vanguardia* offered one of the most sweeping condemnations of locust commissions. Grüner had participated in the 1897 anti-locust campaign in Córdoba as an infantry soldier. His unit’s purpose was simply to go about checking passers-by for written proof that they had served their twenty days in the anti-locust campaigns. Most of them could not furnish that proof and so they were conscripted and forced to contribute their labor to the campaign. That part of Córdoba, Grüner wrote, was an isolated, rural part of the province and rarely received news from Buenos Aires. The locals

⁴³² *La Nación*, 20 November 1905, 4.

⁴³³ *La Vanguardia*, 29 September 1905, 1.

simply did not know about the law and the labor provisions. Meanwhile, he wrote, the officers did not even do their part.⁴³⁴

The socialist newspaper *La Vanguardia* saw locusts in rather different places. In an article in November 1905, at the height of that year's devastating locust attack, *La Vanguardia* lambasted the national government for coddling the wealthy landowners "by way of a periodic state of siege." They concluded that this policy, "confirms the suspicion, even among the most orthodox, that the most terrible locust is the government of Dr. Quintana."⁴³⁵ In this metaphor, the fight against locusts was part distraction, part service to benefit the large landowners while doing nothing to ameliorate conditions of the working class, and the head of the nation was a voracious consumer of the fruits of labor. The following year, *La Vanguardia* lambasted the Agricultural Defense, saying that in the capital city there were "64 employees that eat more than the most voracious locust swarm, because they consume in a year, in wages, 164,000 pesos."⁴³⁶

La Vanguardia attacked the presumptions of the agrarian defense congress. It argued that the congress "has served as the origin of a project that involves goals of a fearful audacity" and declared that the assertion that the locust is a national problem "is only partly fair," for, in fact, it was the problem mainly of interested parties. The worst part was the proposed offering of a cash prize of one million gold pesos for an effective and cheap invention to kill locusts. "It is known," wrote *La Vanguardia*,

that the majority of members of the new [agricultural] congress are the owners of the fields that the locust attacks. What those gentlemen seek to obtain, thus, in reality, is that the government free them from the plague without them having to make any expenditure. Why do these kings of rent, who are so

⁴³⁴ *La Vanguardia*, 20 September 1905, 2.

⁴³⁵ *La Vanguardia*, 5 November 1905, 1.

⁴³⁶ *La Vanguardia*, 5 April 1906, 2.

rich and who so highly proclaim their ‘patriotic disinterest,’ not pay the cost from their own abundant purses?⁴³⁷

In January 1906 *La Nación* ran a letter from an anonymous chacarero of Buenos Aires province. The man deplored the political situation of the province, and indeed the nation, saying that voting was a scam, to the extent that it occurred at all. He wrote of Buenos Aires province in particular: “not even the municipal authorities owe their appointment to even the appearance [un simulacro] of an election.” He spoke with a school master, one don Ramón, who argued that locusts were a relatively small nuisance given the fertility of the soil and the availability of land. Argentina was favored in these qualities more than Europe, though the latter did not have locusts: “the virgin Nature is made for the insect, the same as for man, and only with great difficulty can he adapt her to his purposes.” He confidently predicted, nevertheless, that Argentina would destroy the locust soon, “fulfilling the duty of civilized man,” to modify the natural order to fit human needs. Ramón then shifted the conversation to another kind of locust, the “acridios bípedos” (biped locusts; *acridio* was a commonly used synonym for locusts), or the political class. “These,” Ramón declared, “it should not be thought that they may be destroyed by force. How little have we learned in our long and disgraceful experiments in political organization, that the remedy is worse than the sickness. But one can work to create in the masses a moral environment in which the specimens of a form of abolished politics cannot prosper.” Reflecting the allegorical view expressed elsewhere in *La Vanguardia*, this anonymous chacarero envisioned Argentina’s ruling class as a kind of voracious pest that fed on national prosperity.⁴³⁸

⁴³⁷ “Sabido es que la mayoría de los miembros del flamante congreso son los propietarios de los campos que asola el acridio. Lo que pretenden, pues, en realidad, esos señores es conseguir que el gobierno les libre de la plaga sin que ellos tengan que hacer ningún desembolso. ¿Por qué esos reyes de la renta, que son tan ricos y pregonan tan alto su «patriótico desinterés», no costéan el premio de sus repletos bolsillos?” *La Vanguardia*, 15 May 1906, 1.

⁴³⁸ “Estos, no hay que pensar en destruirlos por los métodos de fuerza. Cuando menos hemos aprendido en nuestros largos y desgraciados experimentos de organización política, que el remedio es peor que la

In Catamarca, *La Nación* reported a rather flagrant example of the abuse of the commission's power for political ends:

The national employees D. Guillermino del Pino, subcommissary of locust extinction, and the administrator of *rentas* D. José del Pino, with all subaltern employees of their respective *reparticiones*, traveled throughout the department conducting political work to change the lists proclaimed by the government, achieving that Sr. de la Vega should be nominated for Tinogasta. I am assured that the assistants [*ayudantes*] of locust extinction were obligated to leave a month of wages to conduct the electoral campaign. Enormous swarms of locusts passed through the north, devastating all the vineyards and maize fields, and those charged with combatting the locust were not seen at their posts, having dispersed [*habiéndose desbandado*] throughout the area hunting for *libretas cívicas*.⁴³⁹

In an article published soon after, the paper further opined: "It is strange that Dr. Frers does not take account of the denunciations made against the commissioner of locusts, Sr. Campos, who has suspended employees of the opposition while he allows official employees like Ramos, Salados, and others to attend the committees and make political propaganda."⁴⁴⁰

Officials of locust commissions wielded the power of the national government in the provinces and, according to *La Nación*, were being recruited to serve as auxiliaries for local political machines. In Villa Mercedes, San Luis province, *La Prensa* reported that residents had launched complaints against the local anti-locust commissioner "for proceeding incorrectly by attacking [*al hostilizar*] people who do not belong to the political community that he patronizes."⁴⁴¹

In Zanjón, Santiago del Estero, *La Nación* reported that "in various departments the political chiefs are sub-commissioners, so that the one cannot act as a necessary check on the other. These appointments are the work of political influences to assure in this way electoral agents."⁴⁴² This is an interesting complaint, because in many cases political chiefs were

enfermedad. Pero se podía trabajar para crear en las masas un ambiente moral en que no podrían prosperar los especímenes de una forma política abolida." *La Nación*, 16 January 1906, 4.

⁴³⁹ *La Nación*, 3 March 1906, 6.

⁴⁴⁰ *La Nación*, 8 March 1906, 5.

⁴⁴¹ *La Prensa*, 16 December 1905, 6.

⁴⁴² *La Nación*, 15 November 1905, 5.

specifically designated as heads of anti-locust commissions. The intent may have been to integrate anti-locust work into the fabric of local government, but *La Nación* here pointed to possible conflicts of interest and added to the growing sense that anti-locust work had to be independent of local politics. Embedding anti-locust work in local political structures meant subjecting that work to the conflicts of each community. These problems and others drove an effort to reform, and expand, the anti-locust system.

Anti-locust campaigns were chronicled and satirized in popular periodicals of the time, such as PBT and *Caras y Caretas*. In a 1905 issue of PBT, a poem appeared explicitly comparing locusts from the interior to the “locusts,” i.e. the bigwigs of the capital, or “our locusts,” which the author also referred to as “the locust of the budget” (Fig. 3). In the next verse, the poem denounced the “industrialist or businessman who, coming from nothing, now believes himself a force to be reckoned with” and who abused the very people who made him his wealth. This the author denounced as “the locust of labor.” The “respectable functionary” whose job contributed nothing but who benefited financially was the “locust of finance.” And finally, the “shameless shyster, the venal judge, the clumsy statesman” (*Leguleyo sin pudor, juez venal, torpe estadista*) was the final locust; all these people “at our cost feed their egoism” as social locusts. The accompanying illustration combined illustrations of the insect locusts descending on a field with a man in a top hat, with a cane and a cigar, a hand receiving gold coins, and a bent sword over a book titled “Código,” symbolizing how wealth corrupted the law.⁴⁴³

PBT also depicted locusts in comic cartoons. In one edition of PBT from 1905, a cartoonist contrasted two approaches to fighting locusts in an illustration called “The Army

⁴⁴³ “Manga de langosta,” *PBT*, 2 September 1905, 69.

and the Locust” (Fig. 4). In the top panel, soldiers with sticks flailed in their efforts to swing at enormous locusts. The caption read, “How soldiers attack it.” In the bottom panel, an elderly man in military uniform feasted on a lobster, also called “langosta.” The caption read “How the Minister of War attacks it.”⁴⁴⁴

In one fascinating cartoon, the artist depicted “The tale of the locust” (Fig. 5). The first panel depicted “the Locust Genie,” a god-like figure resting amongst clouds, “who aspires to change the name of Río de la Plata to Río Pelado”—the barren river. The deity/genie breathed locusts from his mouth, “obeying the divine precept: grow and multiply. What can the anti-locust commission do in this case? Nothing!” In the fourth panel, under a sketch of a swarm of locusts, the caption reads “The commission...but I shouldn’t get ahead of myself; the drawing is not such a thing. That is not the commission, as much as it jumps and flies as [the commission] does for money. That is the very locust that the Genie casts upon us in swarms or semi-swarms! How rude!” The artist feigned confusion, pretending to mistake a swarm of locusts for the anti-locust commission, reiterating the common theme of bureaucracy as a kind of locust swarm. The fifth panel showed people with large bags of locusts; the caption read, “a solution for the problem is sought, making the poor people kill and bag some products of the genie. What a crass error! Here the only solution is the African kitchen...” In the final panel, the “African kitchen” is revealed: “that of eating locusts even if they’re kicking,” “and devouring the anti-locust commission itself “as a desert” in a “great national banquet.”⁴⁴⁵ The illustration showed three smiling people happily feasting on a large bowl of locusts and chatting. As we have seen, this was as much an American kitchen as it was an African one; and although eating locusts was (and is) a very real solution and eating

⁴⁴⁴ “El ejército y la langosta,” *PBT*, 30 September 1905, 49.

⁴⁴⁵ “El cuento de la langosta,” *PBT*, 2 October 1909, 17.

anti-locust commissions was not, the comparison emphasized the frustration with bureaucratic efforts to destroy locusts.

The satirical magazine *Caras y caretas* also took up the subject of the locust. In one 1898 article, the author wrote from the perspective of the locust. The author claims he (the “locust”) only came looking for hospitality, and in any case locust commissions did as much damage as he did: “What you achieve with this fight you provoke us to, is that the total loss of crops becomes a fact, because what we do not eat, the commissions and sub-commissions charged with destroying us will eat...if the locusts that eat wheat deserve punishment, so much more to the locusts who devour the budget.”⁴⁴⁶

In another absurdist interpretation, a writer imagined that Voltaire’s famous hero Candide were to visit Buenos Aires he could not be surpassed in his misguided optimism by some of the deputies in congress. The article imagined a dispute between two deputies, and one “son of Candide” arguing that “neither the locust was calamitous nor were labor strikes important. Without them, farmers and *patrones* would be careless in their duties, they would lack caution, and the beneficial influence of philosophy would be a myth.”⁴⁴⁷ In this “best of all worlds” locusts played the role of keeping lackadaisical farmers on their toes.

⁴⁴⁶ “Lo que conseguirán ustedes con esta lucha á que se nos provoca, es que llegue á ser un hecho la pérdida total de las cosechas, pues lo que nosotras no nos comamos, se lo comerán las comisiones y sub comisiones encargadas de destruirnos....si castigo merecen las langostas que se comen el trigo, mayor le merecen las langostas que devoran el presupuesto.” “Solicitada,” *Caras y Caretas*, 29 October 1898.

⁴⁴⁷ “Sinfonía,” *Caras y Caretas*, 7 October 1905.

MANGA DE LANGOSTA



Slento profundo dolor
no lo puedo remediar!
al leer y comentar
las quejas del Interior,
pues aunque no se dirijan
á mí los que así se quejan,
las penurias que reflejan
es natural que me utilicen.
De los Andes á la costa
nuestro territorio vasto
está sirviendo de pasto
á la insaciable langosta,
cuyo apetito feroz
y cuyo afilado diente
lo hallan todo insuficiente
para su estómago atroz.

Por eso dueñenme ¡oh, sí!
las quejas de los de afuera:
pero ¡si esa gente viera
la langosta que hay aquí...!
rompería en maldiciones
contra la langosta nuestra:
¿lo dudan? Pues, para muestra,
allá van unos botones:



Político figurón,
falsa personalidad
tan llena de vanidad
cuanto ayuna de instrucción;
que todo lo disimula
(hasta su altivez menguada)
por sacarle una tajada
al patrón á quien adula,
y al echársela de honesto
roba de un modo ostensible...
¡Ahí tenéis á la terrible
langosta del presupuesto.



Industrial ó comerciante
que, de la nada salido,
hoy se cree convertido
en una fuerza importante;
que en sus billetes se escuda
y con arrogancia necia
prime, ultraja y desprecia
al que le enriquece... y suda;
y al pobre que se las trajo
paga tan mal las mercedes...
¿es que lo saben ustedes?
¡La langosta del trabajo.



Funcionario respetable,
odo parada y tiesura,
que demostrarnos procura
su celo incommensurable,
y va y viene, sube y baja
con fingida actividad,
sin que valga, en puridad,
un síquel lo que trabaja...
ese, de cada encomienda
saca plágüe beneficio,
tomando como un oficio
ser langosta de la Hacienda.



Leguleyo sin pudor,
juez venal, torpe estadista,
mano santa y mano lista
del saber simulador;
chusóptero del erario,
jubilado por sus vicios
mejor que por sus servicios
de mérito extraordinario...
Todos ¡ay! á nuestra costa
alimentan su egoísmo;
todos, todos son lo mismo...
¡buena manga de langosta!

JUAN OSÉS.



Figure 3 "Manga de Langosta." From PBT, 2 September 1905, p. 69. https://digital.iai.spk-berlin.de/viewer/image/861378881/69/LOG_0030/.

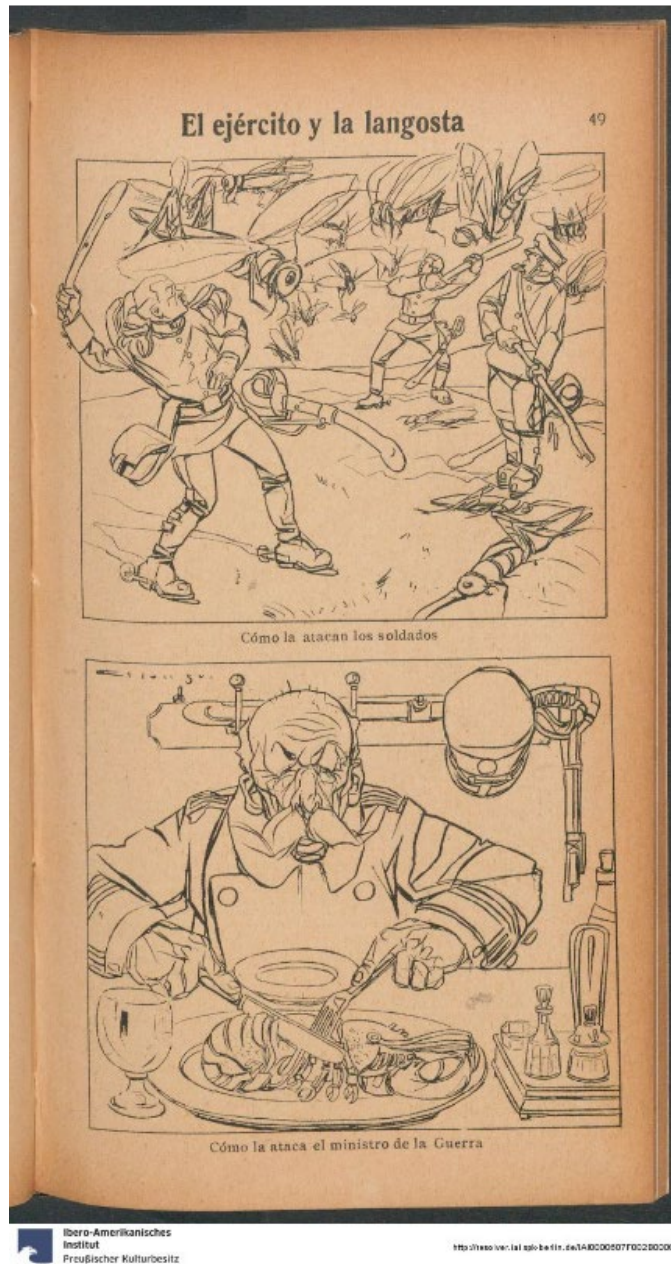


Figure 4 “El ejército y la langosta.” From PBT, 30 September 1905, p. 49. https://digital.iai.spk-berlin.de/viewer/image/86137987X/49/LOG_0028/.

In a biting and revealing commentary, a 1905 article from *Caras y caretas* described the difficulties of incentivizing people to fight locusts. The article, tellingly titled “Los pastores de langostas” described how a train came to a halt “en pleno desierto santiagueño” after one of the cars became detached. The passengers, including the author, left the train to wander about while the conductor and other workers sought to resolve the matter. The author

recounted how he and some other passengers came upon two young men corralling locusts. The author recounted how the swarm of *saltona* resembled the color of earth or dry branches, that “moved as though the earth were boiling” as they jumped and fell. The author recalled “entire towns” in Santa Fe devastated by the insect. They approached the young men and asked if the locusts had damaged their crop. According to the author, the two young men gave them a strange look and replied that there were no crops in the vicinity. They had no intention of killing the locusts, they said, “because they are still too little.” The incredulous author reminded them that it was much easier to kill the *saltona* than the *voladora*. The men replied that they were actually cultivating the locusts, because, “in the town the commission pays so much for the bags of dead locusts and since this swarm is still very small, within a few days they [i.e. the commission] will give us much more.”⁴⁴⁸ Locusts became, if not a source of food, at least a commodity of sorts in this rural market.

In another satirical critique, a cartoonist for *Caras y Caretas* wrote that Victor Hugo had imagined God and the devil making a bet to see who could create “the most beautiful thing.” The devil combined the head of an antelope, the horns of a bull, the wings of an eagle, and the leap of a tiger, “and presented his work to God. It was a locust.” God in his turn turned “an ugly spider” into a radiant sun. This is what Hugo had written, according to the cartoonist. “But what never reached his ears is that the demon, filled with envy, and after pondering for many centuries, created Agricultural Defense.”⁴⁴⁹

On the cover of one issue of *Caras y Caretas* from 1908 was a cartoon of a locust, the size of a human and dressed as a man, speaking to a police officer (Fig. 6). The locust-person asked the officer, “Tell me, sir, do you know where Agricultural Defense is, for I carry a

⁴⁴⁸ “Los pastores de langostas,” *Caras y Caretas*, 29 April 1905.

⁴⁴⁹ “Menudencias,” *Caras y Caretas*, 12 June 1909.

message for them?” The officer responded, “Defense of...what? I don’t know anything about that!” The locust, apparently exasperated, ended with “It’s fine! In the countryside no one knows about it, nor in Buenos Aires. How can I see those gentlemen in person?”⁴⁵⁰ The conversation suggested that Agricultural Defense was so ineffective as to be irrelevant, both in the rural areas where it operated and in the capital city.

Although most of the hard work of killing locusts was carried out by peasants, in some cases the wealthy engaged in the work as well, as a kind of recreation. One 1906 issue of *Caras y Caretas* showed Deputy Varela Ortiz throwing a party for wealthy friends at a resort in Córdoba (Fig. 7). Accompanying photos showed elegantly dressed men and women “attacking the invasion of the locust,” as well as lounging in well-kept gardens.⁴⁵¹ Perhaps this festivity was a variation on the trope of wealthy people “playing at” being peasants. In any case, such instances were quite rare.

⁴⁵⁰ “La langosta mensajera,” *Caras y Caretas*, 14 November 1908.

⁴⁵¹ “El veraneo en Ascochinga,” *Caras y Caretas*, 10 February 1906.

El cuento de la langosta

17



Este es el Genio de la Langosta, el que nos cuesta más que todos los otros genios, el que consume nuestros males y ni siquiera le queda para vestirse, el que aspira a cambiar el nombre Río de la Plata en el de Río Pelado.



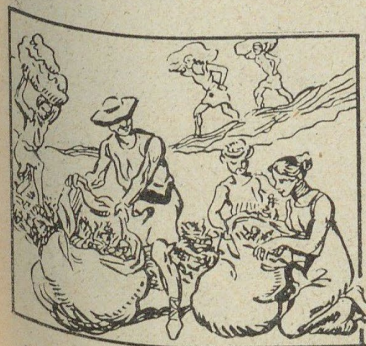
Con trabajo abrimos la tierra, que es muy dura, y sembramos el grano que debe producir la erupción benéfica de la cosecha. Sin embargo, nada recogemos de nuestros campos. Digo mal, no son "nuestros"; yo no tengo más campo que el de la imaginación.



Sopla el Genio de la Langosta y sale el acrólico que pone huevos, obedeciendo al precepto divino: "Creced y multiplicaos". ¿Qué puede hacer la comisión langosticida en este caso? ¡Nada! Contra un divino precepto, todo es al divino botón.



La comisión... pero no prosigo; el grabado no corresponde a tal cosa. Eso no es la comisión, por más que salta y vuela como ella por la plata. Es la misma langosta que nos echa el Genio en mangas o semimangas. ¡Qué grosero!



Y se busca la solución del problema, haciendo que la pobre gente mate y embalse algunos productos de ese genio. ¡Cuán craso error! Aquí el único remedio es el de la cocina africana...



... el de comerse las langostas aunque estén pateando. Así se consumiría a ellas y a la comisión en el gran banquete nacional. Primero, la langosta en todas formas, y luego, el plato azucarado de la comisión, para postre.

Figure 5 "El cuento de la langosta." From PBT, 2 October 1909, p. 17. https://digital.iai.spk-berlin.de/viewer/image/861416503/16/LOG_0008/.

CARAS Y CARETAS

SEMANARIO FESTIVO, LITERARIO, ARTÍSTICO Y DE ACTUALIDADES

JOSÉ S. ÁLVAREZ
FUNDADOR

CARLOS CORREA LUNA
DIRECTOR

JOSÉ M. CAO
DIBJANTE

AÑO XI

BUENOS AIRES, 14 DE NOVIEMBRE DE 1908

N.º 528

La langosta mensajera



—Diga, señor agente, ¿sabe usted dónde está la Defensa Agrícola, porque le traigo un mensaje?
—La defensa... ¿qué? ¡Yo no sé nada de eso!
—¡Está bueno! En el campo nadie la conoce, en Buenos Aires tampoco. ¿Cómo hago yo para verles la cara á esos señores?

Dib. de Cao.

Figure 6 "La langosta mensajera," from *Caras y Caretas*, 14 November 1908, title page.
<https://hemerotecadigital.bne.es/hd/es/viewer?id=86e92973-9887-4c69-b936-d95111c9024e&page=51>.

Another cartoon in *Caras y Caretas* ridiculed a Ministry of Agriculture plan to export dead locusts to Germany to be used in fertilizer production (Fig. 8). The cartoon showed each stage of the process in nine panels. The first panel showed “an army of peons” beating locusts with branches. The second panel showed a man reclining in a chair, wearing a smoking jacket and puffing on a cigar with a bottle of wine beside him. The caption read, “The commission of Agricultural Defense and subaltern employees, all of them modest people, hardly cost anything.” The contrast between the “peones” doing back-breaking labor in the fields and the bureaucrats relaxing with a bottle of wine illustrated the popular dissatisfaction with anti-locust efforts. The rest of the cartoon showed the remaining steps: sending the locusts by rail and ship to Germany, grinding and processing the locusts, until at last “the locust will be sold in the good pharmacies of Berlin at the price of radium.”⁴⁵²

⁴⁵² “Chafalonía,” *Caras y Caretas*, 17 April 1909.

El veraneo en Ascochinga



Concurrentes a la fiesta ofrecida por el diputado Varela Ortiz



Pequeños veraneantes



Atacando la invasión de langosta



El diputado Varela Ortiz matando langostas



Figure 7 Fighting Locusts at a Party. *Caras y Caretas*, 10 February 1906.
<https://hemerotecadigital.bne.es/hd/es/viewer?id=1065e499-cf37-4501-abb9-2bd525b948a9&page=34&search=langosta>.

Chafalonía



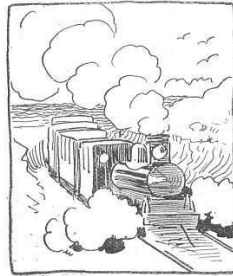
Leemos en los diarios que el ministro de agricultura tiene el proyecto de mandar unas cuantas toneladas de langosta á Alemania para que la prueben como abono.



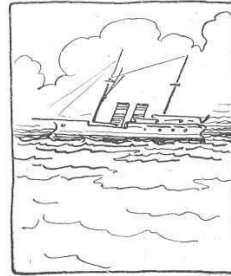
Primero hay que matarla, destinando á tal objeto un ejército de peones, lo cual representa un gasto insignificante.



La comisión de la Defensa Agrícola y los empleados subalternos, todos ellos modestísimas personas, no cuestan casi nada.



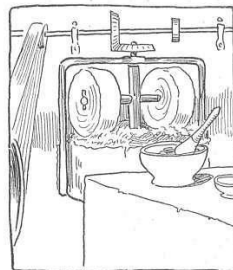
El transporte de la langosta en carreta y luego por ferrocarril hasta el puerto es una bagatela.



El flete del vapor que la lleve al otro mundo será tan poca cosa, que no hay para que tenerlo en cuenta.

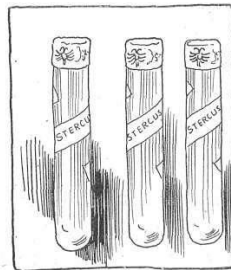


Después los alemanes la pondrán á secar, procediendo á extraerle el ácido acídico, que es muy bueno para el dolor de muelas.



Y reducirán el residuo á polvo impalpable, temerosos de que lleve alguna semilla de cuscuta ó de cardo ruso, que son la mayor peste de los campos y sembrados.

Dib. de Cao.



La parte utilizable será envasada en tubos de cristal perfectamente cerrados con el sello de garantía del gobierno alemán.



De todo lo cual resultará que la langosta criolla se venderá en las buenas boticas de Berlin al precio del radium.

Figure 8 Cartoon Panels from *Caras y Caretas*, 17 April 1909.

<https://hemerotecadigital.bne.es/hd/es/viewer?id=17e00af2-f077-4674-a878-019f95dcffa4&page=58>.

Despite agreement on the importance of agriculture, there was less consensus about the efficacy of national programs to protect agriculture. In 1913 Deputy Rafael Castillo of Catamarca lambasted the public health programs designed to fight malaria and, in a revealing passage, compared them to anti-locust programs,

It has been observed at one time a large group of men who said: these come to fight malaria, *el chucho*, as they say there. They walked in the streets of certain populations, then began the work, which consisted in digging ditches, in destroying roads, in destroying irrigation canals, to such an extent, that the whole population proclaimed: Out with the anti-malaria defense! Exactly what occurs in the provinces, in other years, with the defense against the locust, because it caused more damage in the provinces—and the interior minister must know this too—than the locust itself.⁴⁵³

According to Castillo, the anti-malaria efforts relied on methods similar to those employed against locusts, and with similar effects: the destruction of roads that inhabitants needed for travel and commerce. And malaria, like the locusts, continued to be a problem. Deputy

Estanislao Zeballos of the capital city declared:

Hardly is one of these measures begun in our country, [and] the necessity of employees and the influences that they bestow convert these initiatives in articulations so serious and complicated that they fail. I remember, sir, that I had the honor of being named first president of the commission that was created to combat the locust, back in the year 1892; and in fifteen days I presented my resignation, because such was the avalanche of employment seekers and people chasing the money allocated to combat the insect that, threatened more by the locust bureaucracy, I said to the president of the republic: we need to defend against employment-mania, and afterwards we will finish by combatting the locust.⁴⁵⁴

Zeballos denounced the “bureaucratic locust” that he was once a part of, arguing that it essentially functioned as machinery to dispense money and employment in what he described as “empleomanía.” This not only did not lead to the destruction of locusts; it created opportunities for corruption and favoritism.

⁴⁵³ “Se ha observado alguna vez un grueso destacamento de hombres de quienes decían: estos vienen a combatir el paludismo, el chucho, como dicen allá. Andaban por los callejones de ciertas poblaciones, luego principiaron los trabajos, que consistían en hacer zanjas, en echar a perder los caminos, en destruir las acequias, a tal grado, que hacía clamar a toda la población: ¡Qué se vaya la defensa contra el paludismo! Exactamente lo que ocurría en las provincias, en otros años, con la defensa contra la langosta, porque causaba más daño en las provincias—y eso lo debe saber también el señor ministro del interior—que la langosta misma.”

Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1913 Tomo I Sesiones Ordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía, 1913), 898.

⁴⁵⁴ “Apenas se inicia alguna de estas medidas en nuestro país, la necesidad de empleos y las influencias que los prodigan convierten estas iniciativas en articulaciones tan graves y complicadas, que fracasan. Yo recuerdo, señor, que tuve el honor de ser nombrado primer presidente de la comisión que se creó para combatir la langosta, allá por el año de 1892; y a los quince días presenté mi renuncia, porque era tal la avalancha de pretendientes a empleos y de pretendientes de los dineros destinados a combatir el insecto, que, amenazado más por la langosta burocrática, dije al presidente de la república: hay que empezar por defenderse de la empleomanía, y después acabaremos por combatir la langosta.”

Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1913 Tomo II Sesiones Ordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía, 1913), 426.

Deputy Enrique Dickmann was one of the harshest critics of Agricultural Defense. He declared that he had visited a market in the capital city. “I spoke with the chief of the market,” he recalled, “who appears in the budget as sub-commissioner of agricultural defense, because it appears that, not having any locusts to kill or not being able to kill them, the sub-commissioners of Agricultural Defense are in this little market.” He described the market as “a true public embarrassment” that should be shut down as a public health threat.⁴⁵⁵

Although the Minister of Agriculture defended the ministry’s budget and argued that they were spending much less than in previous years, Deputy Juan B. Justo of the capital city lambasted the ministry.⁴⁵⁶ “The Minister of Agriculture,” he argued,

has appeared to be surprised by the attitude of the socialist delegation with respect to the budget of the ministry in his charge. It appears to me that the Minister of Agriculture does not know the immediate antecedents of the attitude of the socialists in this moment, in this Chamber and in the general politics of Argentino with respect to his ministry. If he knew them, the Minister would know that, being deeply interested in national agriculture, understanding agriculture above all else as the *agricultores*, we have had a lukewarm interest [*interés mediocre*] in that bureaucratic organization known as the Ministry of Agriculture, of which we have always made a target of criticisms that have seemed to us in all respects justified.⁴⁵⁷

Justo also criticized the minister of agriculture for his response to “the first agrarian agitation in the country, which he understood so little, that he considered it simply a problem for the

⁴⁵⁵ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1914 Tomo V Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía., 1914), 396.

⁴⁵⁶ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1914-15 Tomo VII Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía., 1914), 183-184.

⁴⁵⁷ “El señor Ministro de Agricultura se ha manifestado sorprendido por la actitud de la diputación socialista en lo que se refiere al presupuesto del ministerio a su cargo. Me parece que el señor Ministro de Agricultura no conoce los antecedentes inmediatos de la actitud de los socialistas en este momento en esta Cámara y en la política general argentina en lo que respecta a su ministerio. Si los conociera, el señor Ministro sabría que interesándonos profundamente la agricultura nacional, entendiendo ante todo por agricultura a los agricultores, hemos tenido un interés mediocre por esa organización burocrática que se llama ministerio de Agricultura, a la cual hemos hecho siempre blanco de críticas que nos han parecido de todo punto de vista justificadas.” Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 187.

police.” He argued that the taxes that funded the ministry of agriculture heavy “above all for the farmers.”⁴⁵⁸

In another session, Deputy Dickmann explicitly compared the anti-locust bureaucracy itself to locusts:

I am not going to recount the long and sad history of this repartition. The scandals and messes that have happened during the long years in Agricultural Defense are public knowledge; it is almost a popular chorus that the locust is not in the fields, but in the offices of Agricultural Defense. Farmers and colonists fear the employees of Agricultural Defense much more than the very locust. And it is not only my claim, deputies: one need only tour the countryside to come to the conclusion that the scourge of the farmers in the last few years has been as much the employees of Agricultural Defense as the locust.⁴⁵⁹

He argued that the money would have been better spent in colonizing the interior of the country: “I am certain that with the 70 million pesos that have been spent in killing the locust, half the country could have been populated, and then, with a more dense population, the locust could have been attacked with more efficiency.”⁴⁶⁰ In this he echoed common concerns about the need to populate the country that had been voiced since Sarmiento. He alleged that some private citizens would actually dig up dead locusts that employees of commissions had already killed, and turn those in to receive a bounty, and that some high-ranking ministry officials held more than one position and were drawing pay from both jobs.⁴⁶¹

Dickmann cited an article in *La Nación* from July 1914 by some farmers in Santa Fe saying they should be allowed to set the policies for fighting locusts in their communities

⁴⁵⁸ Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 187, 188.

⁴⁵⁹ “No voy a hacer la larga y triste historia de esta repartición. Son del dominio público los escándalos y los desbarajustes que se han sucedido durante largos años en la Defensa agrícola; es ya casi un estribillo popular que la langosta no está en los campos, sino en las oficinas de la Defensa agrícola. Los chacareros y los colonos temen mucho más a los empleados de la Defensa agrícola que a la misma langosta. Y no es una simple afirmación mía, señores diputados: basta recorrer la campaña para sacar la conclusión de que el azote de los chacareros en los últimos años han sido tanto la langosta como los empleados de la Defensa agrícola.” Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 207.

⁴⁶⁰ Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 207.

⁴⁶¹ Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 207.

because they knew best how to take of their own interests. These authors also argued that “the development commission should be the representative of Agricultural Defense” which would assure local control. Dickmann recounted a visit he made with Deputy Justo to office of agricultural defense in Villa María, Córdoba. When they arrived, the representative of agricultural defense was “arranging his moustache in front of a mirror,” with a servant; then his superior arrived and started fixing his own moustache. As Dickmann recounted the encounter, when he and Justo revealed that they were deputies from the national congress, “he stammered, lost his thoughts, and could not give any information.” Then the two employees showed the deputies a map: “The man pursued the locust on a map!” Dickmann recalled derisively. “Thus,” he concluded, “the complaint of the colonists is perfectly just and should be attended to with all urgency.”⁴⁶²

Another problem facing Agricultural Defense was the transnational nature of locust swarms. In his opening address to congress in 1914, acting president Victorino de la Plaza discussed the recent international treaties Argentina had signed with respect to locusts. “These pacts,” he told congress, “constitute an intimate union between the nations that sign them, destined not only to protect agriculture against the plagues that affect them, but also, and importantly, to combat in their original centers the production of locusts, whose constant invasions are the cause of great harm to one of the principal sources of national wealth.”⁴⁶³ The treaty established an international commission that would have free access to the territories of all the signatory countries. According to the text of the treaty, “as soon as the initial mission is over, the Commission will consider proposing the creation of an

⁴⁶² Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 208-209.

⁴⁶³ Cámara de Senadores, *Diario de sesiones de la Cámara de Senadores, Año 1914 Sesiones Ordinarias* (Buenos Aires: n.p., 1914), 53.

International Central Station and any substations that it considers necessary” to coordinate anti-locust operations across borders.⁴⁶⁴ The member nations would share the expenses of anti-locust efforts that crossed borders, and would share the scientific results of any substations that were established. They would also internationalize attempts to track locust migration via telegraph. All these coordination efforts were meant to locate and deal with the permanent zone; each country would follow its own policies with respect to the subpermanent and temporary zones. The treaty established Asunción as the city at which they would meet for their first collective conference.⁴⁶⁵ This treaty was one of three treaties signed in Montevideo by member countries; the other two dealt with public sanitation and preventing import/ export of diseased crops and animals.⁴⁶⁶ Addressing locust plagues required actions at levels ranging from the international to the local, and the precise nature and priorities of anti-locust work at each level was a constant source of debate.

Deputy Lisandro de la Torre from Santa Fe argued that the budget for anti-locust campaigns was far from sufficient. He also emphasized that national laws should take into account local differences. More importantly, he argued that the mandatory labor system was poorly devised and outdated: the anti-locust administration, “was in reality improvised in 1898, in the presence of a great invasion of locusts, without a clear perception of the issue” that the locusts presented.⁴⁶⁷ He criticized what he saw as the overly-centralized organization of the anti-locust bureaucracy. It was, he argued, based and administered from Buenos Aires, “where, as it is known, locusts only appear occasionally and in small quantities,” and it was

⁴⁶⁴ Senadores, *Sesiones Ordinarias, 1914*, 163.

⁴⁶⁵ Senadores, *Sesiones Ordinarias, 1914*, 163.

⁴⁶⁶ Senadores, *Sesiones Ordinarias, 1914*, 165-166.

⁴⁶⁷ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1914-15 Tomo VII Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía., 1914), 192.

run mainly by bureaucrats from that city, who did not understand either the places they were meant to administer or the reality of locusts. In a short time, he argued, anti-locust efforts were effectively run at the local level, and that was for the best:

the sectional commissions, and above all the local commissions of agricultural defense, found themselves in a very different situation: they functioned in places that had been invaded; they were composed, or should have been composed, of people directly interested in the salvation of their harvests; they required a very bearable amount of work during a brief period of time; and thus they functioned normally, achieving the purposes and mandates of the law, with an enormous economy for the State and with effective results.⁴⁶⁸

It was wrong, then, to replace these local actors with a centralized bureaucracy, as the president had done in 1907. He continued:

There are zones in the country and situations where the work of locust extinction represents for the owners or occupants of the land a growing expense, less for their own benefit, than for the benefit of the collective, and other regions or other situations where the farmers work on locust extinction in their own benefit and to save their crops.⁴⁶⁹

The key, according to de la Torre, was that locust work should fall to, and be run by, those who were most personally invested in the work, rather than being a uniform obligation administered by the national government in Buenos Aires.

Deputy Cúneo of the capital city agreed that locusts posed a major threat to the nation's agriculture, but like other critics pointed to the dismal track record of agricultural defense: "Every one of the experts, every one of the naturalists, debates if the Argentine locust is the same as in Brazil, in Algeria, in Italy, etc....if there is anyone who truly

⁴⁶⁸ "En cambio, las comisiones seccionales, y sobre todo las comisiones locales de la defensa agrícola, se encontraban en muy distinta situación; funcionaba en los lugares invadidos; estaban compuestas, o debían estar compuestas, por personas directamente interesadas en la salvación de las cosechas; se les exigía un trabajo relativo, muy soportable, durante un espacio breve de tiempo; y así fué que actuaron normalmente, realizando los propósitos y los mandatos de la ley, con una enorme economía para el Estado y con resultados eficaces." Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 193.

⁴⁶⁹ "Hay zonas del país y hay situaciones donde el trabajo de extinción de la langosta representa para los propietarios u ocupantes de la tierra, realizar una erogación crecida, menos en beneficio propio, que en beneficio de la colectividad, y hay otras regiones u otras situaciones en las que los agricultores trabajan en la extinción de la langosta en beneficio propio y para salvar sus cultivos." Diputados, *Sesiones Extraordinarias, Año 1914-15 Tomo VII*, 193.

understands what the locust is, it is precisely our own *campesinos*.”⁴⁷⁰ He presented detailed calculations showing that in order to fight locusts effectively using the mechanical methods thus far employed, agricultural defense would require hundreds of thousands of workers and tens of millions of pesos.⁴⁷¹ He laid the blame in one place: “the responsibility of this disastrous result should lie on that which is called Agricultural Defense, because that agency, no one else, is responsible.” He reasoned that Agricultural Defense failed primarily when it decided to stop enforcing the provision of the 1898 law that called for fighting locusts at all stages of life, including the *voladora*.⁴⁷² He argued that this resignation, this refusal to attack adult locusts (i.e. the *langosta voladora*) had hindered the most important weapon: the will of private citizens to participate in fighting locusts: “If every inhabitant knew that each locust that they kill means the death of four hundred of those insects, it is certain that each one would occupy themselves with killing them, even it were by shotgun.”⁴⁷³ The key, he argued, was to fight them when they had landed and were immobile: “in total, there are twenty hours in which the locust remains inactive, unable to move, and in this moment it can be destroyed by any method.”⁴⁷⁴ The result of this inaction was that locusts were allowed to reproduce in agricultural regions unmolested.⁴⁷⁵

Searching for Solutions

Members of congress agreed that agriculture was a major sector of the nation’s economy. In December 1915 Deputy Horacio B. Oyhanarte of Buenos Aires province

⁴⁷⁰ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Años 1916-1917 Tomo V Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1917), 4053.

⁴⁷¹ Diputados, *Sesiones Extraordinarias, Años 1916-1917 Tomo V*, 4055-4056.

⁴⁷² Diputados, *Sesiones Extraordinarias, Años 1916-1917 Tomo V*, 4058.

⁴⁷³ Diputados, *Sesiones Extraordinarias, Años 1916-1917 Tomo V*, 4059.

⁴⁷⁴ Diputados, *Sesiones Extraordinarias, Años 1916-1917 Tomo V*, 4060.

⁴⁷⁵ Diputados, *Sesiones Extraordinarias, Años 1916-1917 Tomo V*, 4060.

declared: “All our wealth comes from the earth, agriculture, and livestock, one could say exclusively.”⁴⁷⁶ In his 1915 address to the Senate, President Victorino de la Plaza emphasized the severity of the locust invasion, but also argued that cooperation between the national, provincial, and local governments had succeeded in minimizing the losses caused by locusts. He argued that the “principal characteristic of the campaign of Agricultural Defense of 1914-1915 is the reduced personnel employed and the collaboration of the communities and provincial governments.”⁴⁷⁷ He noted that in the past, Agricultural Defense had relied on large numbers of employees, as many as four thousand at a time in addition to mandatory labor service from people living in affected areas. The cost of each campaign could be as high as nine million pesos. But, he argued, the mandatory labor service had not always been enforced. In the most recent invasion, the government had sought to rely more heavily on this citizen force. As a result, he boasted to the senators, the government had only hired about 300 paid employees and spent about 600,000 pesos; this year they needed even less, because much of the equipment was still in place from previous years. He also said that the governor would begin to subsidize the sale of “gasoline [*nafta*], employed with such success in the killing of the [locust] *mosquita*...looking thus to do away with all pretext for indolence and inaction, fully understanding the importance for the country of achieving maximum production.”⁴⁷⁸ The aim of this new policy, then, was to pressure farmers to comply with labor obligations which they had allegedly been skirting; if the harvest had been less than ideal, the president cast farmers as one of the responsible parties.

⁴⁷⁶ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1915 Sesiones Extraordinarias Tomo IV* (Buenos Aires: Talleres Gráficos de “La Gaceta de Buenos Aires,” n.d.), 30.

⁴⁷⁷ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores Año 1915 Sesiones Ordinarias y Extraordinarias* (Buenos Aires: n.p., n.d.). 21.

⁴⁷⁸ Senadores, *Sesiones Ordinarias y Extraordinarias Año 1915*, 21-22.

President Victorino de la Plaza returned the urgency of dealing with locust invasions the following year, and specifically noted that the expansion of agriculture made crops that much more vulnerable:

the last invasions of locust can be considered the most numerous up to the present, for if in some years locusts advanced a little bit more towards the south, which, although not frequent, on the other hand and due to the constant national development, there was never, in the affected zone, such a vast extent of crops liable to suffer damages, nor were the demands for the services of Agricultural Defense greater, to preserve the cereals from the voracity of the insect.⁴⁷⁹

Thus, as agriculture grew in importance for the national economy, so Agricultural Defense became more and more indispensable, however inefficient it might be. He also, like others, feared the possibility that the total range of locust invasions would gradually expand.

A bill proposed in the Chamber of Deputies in 1916 called for the national government to send qualified entomologists, “to identify the class of fly that attacks the *langosta saltona* in the province of Córdoba”; the hope was that this fly could be transported to and bred in the regions that locusts attacked.⁴⁸⁰ Deputy Wenceslao Carranza of Córdoba frankly discussed the need for a different approach to locust control: “it is indispensable to observe, perhaps at great risk, the total failure of law 3708 dictated by the honorable congress of the nation in 1898 for the extinction of the locust.”⁴⁸¹ He recounted the history of the law and the circumstances under which it had been passed:

in 1898, when the law entered into force, the invasion of the locust was circumscribed to the provinces of the north and center of the republic; but as the fight intensified...the locust, in direct proportion to the magnitude of the work, visibly widened its zone of action; and to date, with eighteen years of continuous persecution and the people and government of Argentina having spent huge sums, we find ourselves that not even the trees of the plaza and Avenida de Mayo in this capital have been spared the

⁴⁷⁹ “Por muchos conceptos, las últimas invasiones de langosta pueden considerarse como las más numerosas hasta el presente, pues si bien algunos años las mangas avanzaron algo más hacia el Sud, lo que, empero no es frecuente, en cambio y debido al constante desarrollo nacional, nunca hubo, dentro de la zona afectada, una extensión tan grande de cultivos expuestos a sufrir perjuicios, ni fueron mayores las exigencias de los servicios de la Defensa Agrícola, para preservar las mieses de la voracidad del insecto.” Cámara de Senadores, *Diario de sesiones de la Cámara de Senadores, Año 1916 Tomo I Sesiones Ordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1916), 41.

⁴⁸⁰ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1916 Tomo II Sesiones Ordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1916), 1582.

⁴⁸¹ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1582.

voracious attacks of this plague, which continues ‘in crescendo’ and causing grave disturbances in the order of our national economy.⁴⁸²

He reiterated the long-standing fears that locusts would expand beyond the regions they had hitherto affected: “invasions of the locust have spilled beyond the limits of the republic, running into the neighboring [republics] in such an alarming proportion that carries the possibility of becoming a continental calamity.”⁴⁸³ People in affected areas, he argued, were only tasked with telegraphing the sightings of locusts and which direction they were flying, and it was only when the locusts landed and began to lay eggs that residents were dragooned into labor gangs to dig up the eggs.⁴⁸⁴ Even then, their hearts were not in the fight. Laborers, Carranza argued, “attend to their duties only to evade the application of the corresponding fines. In their expressions [*ánimos*] is seen, nevertheless, the crudest demoralization.”⁴⁸⁵

Carranza recalled that during the 1898 invasion there were reports from Córdoba province that “the locust suffered a sensible diminution, that it only flew in reduced quantity and soon after, none at all flew” and that something similar had happened in 1906. He claimed that it was well-known and accepted that a certain kind of fly killed the locust. Therein lay the solution, he argued: “A result like the one we suggested and has been proven, could never be compared with the sterile and expensive campaign of eighteen years in which the persecution has been as constant as it has been useless.”⁴⁸⁶ The key was to find out how

⁴⁸² “en 1898, cuando la ley entró en vigencia, la invasión del acridio se circunscribía a las provincias del norte y centro de la república; pero a medida que la lucha se intensificaba...la langosta, en razón directa a la magnitud de los trabajos, ensanchaba visiblemente su zona de acción; y a la fecha, con diez y ocho años de continua persecución y habiendo gastado pueblo y gobierno ingentes sumas, nos encontramos con que ni los árboles de la plaza y Avenida de Mayo en esta capital han dejado de sentir los ataques voracidad de esa plaga, que sigue ‘in crescendo’ y ocasionando graves perturbaciones en el orden de nuestra economía nacional.” Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1582.

⁴⁸³ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1582.

⁴⁸⁴ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1583.

⁴⁸⁵ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1583.

⁴⁸⁶ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1584.

to cultivate the expansion of this species, at the expense of the locust: “It is imperative to face the problem scientifically, searching for the way to propagate this natural agent” across the country. He added that the cost of the program was an additional burden to the cost of agricultural losses—because the program itself was quite expensive. Finally, he dismissed concerns that encouraging the spread of this fly would prove a mistake in the long run, noting that there was no evidence that they were a vector for either human or animal diseases.⁴⁸⁷

With this strategy in mind, four deputies sponsored a bill to re-found the national entomology institute (this institution had been created with the law of 1897 and re-affirmed in the legislation the following year; unfortunately I have not been able to identify when it was dissolved the first time or why).⁴⁸⁸ One of the bill’s sponsors, Jerónimo del Barco of Córdoba, argued that the “most effective and economic remedy against agricultural plagues, is to oppose them with their own enemies, whom nature has charged with limiting the prodigious multiplication of prejudicial insects that otherwise would come to devastate the world.”⁴⁸⁹ He argued that they needed to move rapidly, “and not waste time in studies by scientific commissions” on the fly that they hoped to cultivate.⁴⁹⁰ He noted that President Sáenz Peña had originally founded the entomological institute, but Agricultural Defense continued to rely on “mechanical methods” to fight pests.⁴⁹¹ Although he made this reference with respect to a different pest, the diaspis pentágona (*Pseudaulacaspis pentagona*), his point was that that pest had been successfully controlled with biological methods:

What has been achieved with the diaspis will also be achieved with the locust, scientifically propagating the fly referred to in the bill by Deputy Carranza, already studied since 1905 by the same

⁴⁸⁷ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1584.

⁴⁸⁸ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1772.

⁴⁸⁹ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1772-1773.

⁴⁹⁰ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1773.

⁴⁹¹ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1773.

doctor Caride whose studies I follow with great interest and which merit the attention of the public authorities.⁴⁹²

He argued that “nature has put beside every plague the enemy capable of containing it and avoiding its spread, and the mission of human intelligence consists in knowing the beneficial effects and taking advantage of them, favoring their propagation.”⁴⁹³ He reiterated his belief that further study would be a waste of time and that the “biological method is an eminently economical application, and well merits the trouble of applying it without losing time” as the most effective and cheapest way to fight locusts. He concluded by calling for the re-establishment of the entomological institute, which had previously been established by President Sáenz Peña, and had the advantage of being an independent agency within the ministry of agriculture.⁴⁹⁴

A report from one Cecilio Tribodi, written a few years earlier, was entered into the record in 1916, during a debate about a chemical solution invented by Julio C. Moranchel to kill locusts. Tribodi recalled that he had obtained good results using a chemical agent called the Moranchel solution to kill locusts. It was a liquid solution that he sprayed with an irrigation pressure hose [*aparato de riego a presión*], the “invention of the same gentleman [Moranchel] with which I could bathe perfectly well a swarm of locusts” when they were stationary while laying eggs.⁴⁹⁵ Tribodi praised the success of the spray, saying that most locusts died afterwards. He described in detail how to make the most effective solution, and noted that it was best to spray in the very early mornings and evenings.⁴⁹⁶ In another note

⁴⁹² “Lo que se ha conseguido con la diaspis, se conseguirá también con la langosta, propagando científicamente la mosca a que se refiere el proyecto del señor diputado Carranza, ya estudiada desde 1905 por el mismo doctor Caride, cuyos estudios sigo con verdadero interés y merecen la atención de los poderes públicos.”

Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1774.

⁴⁹³ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1774.

⁴⁹⁴ Diputados, *Sesiones Ordinarias Año 1916 Tomo II*, 1774.

⁴⁹⁵ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1916 Tomo III Sesiones Ordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1916), 2783.

⁴⁹⁶ Diputados, *Sesiones Ordinarias Año 1916 Tomo III*, 2783.

entered into the record from “subinspector G. Acuña”, the author described his experience with Moranchel’s spray. Moranchel prepared the solution with well water; they sprayed an enclosed area three times and returned the next day to find all the locusts dead. Acuña noted that the solution did not burn human skin and only had mild effects on crops like alfalfa and maize.⁴⁹⁷ A few other reports, also from previous years, concurred that the Moranchel solution was effective against locusts and did not cause harm to humans.⁴⁹⁸

Agricultural Defense and Rural Reform Efforts

Enrique Dickmann, one of the most strident critics of anti-locust efforts, was also skeptical of other rural reform efforts by the national government. Dickmann denounced the system of agricultural education in the country as “the most anarchic.” He visited a school at a place called “las islas del Tigre” and sought out the director. Everyone he asked kept telling him the director was away. He found a man and asked him how much he was paid; the man responded that he didn’t know.⁴⁹⁹ The man also told him the agricultural school he was looking for didn’t exist. Dickmann remembered: “There was just a shed replete with tools in boxes that, according to my information, have been sold by an agricultural tool company that had unusable stock, which it sold to the Ministry of Agriculture, for that practical school of arboriculture and horticulture.”⁵⁰⁰ He recounted another visit to a fictional school. This school, at colonia Rafaela in Santa Fe, was being run by a close relative of a director of agricultural education. The administrator of the school went on to become the “inspector general of agricultural education.” Finally, he listed two schools that existed but functioned

⁴⁹⁷ Diputados, *Sesiones Ordinarias Año 1916 Tomo III*, 2783-2785.

⁴⁹⁸ Diputados, *Sesiones Ordinarias Año 1916 Tomo III*, 2785-86.

⁴⁹⁹ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1914-15 Tomo VII Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso & Cía., 1914), 210.

⁵⁰⁰ Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 210-211.

poorly and at a high cost to the government.⁵⁰¹ He reported an allegation that some agricultural students at a school in Posadas (province of Misiones) “have taken residence in Posadas as vigilantes. Students who cost two thousand pesos per year are now vigilantes!”⁵⁰² Dickmann argued that educating a single farmer at one of these schools is several times more expensive than educating doctors and lawyers, and they “can hardly find employment in the country.”⁵⁰³

Dickmann went on to attack the General Directorate of Land and Colonies (*Dirección general de tierras y colonias*) saying even though its budget had been diminished, “it is still largely parasitic, useless, and if it serves for anything, it is for the embezzlement of public land in the country. It serves for the creation of latifundios, as is demonstrated by documents and plans that I have.”⁵⁰⁴ He then criticized the immigration department; the Socialist Party of which he was a member, he declared, stood against “all artificial promotion of immigration” to Argentina. He was not opposed to immigration per se, but he accused the government of artificially encouraging immigration in order to keep wages low.⁵⁰⁵

Critics of the government’s agrarian policy argued that locusts, frosts, and drought were not the only problems afflicting farmers. They attacked the government’s policy of distributing seeds to farmers. Under this policy, farmers received seeds as a loan which they would repay with the proceeds of the first harvest. Deputy Victor M. Molina had sponsored a bill for the national government to aid and repair losses incurred by farmers. Article 4 enjoined the government to “cooperate in the restoration of losses in the agricultural industry

⁵⁰¹ Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 211.

⁵⁰² Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 211.

⁵⁰³ Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 213.

⁵⁰⁴ Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 216.

⁵⁰⁵ Diputados, *Sesiones Extraordinarias Año 1914-15 Tomo VII*, 216-217.

caused by drought, locusts, etc., supplying [*anticipando*] the seeds, tools, and harvest elements [*elementos de recolección*] to farmers who lack the means to continue the exploitation of the land that they occupy, being able to invest for these purposes the sum of 12,00,000 national currency.”⁵⁰⁶

Deputy Nicolás Repetto of the capital city challenged the proposal when it was first introduced to congress, and he connected his criticisms to anti-locust efforts. First of all, he argued, the bill provided for the distribution of seeds to any “farmer” (*agricultor*) who needed them, which was much too broad. He then quoted from a letter from an anonymous “resident of the Pampa”, an Italian colonist who claimed that one employee of Agricultural Defense, whose job it was to distribute seeds, instead went around selling his own jars of tomato paste. The employee would mark whoever bought them as participating in anti-locust work, “and in this way they avoided that this man would denounce them as negligent in the killing of the locust.” The letter further accused the employee of only distributing seeds to those who would pay him with their produce.⁵⁰⁷ The fact that he leveled this attack during a discussion about a proposal that technically was not related to locusts (and regarding an official whose job at first appears to be unrelated to locusts) suggests the extent to which anti-locust efforts had been a target of critics of corruption.

Congressional critics of seed distribution also argued that the seeds were of poor quality and left farmers across the country in debt. Here again, Enrique Dickmann of the capital city led the charge; he argued that the harvest “has failed mainly because of the poor quality of seed” and this was because seeds had been brought to Entre Ríos province “from

⁵⁰⁶ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1916 Tomo IV sesiones extraordinarias* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1917), 3012.

⁵⁰⁷ Diputados, *Diario de sesiones de la Cámara de Diputados, Años 1916-1917 Tomo V Sesiones Extraordinarias*, 5199.

the Pampa and the south of Buenos Aires, in large part wheat mixed from different classes: Russian and Hungarian wheat, late varieties; these varieties were mixed and brought to Entre Ríos, without acclimatization.” The program was faulty from the beginning: “the technicians and the official science of the ministry of agriculture did not know that seeds from one region cannot be transported with impunity to another without running the risk of a harvest failure.”⁵⁰⁸

The problem was that seeds that had done well in Buenos Aires province had been taken to Entre Ríos, a province with a different climate and soil conditions, with no accounting for the new environment. He lambasted those who carried out this operation, “that did not know and had no reason to know all these fundamental things having to do with agricultural education that the minister [of agriculture] has so praised, to ruin ‘very scientifically’ the poor colonists of Entre Ríos!” Moreover, the program was a failure not just in Entre Ríos but in “all the provinces that have received official [i.e. government-provided] seeds” across the country.⁵⁰⁹ In Mendoza, for example, seeds had been imported from Chile and thus far “hardly the tiniest number of them have sprouted.”⁵¹⁰

Deputy Juan B. Justo of the capital city argued that “the allotments of seeds to farmers are really protections for the [property] owners, who in this way add one more element of artificial value to their lands and rent them at a higher price. It is exactly what has happened with the extinction of the locust with resources taken from general rents.”⁵¹¹

Deputy Enrique Dickmann of the capital summed up the result of this policy in a report to the

⁵⁰⁸ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1916 Sesiones Preparatorias y Ordinarias Tomo I* (Buenos Aires: Talleres Gráficos de L.J. Rosso y Cía, 1916), 463-464.

⁵⁰⁹ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 463.

⁵¹⁰ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 465.

⁵¹¹ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1915 Tomo I Sesiones preparatorias y ordinarias* (Buenos Aires: Talleres Gráficos de «La Gaceta de Buenos Aires», n.d), 253.

ministry of agriculture in 1916, in which he told his colleagues, “in the midst of this extraordinary prosperity that many farmers celebrate...there is a great quantity of small farmers that also hope to collect the best fruits of the good year and who, instead, find themselves at the edge of ruin.”⁵¹² The problem was not one of net productivity; the problem was that the fruits of labor were not shared equally among contributors; the agriculture boom mainly benefited the small elite of landowners.

In a report to the minister of government in 1916, the head of the agricultural section of the agricultural department of Entre Ríos addressed the problems with the seed distribution program. The report was the result of complaints he had received from thirty farmers in Echagüe. Once there, the employee, one Yamandi, heard “complaints by farmers from different parts of Villaguay, Rosario Tala, Uruguay, Gualaguay and Gualaguaychú, telling me the causes of the failure of the harvest where the seed used was that which was distributed as a loan by the national government.” All the farmers he talked to “communicated that given the result obtained from the harvest, it was going to be impossible for them to fulfill the commitment of their contracts, to pay by the stipulated date the equivalent value of the seed, requesting for that reason a postponement until the next harvest.”⁵¹³

At first, he acknowledged, he suspected the complaints were exaggerated, because he had learned “much psychologically about our farmer” though he did not elaborate on what that meant.⁵¹⁴ Like Dickmann, he rejected the idea that seeds from one region could easily be grown in another region. He emphasized that the Argentine Farmer “needs to know the

⁵¹² Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1916 Tomo I Sesiones Preparatorias y Ordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso y Cía, 1916), 463.

⁵¹³ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 469.

⁵¹⁴ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 469.

climatological conditions where he should carry out the sewing, demands of the temperature, of the light and humidity” because these factors would allow a plant to thrive, or cause it to die.⁵¹⁵ Among the key factors he enumerated were heat, sunlight, soil humidity, and frosts and winds. He cautioned that transferring plants adapted to hot regions to colder regions was especially dangerous. Transferring seeds was not impossible, he argued, but it took time and expertise. Even transferring seeds from the Pampas region to his home province of Entre Ríos, he argued, could not be undertaken hastily, as the farmers he interviewed had discovered. Moreover, even if the seed lived to germinate, the plant itself would not necessarily survive to be harvested.⁵¹⁶

He concluded by acknowledging the good intent of the program but criticizing its execution: “If this initiative, stemming from sentiments of humanity and high governmental standards [alto criterio gubernativo], merits general applause, for being a measure of protection and a benefactor to those vital interests of the country; the application, on the other hand, and the execution of this complicated operation, that requires such preliminary study, to evade disaster as much as possible...was carried out too hastily [fué precipitadamente ordenada] and the result was the failure, not absolute, but relative, of the harvest proceeding from this seed.”⁵¹⁷

The authors of the program, he argued, had not done any preliminary research, and foolishly concluded that seeds that looked physically similar in size, shape, and weight, were more or less interchangeable.⁵¹⁸ He emphasized that participants in the program were closely screened and tested, as was the soil they were tilling. The people in charge of distributing

⁵¹⁵ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 469.

⁵¹⁶ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 470-472.

⁵¹⁷ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 473.

⁵¹⁸ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 473.

seeds personally examined how the farmers prepared their fields; thus, he argued, they could not blame lack of preparation on the farmers.⁵¹⁹ In his view, the main problem was quality control: although in many cases farmers appeared to be satisfied, there were some cases in which farmers received bags that were “of inferior quality and dirty. This demonstrates that portions remitted to this province were not controlled bag by bag before leaving their point of origin.”⁵²⁰

The engineer in charge of the seed distribution program, one Baldassare, sent him bags and bags of seeds just saying where they are from with no other information. “This seed,” he complained, “without any other details, was distributed among farmers, in accordance with the number of *quintales* that they needed.”⁵²¹ Late-planted crops were often the most to suffer: “there are many zones where the *voladora* appeared two or three times destroying a total of 50% of the linen planted and 10% of the wheat, thus from this moment the late hardest suffered a substantial decrease.”⁵²² The poor seed quality and the locusts added to a litany of problems with the crop, including drought, frosts, and excessive heat.⁵²³

Yamandi emphasized that he conducted his study in the public eye, and everywhere he went “the failure of the harvest obtained from the seeds distributed by the government has been apparent.”⁵²⁴ He criticized the Ministry of Agriculture, saying the minister was informed of the problem but ignored it. Yamandi argued that the national government should “send a comisión of technicians to inspect all the *chacras* and, finding partial or total losses, should make a reduction relating to the produce obtained and the initial value.”⁵²⁵

⁵¹⁹ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 473.

⁵²⁰ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 473.

⁵²¹ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 474.

⁵²² Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 474.

⁵²³ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 475.

⁵²⁴ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 475.

⁵²⁵ Diputados, *Sesiones Preparatorias y Ordinarias Año 1916 Tomo I*, 475-476.

Deputy Leopoldo Melo of Entre Ríos strongly criticized Agricultural Defense, saying that it “did not act from a coordinated plan, despite the suggestions [*indicaciones*] formulated by the special commission that occupied itself with the matter in 1908” according to which agricultural education would develop plans of education “in a form that concurs with primary, secondary, and higher education, the last being represented by the higher institute of agronomy created in 1904.”⁵²⁶ He argued that high rates of illiteracy were the main problem for education in general and agricultural education in particular.⁵²⁷ He recalled the original organization of the anti-locust apparatus: “In reality, agricultural defense, with respect to its organization, is governed by two laws: 3708 and 4863 and the regime of these laws, as deputy de la Torre has noted, presupposes almost free services, or [services] remunerated modestly, because it is considered almost a forced contribution on the part of everyone in zones invaded by locusts, to contribute to its destruction and to the defense of crop fields.”⁵²⁸ At some point, he argued, the system of commissions and sub-commissions was changed into “the numerous bureaucratic personnel that now exist and are in charge of fulfilling the duties given before to the commissions.”⁵²⁹

Enrique Dickmann of the capital echoed these criticisms. He and his fellow socialists, he argued, supported the ministry of agriculture, “but not so much as to entrust to it the protection and paternity of all the agriculture and all the livestock in the country.”⁵³⁰ He voiced frustration that whenever socialists offered critique, others branded them as “enemies of the applications of science to agriculture, because those official and officious voices said

⁵²⁶ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1916 Tomo IV Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1916), 3259.

⁵²⁷ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3259.

⁵²⁸ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3259.

⁵²⁹ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3259.

⁵³⁰ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3260.

that the functions of this ministry are eminently technical, that is to say, that they applied to agriculture the principles of theoretical and practical science.”⁵³¹ What was more, he claimed to have compiled statistics showing that wheat production had actually *declined* in the years since the establishment of the ministry of agriculture. He declared that, sadly, “the technical functions of educating the farmer, the diffusion of scientific knowledge, the analysis in the improvement of seed, in a word the functions of the application of science to agriculture,” had failed to improve the actual lives of farmers.⁵³²

He went on to criticize the very printing presses of the ministry of agriculture which, according to Dickmann, were dangerous, expensive places where people often worked off the books, or didn’t work at all: “there are many employees not included in the budget, who don’t do anything.”⁵³³ Not stopping there, he told his colleagues that he had with him two publications from the ministry of agriculture and “if the deputies would take the time to review [them], frankly they would vote for the total suppression of publications from the ministry of agriculture, so bad are they.”⁵³⁴ Agricultural Defense had failed at its avowed purpose, its whole reason for being: “the government has been defending Argentine agriculture for twenty years, and the locust in those years has fulfilled the biblical precept of grow and multiply... This year there are more locusts than ever. The locust has been pursued on paper, on maps, in the offices of the ministry of agriculture” rather than on the ground.⁵³⁵ What was worse, the policies followed by the ministry of agriculture had exacerbated existing inequalities:

This directorate has not served for anything other than to impoverish the public land, to foment the *latifundio*, to dislocate the authentic settlers [*pobladores*] from the far national territories, the true

⁵³¹ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3260.

⁵³² Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3260.

⁵³³ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3262.

⁵³⁴ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3263.

⁵³⁵ Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3264.

pionners [sic] of Argentine agriculture and livestock, because this General Directorate of Land and Colonies categorizes them as intruders, the intruders who work the land of the distant national territories! Land that is given to the legal proprietaries, that is to say, the urban elite [*los señores de la ciudad*] who by evil designs [*malas artes*] obtain legal title, but don't even know the place where [the plots] are located.⁵³⁶

Deputy Cúneo argued that the locust had become a scapegoat of sorts for price gouging and speculation: “as a worker, I have heard it said many times, when our baker increases the price of bread and we cannot buy it, that the locust is to blame; the millers, when they speculate, lay the blame on the locust; everyone sees in the locust a pretext to exploit [esquilmar] the working class. I want the working class and all the country to know that this is a cruel deception [“*mistificación*”], and I, too, am talking about the locust so that this will be known.”⁵³⁷ This speculation on wheat and maize prizes drove up the price of bread: “I know for a fact that when wheat and flour are hoarded and speculated upon, and later the price of bread increases, the scarcity is justified by saying that the harvest has gone poorly due to the damages of the locust.”⁵³⁸ He also echoed the popular theory that locusts were adapting to an ever-greater area of Argentina's land. Some had hoped that drought would provide a silver lining of fewer locusts, but that did not materialize: “if the *desove* does not fail with drought nor with rains, a moment will come when this plague can live and reproduce in the middle of winter.”⁵³⁹

He quoted from a telegram from Cañada Rosquín revealing the folly of digging up roads to destroy locust eggs: “more than 200 kilometers of roads, Mr. President, through

⁵³⁶ “Esta dirección no ha servido para otra cosa que para dilapidar la tierra pública, para fomentar el latifundio, para desalojar a los a los pobladores auténticos de los lejanos territorios nacionales, a los verdaderos pionners [sic] de la agricultura y de la ganadería argentinas, porque esta dirección general de tierras y colonias los califica de intrusos, ¡los intrusos que trabajan la tierra de en los lejanos territorios nacionales! tierra que se entrega a los propietarios legales, es decir, a los señores de la ciudad, que por malas artes consiguen el título legal, pero que no conocen siquiera el paraje donde están ubicadas.” Diputados, *Sesiones Extraordinarias Año 1916 Tomo IV*, 3269.

⁵³⁷ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Años 1916-1917 Tomo V Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficas de L.J. Rosso y Cía, 1917), 4060.

⁵³⁸ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4066.

⁵³⁹ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4060-4061.

which the plow has passed to destroy the [locust] eggs; and then, following the law of roads, comes a request for money for the conservation and reparation of the same [roads].”⁵⁴⁰ In addition to Agricultural Defense, he raised suspicions of international meddling, concerns raised by the large amount of oil being consumed by flamethrowers to fight locusts: “how the Standard Oil Company is organized and how it operates, anyone would ask if in all of this, that powerful company is not possibly involved, with the purpose that much oil be consumed.”⁵⁴¹ He argued that the amount of oil (*nafta*) needed to destroy an significant amount of locusts would be prohibitively expensive. All that money would be “to the benefit of third parties, and a commercial enterprise, which in this case, would be the Standard Oil Company.”⁵⁴² The failure of Agricultural Defense, he argued, was an open secret: “we all know that from every corner of the country come complaints and protests against the negligence, against the importance of agricultural defense.”⁵⁴³ He agreed with Deputy Dickmann’s critique that agricultural defense published innumerable maps mainly because they were more interested in “killing the locust...on paper, or what is the same, on the little maps of the Directorate.”⁵⁴⁴ Thus, anti-locust work extended even to the nascent oil economy and the fears of foreign control that accompanied it.

In his response, Minister of Agriculture Honorio Puerredón acknowledged that success had been very limited, but argued they did not have many alternatives: “there are, in my judgment, not but two alternatives to combat [the locust]: the density of the population and a scientific procedure, which has not yet been discovered...while this procedure is

⁵⁴⁰ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4061.

⁵⁴¹ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4062.

⁵⁴² Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4064.

⁵⁴³ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4064.

⁵⁴⁴ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4058.

undiscovered, while the population is not sufficiently dense, these mechanical methods will have to serve” as well as they could.⁵⁴⁵ He noted that the government was planning a “winter campaign” and shifting its methods to a more offensive posture: “the studies undertaken appear to demonstrate that the so-called *paranaense* locust that invades the republic, has its point of winter at the 19th parallel, in the province of Cordillera, in Bolivia, north of the Pilcomayo [River], a vast and forested region where it is not possible to carry out a campaign by mechanical methods. But if an effective biological method is achieved, it could perhaps bring an advantageous result.”⁵⁴⁶ He emphasized the need to take the fight to the “interior of the country” and to cooperate with other countries.⁵⁴⁷ Deputy Cúneo responded by pointing out the devastating effects that locusts were having on other areas of national policy: “since the current president is preoccupied with colonization, it is well for him to know that colonists will not come from anywhere to inhabit a country where the locust will destroy all their efforts; nor will capital come when it is known that in Argentina this kind of negligence exists.”⁵⁴⁸

Disputes about Agricultural Defense erupted again during sessions on the budget in 1917. Senator Castañeda Vega of Santiago del Estero forcefully defended the institution, arguing that despite all the criticism that agricultural defense had received, they also received a lot of support and appreciation. He dismissed allegations of corruption as exaggerated: “there will be good and bad employees,” he argued, “and the fact that there are bad ones does not mean that we should dissolve an institution that clearly provides useful services to

⁵⁴⁵ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4071.

⁵⁴⁶ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4071-4072.

⁵⁴⁷ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4072.

⁵⁴⁸ Diputados, *Sesiones Extraordinarias Años 1916-1917 Tomo V*, 4075.

agriculture.⁵⁴⁹ Minister Pueyrredón echoed this argument; acknowledged that Agricultural Defense had had personnel problems, but that was hardly a reason, he argued, to scrap the entire institution, when every public agency had similar issues.⁵⁵⁰ He also acknowledged that the current methods were less than ideal but argued that they were enough, and had to be relied upon for now: “I am not an enthusiast of the mechanical methods such as the present ones to defend harvests against the [locust] plague, but it is evident that while we don’t have a biological or scientific system, which would be the only really useful ones, we have to reduce ourselves to the present system.”⁵⁵¹ Senator E. del Valle Iberlucea of the capital scoffed at this, arguing that “agricultural defense does not play any important function in the country at this time...and the funds destined for its maintenance are truly a source of electoral corruption.”⁵⁵² Senator José Camillo Crotto, also of the capital, disagreed with his colleague and defended the institution, saying that agricultural defense was necessary “above all in a few provinces like Santa Fe, Entre Ríos and Corrientes, in which harvests would be devastated by the locust and, consequently, a great majority of workers in those regions would be deprived of their jobs, and...the specter of unemployment would appear again in those territories.”⁵⁵³ Crotto thus explicitly described agricultural defense programs as being a kind of public works program with a secondary benefit of providing work to the unemployed. Senator Guiñazú of San Luis argued that the fact that locusts had not caused much damage in the past year was a credit to Agricultural Defense, saying it was evidence of “the effective and laborious action of that administrative division.”⁵⁵⁴

⁵⁴⁹ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores año 1917 Tomo III Sesiones extraordinarias* (Buenos Aires: Talleres Gráficos de L.J. Rosso y Cía, 1918), 1647-1648.

⁵⁵⁰ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1758.

⁵⁵¹ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1759.

⁵⁵² Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1667.

⁵⁵³ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1748.

⁵⁵⁴ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1748.

Guiñazú also entered into the record a memorandum by Agricultural Defense. The memo provides a good overview of the way in which Agricultural Defense was, in theory, supposed to work. The memo explained that the country was divided into 33 “sections, with autonomous functions, without any relation between them other than communicating the passage of flying locusts, or the advance of the swarms of jumping [locusts].” Every sectional commission had “a Commissioner, a Principal Official and an auxiliary or various [auxiliaries] according to its importance.” Reporting to this commissioner were “sub-commissioners, head captains, and mobile captains [capataces recorredores].” Sub-commissioners reported to the sectional commissioner, who reported to the “General Directorate” i.e. the central authority of Agricultural Defense. Sub-commissioners were charged with working with the local population (“vecindario”) and were only supposed to impose fines or establish work gangs (“cuadrillas”) as a last resort; generally they were supposed to ensure that property owners were addressing locusts on their own land. The role of the “mobile captains” was to “ensure that the work is completed in the form and to the extent ordered.” There were, separately, some sub-commissioners whose main duty was to investigate complaints. The report also mentioned optimistically that the number of fines decreased every year “because the property owners as well as the tenants and the colonists, convinced by the employees [of Agricultural Defense] have enthusiastically contributed to the action, without any need to employ the rigor of the legal prescriptions.”⁵⁵⁵

The report acknowledged previous problems with Agricultural Defense but attributed them more to poor regulations than to malice: “the powers of the commissioners and inspectors were poorly defined, and following a vicious practice, without any regulation

⁵⁵⁵ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1750-1751.

authorizing it, the latter [i.e. the inspectors] had come to assume faculties completely outside of their commitment, distorting their character of inspectors with their direct intrusion in the planning of campaigns, naming of employees, moving these [employees] from one place to another, etc., etc., up to the point of the function of commissioner disappearing, being supplanted by that of inspector.”⁵⁵⁶ In this respect, the problem was more of overlapping or intruding authority rather than corruption. But in any case, the report argued, the issue had been resolved and each position now had clearly defined roles and boundaries.⁵⁵⁷ The report also noted that Agricultural Defense had expanded its role in other areas, taking advantage of its mobility and its national scope to participate in “the distribution and sale of seeds, the management of records pertaining to such issues and similar ones, the extraction of samples, inquiries and reports about lands, waters, plants etc.”⁵⁵⁸

Some congressmen accused Agricultural Defense of being a blatantly political tool. Deputy Pedro T. Pagés of the province of Buenos Argues flatly declared that “it is known” that Agricultural Defense was “the electoral source of the Radical party.”⁵⁵⁹ The Radical Party, the Unión Cívica Radical (UCR), had been established in 1891 at a conference in Rosario. At that conference, the former Unión Cívica split into the UCR and the Unión Cívica Nacional. Over the next fifteen years, the UCR wavered between participating unsuccessfully in elections, intentional abstention, and armed uprisings.⁵⁶⁰ In 1912, congress passed what became known as the Sáenz Peña Law (Ley Sáenz Peña), granting universal

⁵⁵⁶ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1751.

⁵⁵⁷ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1752.

⁵⁵⁸ Senadores, *Sesiones Extraordinarias Año 1917 Tomo III*, 1752-1753.

⁵⁵⁹ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1917-1918 Tomo VII Sesiones extraordinarias* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1918), 692.

⁵⁶⁰ Ezequiel Gallo and Roberto Cortés Conde, *Historia argentina: La república conservadora*. 4th ed. (Buenos Aires: Editorial Paidós, 1995), 190-196, 201-202; Ezequiel Gallo, *La pampa gringa: La colonización agrícola en Santa Fe (1870-1895)* (Buenos Aires: Editorial Sudamericana, 1983), 406-409, 413-415.

manhood suffrage. With this reform, the UCR, much better organized by this point than their rivals in power, swept Hipólito Yrigoyen to the presidency in 1916.⁵⁶¹ The Radicals, who would remain in power until 1930, faced a barrage of criticism from opposition parties of every affiliation; the charge that anti-locust work was politicized was one of a litany of complaints.⁵⁶² Deputy Rodolfo Moreno, also of the province of Buenos Aires, argued in November 1919 that the latest allocation to fight locusts was made “principally to fight locusts that only exist in the imagination of the men of the Casa Rosada or better yet, that only exist for the necessity of supplying employees to go do electoral politics in the provinces and probably so that they can come to insult, from the balconies of congress, the deputies of the opposition.”⁵⁶³ On another occasion Moreno described Agricultural Defense as an institution that had “jaws bigger than those of a mythological animal” notwithstanding that there had been no significant invasion of locusts in the past year.⁵⁶⁴

Deputy Adrián C. Escobar of the province of Buenos Aires declared that most employees of Agricultural Defense worked, inexplicably, in the city of Buenos Aires, where there were rarely locusts and no crops to protect in any case. They simply took government salaries, “and since the budget is not sufficient to pay those salaries of personnel who don’t do their duty and don’t work, the executive power finds himself forced to dictate agreements [“*acuerdos de ministros*”] to pay them.”⁵⁶⁵ Deputy Enrique Dickmann of the Socialist Party concurred, saying of Agricultural Defense workers that they “don’t go out into the

⁵⁶¹ Gallo and Cortés Conde, *Historia argentina: La república conservadora*, 224-231.

⁵⁶² Darío Cantón, José Luis Moreno and Alberto Círia. *Historia Argentina: La democracia constitucional y su crisis* (Buenos Aires: Editorial Paidós, 1972), 86, 95.

⁵⁶³ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1919 Tomo VI Sesiones extraordinarias* (Buenos Aires: Talleres Gráficos Argentinos de L. J. Rosso y Cía., 1920), 78.

⁵⁶⁴ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1918-1919 Tomo V Sesiones extraordinarias* (Buenos Aires: Talleres Gráficos Argentinos de L. J. Rosso y Cía., 1919), 672.

⁵⁶⁵ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1919 Tomo VII Sesiones Extraordinarias* (Buenos Aires: Talleres Gráficos Argentinos de L. J. Rosso y Cía., 1920), 472.

countryside [campo] and don't come near the *granjas* or the *chacras*.”⁵⁶⁶ The Minister of Agriculture Alfredo Demarchi accused critics in the Socialist Party of being the ones engaging in partisan politics: “Who are the ones,” he asked, “who have gone to preach [predicar] in rural populations the abstention from work, and with what object? To exert pressure on the public authorities and obtain the passage of laws that they believe will benefit workers.”⁵⁶⁷

Deputy Repetto read at length from a letter he had received from Córdoba:

In the whole year, the locust has not been seen, but through the offices of doctor Arturo Bas, five employees have been given posts to do politics and I know for a fact that he is offering more posts because he says the new government will begin (referring to the government of doctor Nuñez), and he won't be able to give out posts. If you knew, deputy, the kind of people that carry out these jobs! One of them has a small shop [boliche] in Villa Mitre, or better said, a gambling den [garito], protected by the police. Another, Eloy Ordoñez, has been an agent of the police of the old government; another, Arturo Toledo, does not know how to write and says that Doctor Bas keeps him as a thug [matón], a servile instrument of the police...⁵⁶⁸

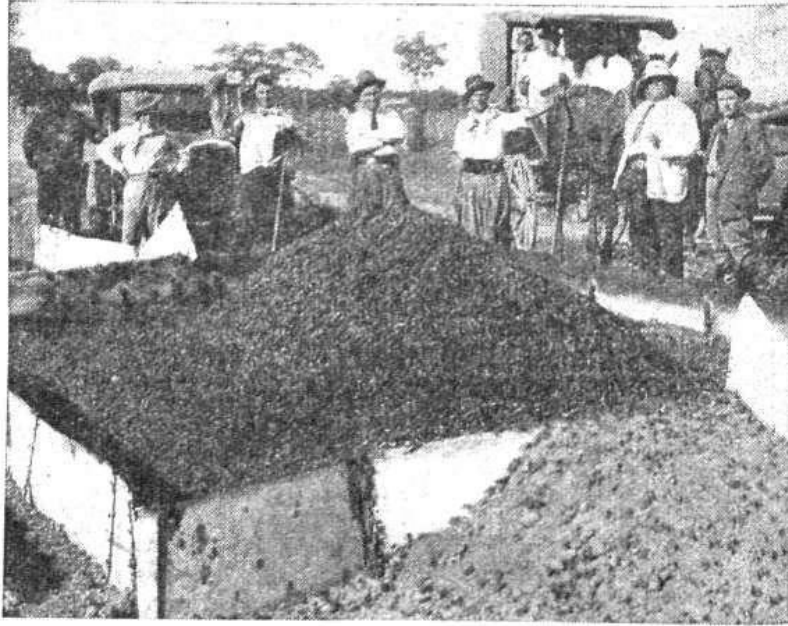
Anti-locust efforts, then, were inseparable from broader efforts at agrarian reform.

Agricultural Defense continued to face fierce criticism from a small but vocal number of congressional deputies and senators; nevertheless, it was not disbanded or defunded, and the national government successfully asserted for itself a role in the lives of rural Argentines.

⁵⁶⁶ Diputados, *Sesiones Extraordinarias Año 1919 Tomo VII*, 480.

⁵⁶⁷ Diputados, *Sesiones Extraordinarias Año 1919 Tomo VII*, 477.

⁵⁶⁸ “En todo el año no se ha visto langosta, pero por intermedio del doctor Arturo Bas, se le han dado puestos a cinco empleados para hacer política y me consta que está ofreciendo más puestos porque dice que son el nuevo gobierno que iniciará (se refiere al gobierno del doctor Núñez), ya no podrá disponer de puestos provinciales. ¡Si conociera, señor diputado, la clase de gente que desempeña estos puestos! Uno de ellos tiene un boliche en Villa Mitre, o mejor dicho, un garito, apañado por la policía. Otro, Eloy Ordoñez, ha sido agente de policía del antiguo régimen; otro, Arturo Toledo, no sabe escribir y dice que el doctor Bas lo sostiene por matón, instrumento servil de la policía...” Diputados, *Sesiones Extraordinarias Año 1919 Tomo VII*, 470.



Uno de los cuarenta corrales de langosta, recogidos en Humberto I durante la invasión del acridio que azotó a la provincia santafecina.

Figure 6 Workers in Santa Fe standing by “one of forty corrales” at a single colony in Santa Fe. From *Caras y Caretas*, 19 January 1935. <https://hemerotecadigital.bne.es/hd/es/viewer?id=ab3787fa-1cbf-46d7-803e-4bdb7c7119e9&page=117>.

Conclusion

From the beginning, anti-locust work was about more than locusts. Proponents of the anti-locust program hoped that it would provide jobs to people in the provinces that would make Argentine citizens out of them. The success of the program depended on collaboration from government officials at all levels, railroad companies, and private property owners. Popular depictions in magazines like *Caras y Caretas* and *PBT* were more ambivalent. On one level, they offered more or less straightforward press coverage of anti-locust operations. They also offered biting commentary, especially in their cartoons, of anti-locust officials. Echoing the most acerbic criticism in congress, cartoonists lambasted Agricultural Defense as, at best, totally ineffective, and at worst, a more expensive drain on the treasury than the damages caused by locusts.

Anti-locust efforts were also part of a broader agrarian reform discussion around land distribution, seed improvement, and agricultural credit. During the Radical Period (1916-1930), members of opposition parties, be they conservative factions or the Socialist Party, attacked the anti-locust program as a tool of the ruling party. But fewer and fewer critics associated the anti-locust programs with infringements on provincial autonomy.



Figure 7 “The Most Productive Careers of the 20th Century.” The high-ranking employee of the anti-locust commission ranks alongside the “food hoarder,” the delegate to the League of Nations, and the capitalist. From *Caras y Caretas*, 18 November 1922. <https://hemerotecadigital.bne.es/hd/es/viewer?id=1870ffa8-89c7-4034-a30e-dcaeb072ed73&page=11>.

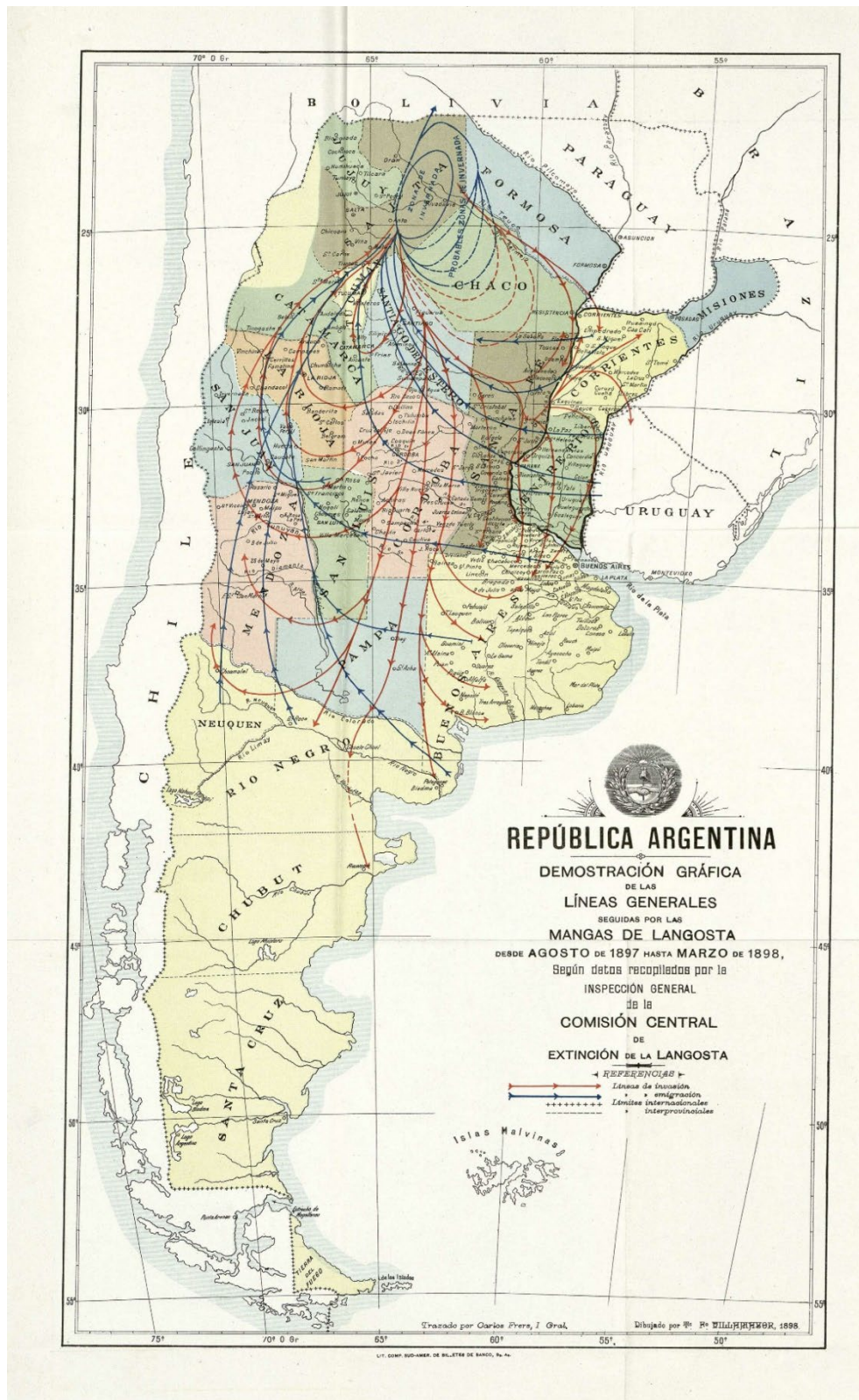


Figure 8 Map showing locust migration routes and the zona de invernada. From Comisión Central de Extinción de Langosta, Memoria de los trabajos realizados durante el 1.º ejercicio con un informe especial de la inspección general, 1897-1898. Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1899.

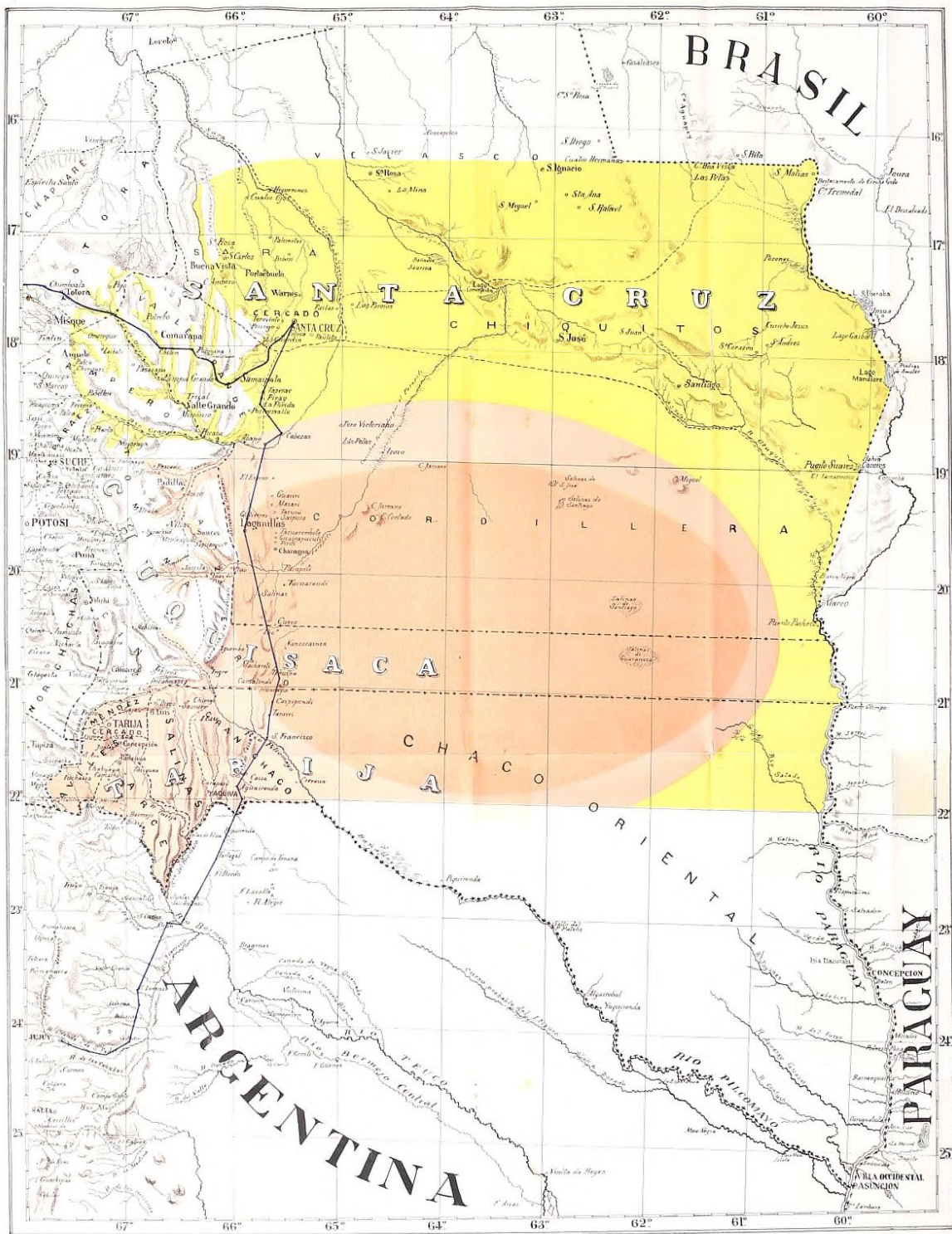


Figure 10 Map showing possible location of the permanent zone. From Enrique Lynch Arribálzaga, Informe sobre una investigación realizada en Bolivia acerca de la región permanente de la langosta voladora, 1910.

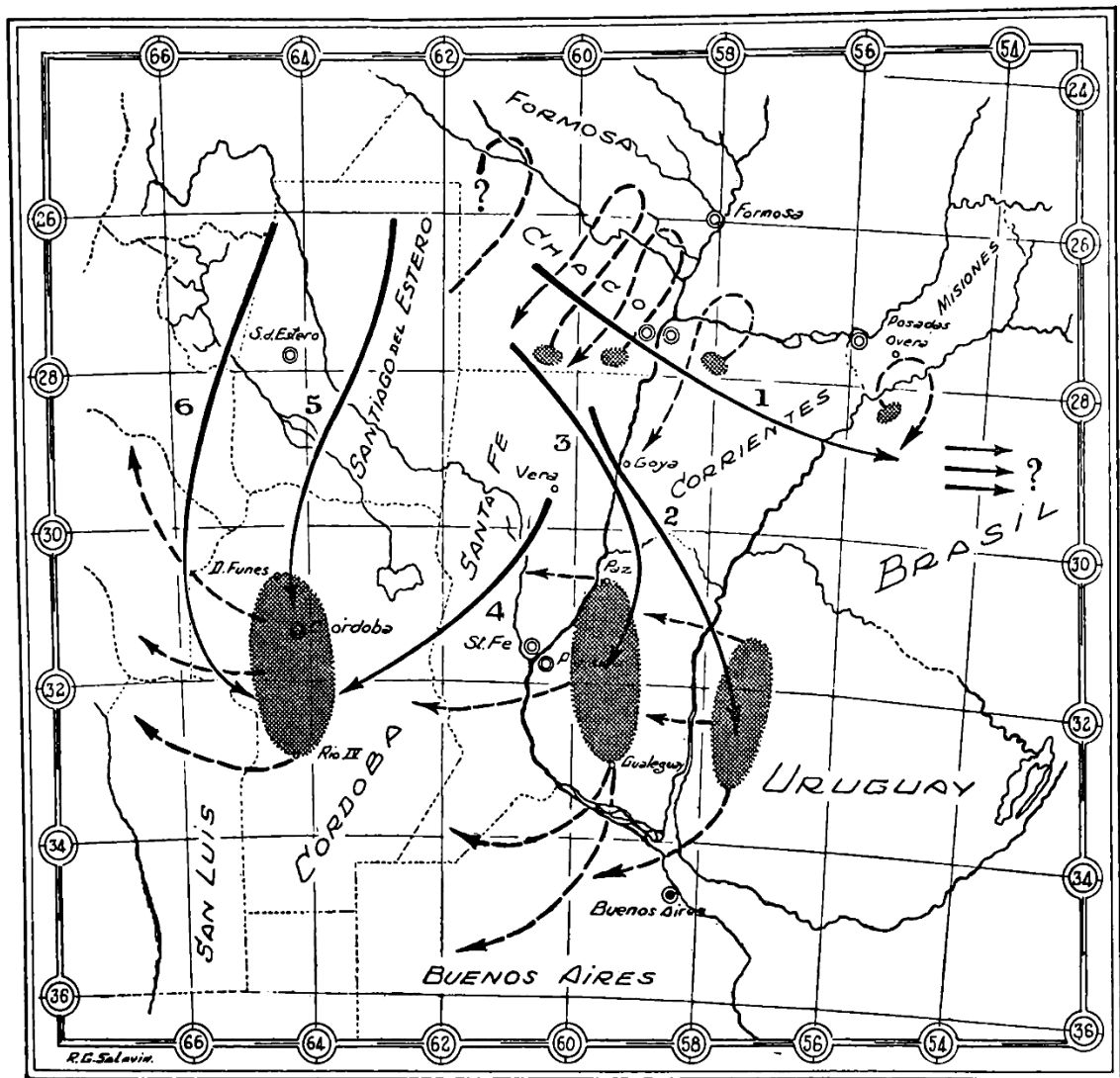


Fig. 4.- Centros de procreación de la *Schistocerca paranensis*.
(Según Daguerre).

Figure 11 Map showing possible locations of several permanent zones. From Carlos Lizer y Trelles, *La lucha moderna contra la langosta en el país* (Buenos Aires: Academia Nacional de Agronomía y Veterinaria, 1940).

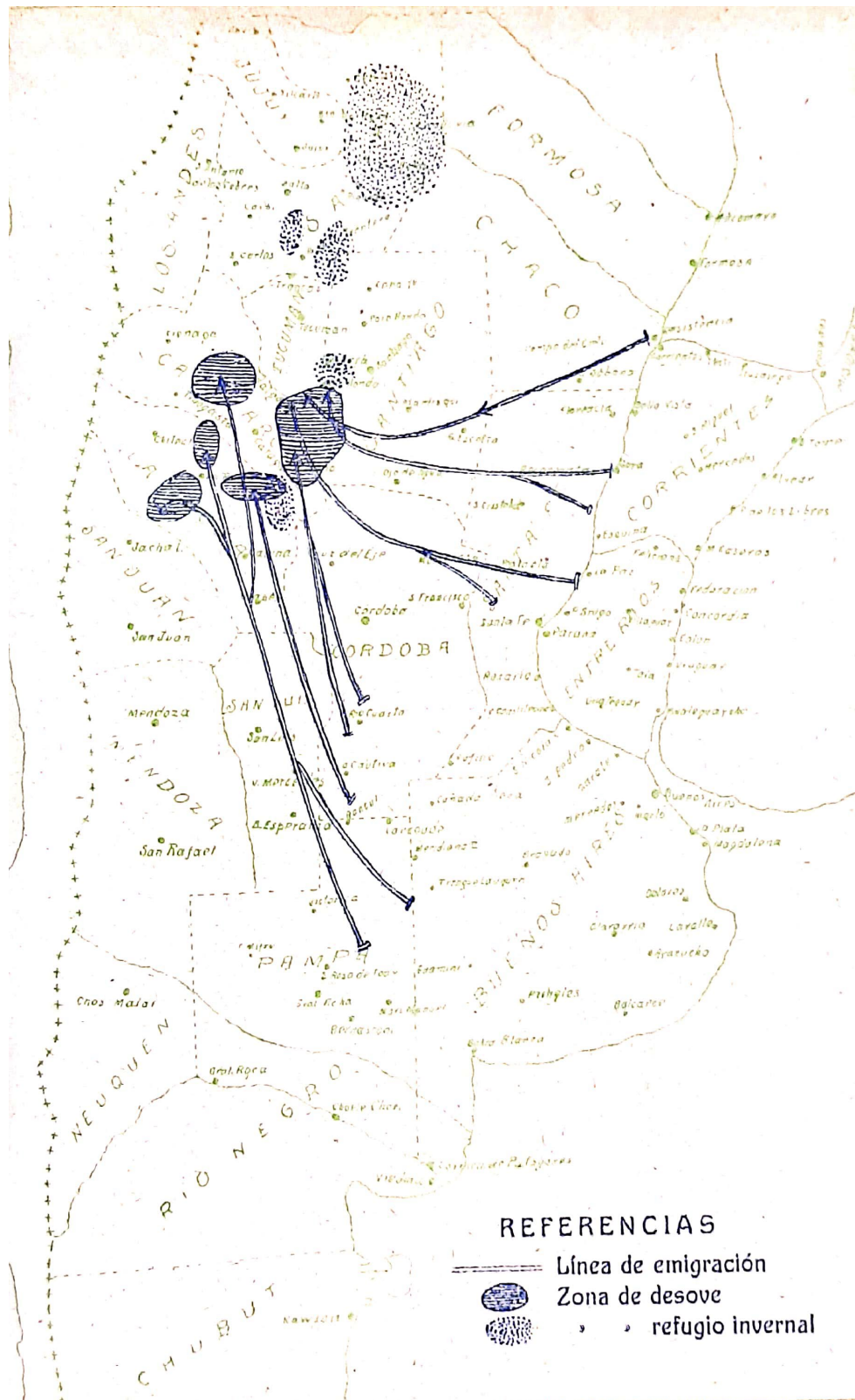


Figure 12 Map showing zones of egg-laying and the zone of "winter refuge." From Arturo Pereyra, *Historia, costumbres y medios de destrucción en la República Argentina y otros países* (Buenos Aires: Casa Editora M. Rodríguez Giles, 1909).

Chapter 5: The Search for the Permanent Zone

Introduction

The concept of the “permanent zone” was a major factor in Argentina’s locust extermination efforts, even as its precise meaning, location, and even existence were contested. The general conception was that this was an area where locusts lived year-round, and a point of origin for the periodic invasions of Argentina’s crop fields. Most who argued for the existence of the permanent zone placed it somewhere in northwestern Argentina and/or southeastern Bolivia, in the forested region known as the Gran Chaco. This was inferred from the observation that locusts arrived in major agricultural provinces like Santa Fe from the northwest. Because Argentina had only recently conquered the southern Chaco, and Bolivia was involved in a similar process of colonization of the northern Chaco, some writers portrayed the locust as a quasi-foreign invader whose lair had to be exposed and eradicated. It followed that a truly effective remedy for the locust problem would involve international cooperation, especially with Bolivia and Paraguay, but also potentially with Brazil.⁵⁶⁹ Indeed, several of the expeditions sponsored by Argentina into the Chaco also crossed into Bolivian territory. A closely related, though not identical, concept was that of the “wintering zone” or zones.⁵⁷⁰ Both concepts were attempts to understand when, why and how locusts migrated.

Some observers feared that the locust was gradually expanding its zone of permanent habitation by acclimating itself to other parts of Argentina. Some blamed human action for

⁵⁶⁹ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1916-1917 Tomo V sesiones extraordinarias* (Buenos Aires: Talleres Gráficos de L. J. Rosso y Cía., 1917), 4072; Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1896 sesiones de prórroga* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1897), 678.

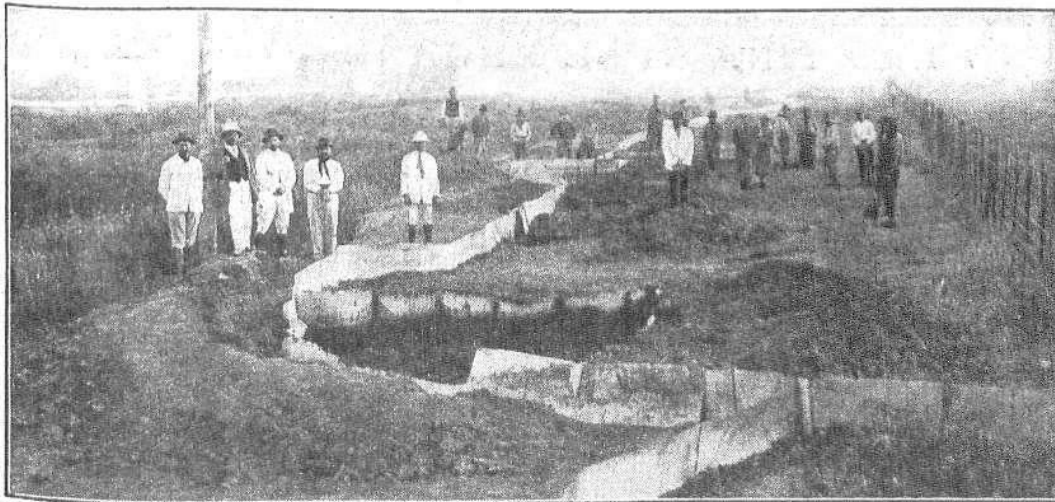
⁵⁷⁰ Comisión Central de Investigaciones sobre la Langosta, *Memoria de la Comisión Central de Investigaciones sobre la Langosta correspondiente al año 1936* (Buenos Aires: Ministerio de Agricultura de la Nación, 1939), 5, 11-12.

this process, drawing on current theories of climate change by deforestation. At the heart of these debates were key unanswered questions: what factors drove the creation of swarms, and why did they appear for several years at a time and then vanish? What factors drove their migrations? The first part of this chapter will trace the development of theories around the permanent zone, how they were rooted in older conceptions of the Gran Chaco, and how they drove Argentina's locust policy. The next part of the chapter will discuss a few of the major attempts to find the permanent zone, and the conclusions those explorers drew. The final section will focus on how new theories of locust reproduction and migration, especially the recognition that locusts had different "phases"—solitary and gregarious—altered but did not



Figure 13 "Defensive Campaigns 1934. A group of peasants waiting their turn to turn in their bags of locusts. Nogoyá (Entre Ríos)." From Gastón, Síntesis, 1969.

completely destroy the notion of the permanent zone; it will also examine the turn to insecticides as a main anti-locust tool. The central argument of this chapter is that the search for the permanent zone laid the basis for increased regional cooperation, although that cooperation ended up relying heavily on other methods (pesticides and insecticides).



Una línea metálica funcionando en una extensión de 180 kilómetros. La eficacia de este procedimiento está justificada por su misma difusión. Es irremplazable contra la saltona.

Figure 14 A 180 km-long anti-locust barrier is “irreplaceable against the jumping locust.” From Caras y Caretas, 11 October 1924.

The Gran Chaco and the Theory of the Permanent Zone

The theory of a permanent zone was not limited to Argentina. The U.S.

Entomological Commission’s 1878 report on the “Rocky Mountain Locust” demarcated a massive area of some “300,000 square miles” just east of the Rocky Mountains as the “native, permanent habitat” within which the locust existed. Within that area, breeding grounds were usually in “river bottoms, or sunny slopes of uplands, or...the subalpine grassy areas among the mountains, rather than continuously over the more elevated, dry, bleak plains.” From this rather large area, locusts would have periodic outbreaks “to ravage the

States lying west of the Mississippi River and east of the Great Plains.⁵⁷¹ Although I have not been able to determine whether this report directly informed Argentine conceptions of a permanent zone (or vice versa), Carlos Lizer did cite a later USDA report as coining the concept of the “permanent breeding ground” in his 1919 report on his expedition to Bolivia.⁵⁷²

The idea of searching for a permanent zone had been broached during the congressional debates over the 1897 legislation. Deputy Mariano Demaría pointed out that it was common knowledge that they always came from the north. Thus, he declared that rather than these extensive, expensive campaigns against locusts, Argentina should send an expedition northward to the Chaco to look for where locusts lived when they were not migrating south.⁵⁷³ In the Chamber of Deputies, Lucas Ayarragaray of Entre Ríos replied that it was better to fight locusts once they invaded the agricultural regions. Deputy Emilio Mitre asked sarcastically whether it might be necessary to venture into the Amazon or even North America to find the *zona permanente*.⁵⁷⁴ While the hearings ended inconclusively, without the establishment of an exploratory commission, the debate over the existence of such a place continued to influence public discourse around locusts.

The 1899 report by the Central Commission for Extinction of Locusts stated matter-of-factly that the locusts “spread out from a focal point in the *chaqueña* region of the

⁵⁷¹ United States Entomological Commission, *First Annual Report of the United States Entomological Commission for the Year 1877 Relating to the Rocky Mountain Locust* (Washington, D.C.: Government Printing Office, 1878), 131-132.

⁵⁷² Carlos Lizer, *Informe sobre la Expedición al Chaco Boliviano presentado a la 1.ª Comisión de Defensa Agrícola* (Buenos Aires: Talleres Gráficos del Ministerio de Agricultura de la Nación, 1919), 4; United States Entomological Commission, *Third Report of the United States Entomological Commission Relating to the Rocky Mountain Locust, the Western Cricket, the Army Worm, Canker Worms, and the Hessian Fly* (Washington, D.C.: Government Printing Office, 1883), 29.

⁵⁷³ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1896: Sesiones de Prórroga* (Buenos Aires: Compañía Sud Americana de Billetes de Banco, 1897), 676-680.

⁵⁷⁴ Diputados, *Sesiones de Prórroga, 1896*, 681-683.

province of Salta and adjacent parts of the territory of the Chaco.”⁵⁷⁵ Congressional representatives likewise embraced the existence of a region of origin. José Miguel Guastavino of Corrientes, in objecting to the 1897 law, merely believed it was futile. He asked pointedly, in response to the Justice Minister’s report: “In the Chaco, where it is clearly the jurisdiction of the national government, what has the executive power done? The locust is spread across many leagues of the Chaco, there it lays eggs, and from thence it launches its invasions into Corrientes and the north of Santa Fe and Córdoba and the province of Entre Ríos. What is done to combat the locust there? Absolutely nothing!”⁵⁷⁶ His reference to the Chaco as the breeding ground for locusts was a widespread belief and recalled Demaría’s earlier proposal to send an expedition into the Chaco to fight locusts there, rather than fighting defensively once locusts attacked the southern and central provinces.

Not everyone believed in the existence of a permanent zone. Deputy Lucas Ayarragaray of Entre Ríos stridently opposed Demaría’s proposal for an exploratory expedition, insisting that it was better to fight locusts once they invaded the more central and southern provinces. Deputy Emilio Mitre concurred, asking whether it might be necessary to venture into the Amazon or even North America to find the permanent zone.⁵⁷⁷ Mitre may have been asking sarcastically, but there was little certainty about where such a zone might be, and vast areas of the continent remained unknown to creole politicians, mapmakers, and scientists. Deputy Adolfo Dávila questioned the very existence of a permanent zone, arguing

⁵⁷⁵ Comisión Central de Extinción de Langosta, *Memoria de los trabajos realizados durante el 1.er ejercicio con un informe especial de la inspección general, 1897-1898* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1899), 35.

⁵⁷⁶ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1897: Sesiones de prórroga* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1898), 238.

⁵⁷⁷ Cámara de Diputados, *Diario de Sesiones de la Cámara de Diputados año 1896: Sesiones de prórroga* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1897), 681-683.

that they migrated constantly so Argentina had to develop a better way of following their migrations.⁵⁷⁸

The debate between “defensive” and “offensive” policies would continue in later decades, although what “offensive” policies entailed would evolve and change. The possibility that locusts regularly emanated from the Chaco was echoed in *La Nación*. In a 1905 article, during a major invasion of that year, the paper lamented the fact that the national government had done nothing thus far to take the fight against locusts to the far northern part of the country.⁵⁷⁹ The 1908 report of the Central Commission of Agricultural Defense (*Comisión Central de Defensa Agrícola*) noted the “anarchy in opinions” regarding the existence and location of the “permanent zone.” It expressed hope that the expedition that Enrique Lynch Arribálzaga was planning for the following year would put an end to such anarchy and allow Argentina and Bolivia to cooperate in the extermination of locusts.⁵⁸⁰

The Gran Chaco was also one of the first places where techniques developed for fighting locusts were extended to other pests. According to Carlos Frers, anti-locust strategies could be extended to fight caterpillars, which feasted on the emerging cotton plantations of the Chaco.⁵⁸¹ This experience thus anticipated the establishment of the Commission for Agricultural Defense. But it was the Chaco’s role as a possible home for locusts that attracted the greatest attention from Argentine scientists, agricultural officials and politicians. Part of the difficulty in launching anti-locust expeditions into the Chaco lay precisely in the fact that it had only recently been conquered by the Argentine military and its non-Indigenous

⁵⁷⁸ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados, Año 1897: Sesiones ordinarias* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1897), 237.

⁵⁷⁹ *La Nación*, 11 February 1905, 8.

⁵⁸⁰ *Memoria de la Comisión Central de Defensa Agrícola correspondiente al ejercicio de 1907-1908* (Buenos Aires: Establecimiento Gráfico M. Rodríguez Giles, 1908), 38.

⁵⁸¹ *La Nación*, 16 April 1905, 7.

population—along with the necessary anti-locust infrastructure such as trains and telegraph lines—was quite sparse.

The Gran Chaco, home of the purported “permanent zone,” is a large, forested area lying between the Andes to the west and the Paraguay and Paraná rivers to the east. To the north and south, it shades imperceptibly into the Amazon basin and the Pampas grasslands, respectively. As we saw in Chapter 1, writers like Florian Paucke, Pedro Lozano, and José Jolis wrote of their experiences with and in the Chaco in the eighteenth century, including observations of Indigenous groups using locusts as a source of food. Across the colonial period and well into the nineteenth century, creole writers frequently discussed the Chaco in contrasting terms; that is, on the one hand, they cast the region as a dangerous frontier zone, but on the other, they saw a potential river route connecting Upper Peru with the Atlantic via three potential rivers that traversed the Chaco: the Salado, the Bermejo, and the Pilcomayo.⁵⁸² The region remained inhabited and controlled by various groups of Indigenous people throughout the colonial period and most of the nineteenth century.⁵⁸³ For many observers in Argentina, its identification as the most likely location of the permanent zone may have added to a centuries-old reputation of the region as a forbidding wilderness.

Another impetus for the numerous eighteenth-century Spanish attempts to conquer the Chaco, for Tucumán at least, was the possibility of securing a larger pool of Indigenous labor to work on the haciendas of the province, to compensate for the laborers sent to the silver mines of Potosí and the mercury mines of Huancavelica. The great *hacendados* were

⁵⁸² Beatriz Vitar, *Guerra y misiones en la frontera chaqueña del Tucumán (1700-1767)* (Madrid: Consejo Superior de Investigaciones Científicas, 1997), 65; Santiago Vaca-Guzman, *El Chaco Oriental: Su Conquista y Civilización* (Buenos Aires: Imprenta de Pablo Coni e Hijos, 1887), 9-10, 96-114.

⁵⁸³ Gastón Gordillo and Juan Martín Leguizamón, *El río y la frontera: movilizaciones aborígenes, obras públicas y Mercosur en el Pilcomayo* (Buenos Aires: Editorial Biblos, 2002), 19-34.

among the most strident in calling for the provincial government to take charge of the defense of the province. They, along with the surviving *encomenderos*, were also supposed to contribute to the collective defense, including participating in *entradas*. Governors of Tucumán, however, often complained that they shirked their duty, for example by sending substitutes, and that defense, including service on the sparse, isolated garrisons, fell to the lowest members of colonial society. Some writers explicitly argued that colonizing the frontier—and expanding into the Chaco—would act as a kind of social safety valve for the urban populations surrounding the Chaco.⁵⁸⁴

The main attraction of the Chaco for the colonial government, however, was the possibility of dramatically shortening the transcontinental route between the mines of Upper Peru and the Atlantic. Successive Spanish governors and viceroys dreamed of securing a direct route through the Chaco that would link Potosí with the province of Buenos Aires. The creation of the “*gobernación*” of Tucumán in 1553 was intended as a step in that direction.⁵⁸⁵ Attempts to navigate the Bermejo and Pilcomayo rivers, therefore, were repeated over the centuries until the advent of the railroad. For most Spaniards, then, the Chaco’s importance as a place lay in traveling through the region, rather than settling there.⁵⁸⁶ The Jesuit Gabriel Patiño navigated up the Pilcomayo from Asunción in 1721,⁵⁸⁷ but similar attempts rarely succeeded and never became a regular feature of travel in the region. The surrounding Spanish provinces focused their energies mainly on maintaining, however precariously, their frontiers with the Chaco.⁵⁸⁸

⁵⁸⁴ Vitar, *Guerra y misiones*, 24, 52-53, 56.

⁵⁸⁵ Vitar, *Guerra y misiones*, 38.

⁵⁸⁶ Vitar, *Guerra y misiones*, 66, 111.

⁵⁸⁷ Miguel de Asúa, *Science in the Vanished Arcadia: Knowledge of Nature in the Jesuit Missions of Paraguay and Río de la Plata* (Leiden: Brill, 2014), 167.

⁵⁸⁸ Vitar, *Guerra y misiones*, 22-24, 317.

Pedro Lozano recognized the importance of the waterways of the Chaco, as he devoted the second and third chapters of his extensive 1733 work to discussing their courses.⁵⁸⁹ Lozano pointed out, like many other writers after him, that being able to navigate the Bermejo River along its length would drastically shorten the route from Upper Peru to Buenos Aires.⁵⁹⁰ In a reflection of the importance and toxicity of the mining industry, he wrote that mercury was extracted in such large quantities for use in silver amalgamation that it poisoned the waters for miles around, including the Pilcomayo River.⁵⁹¹ Nearly two centuries later, Carlos Lizer would identify the region around the Pilcomayo as a likely candidate for the permanent zone.⁵⁹²

Expediciones a los focos invernales de la langosta



El presidente de la Comisión Central de Investigaciones sobre la Langosta, doctor Fernando Lahille y el miembro de la misma, ingeniero Carlos A. Lizer y Trolles, acompañados de algunos de los jefes de las expediciones, señores F. C. L. Denier, P. Kohler, J. B. Daguerre, J. M. Busq, J. Bonini, K. J. Hayward, T. L. Marini y ayudantes técnicos R. Fresa, A. R. Spegazzini, E. Sartori, W. Martino y E. Binek. Dichas expediciones recorrerán las regiones desiertas de varias provincias en cumplimiento de su misión científica, encaminada a una mayor eficacia en la extinción del acrido.

Figure 15 Members of Expeditions Searching for the Permanent Zone. From *Caras y Caretas* 10 June 1933.

In 1799, the naturalist Félix de Azara wrote to the viceroy of the Rio de la Plata, Viceroy Don Antonio Olaguer Feliú. He lambasted schemes to colonize the Chaco, denying that it could be conquered either by missionaries or soldiers. He recounted how two

⁵⁸⁹ Pedro Lozano, *Descripción corográfica del gran Chaco Gualamba* (Tucumán: Instituto de Antropología, 1941 [1733]), 21-37.

⁵⁹⁰ Lozano, *Descripción corográfica*, 22-23.

⁵⁹¹ Lozano, *Descripción corográfica*, 27.

⁵⁹² Carlos Lizer, *Informe sobre la Expedición al Chaco Boliviano presentado a la 1.ª Comisión de Defensa Agrícola* (Buenos Aires: Talleres Gráficos del Ministerio de Agricultura de la Nación, 1919), 42, 45.

“miserable friars” had been left in some huts to proselytize to the Indians in a mission called Rincon de Luna. They did not know any indigenous languages, so they accomplished nothing, and they were “more useless than they had been in their convents.”⁵⁹³ This was not an isolated case of linguistic ignorance: according to Azara, no Spaniard understood any of the many regional languages, so religious conversion was a dead end.⁵⁹⁴

Nor would military conquest suffice: Azara wrote that although centuries ago Spaniards had conquered much of South America, those were different times. The soldiers who founded the city of Concepción, just outside of the Chaco, were much more aggressive than the Spanish soldiers of Azara’s time, and even they could not subdue the peoples of the Chaco. Moreover, the *conquistadores* of yesteryear fought Indians who had never seen a horse before; and by Azara’s time the Indians of the Chaco, especially the militarily dominant Guaycuruans, were mounted warriors. The previous tactic of using “reduced” Indians to conquer other Indians would not work, Azara claimed, because a thousand Indians from reductions would not be a match for the Chaco warriors.⁵⁹⁵ Azara thus argued that the Chaco was in military and religious terms a challenge without precedent. The people who proposed such schemes, according to Azara, had nothing in mind but personal gain.⁵⁹⁶

Azara’s pessimistic assessment of the Spanish failures in the Chaco, delivered at the end of the colonial period, was not entirely untrue. Nor did the end of Spanish rule immediately alter the balance of power. If anything, the chaos of the wars of independence led to a resurgence of Guaycuruan raiding. However, as before, bands were too fragmented

⁵⁹³ Félix Azara, “Informes de D. Félix Azara, sobre varios proyectos de colonizar el Chaco” (1799). Reproduced in Pedro de Angelis, *Coleccion de obras y documentos relativos a la historia antigua y moderna de las provincias del Rio de la Plata*, Vol. IV, 2nd ed. (Buenos Aires: Librería Nacional de J. Lajouane & Cía., 1910), 11.

⁵⁹⁴ Azara, “Informes,” 12.

⁵⁹⁵ Azara, “Informes,” 13.

⁵⁹⁶ Azara, “Informes,” 14-15.

and decentralized to pose a serious, sustained threat to Spanish settlements on the edges of the Chaco. And in any case, the reducciones had left their mark; many Guaycuruans continued to live on or near the former reducciones even after the priests had fled.⁵⁹⁷

Beginning in the mid-nineteenth century, missionaries, especially Franciscans, began to return to the Chaco. At roughly the same time, the Argentine military began establishing presidios in the southern Chaco.⁵⁹⁸ In 1872, President Domingo Sarmiento decreed, and the congress approved, the creation of Chaco as a national territory (as in the United States, Argentina's system of incorporating new land stipulated the establishment of territories, ruled by the national government; such territories would later be eligible to become provinces). In 1884, the northern part of the Chaco Territory was carved into a new territory, Formosa. After years of gradual encroachment, Argentina launched a coordinated campaign of conquest in 1884 under the command of the minister of war Benjamín Victorica.⁵⁹⁹ This campaign pushed Argentina's northern border to the Pilcomayo River, roughly where it lies today. Nevertheless, the Chaco remained a frontier region about which Argentina's creole and mestizo population knew little. The possibility that locusts might come from the Chaco was thus a controversial one, but also one that fit well within the prevailing Argentine conception of the region as backward and potentially threatening.

Searching for the Permanent Zone

Carlos Lemée, in his 1906 book, agreed with other theorists of the permanent zone that locating "centers of production" was a crucial part of locust control efforts. He argued

⁵⁹⁷ James Schofield Saeger, *The Chaco Mission Frontier: The Guaycuruan Experience* (Tucson: The University of Arizona Press, 2000), 135, 161-163.

⁵⁹⁸ Saeger, *The Chaco Mission Frontier*, 172-173.

⁵⁹⁹ Ernesto J.A. Maeder, *Historia del Chaco*, 2nd ed. (Resistencia, Argentina: Contexto Libros, 2012), 100-105, 111-112.

that no one knew where locusts born outside these areas (for example, locusts born in the agricultural regions) went, but thought that most of them died rather than returning to any permanent zone. In other words, he argued that the permanent zone was a place within which the population was stable, but not a place to which locusts in agricultural regions returned in winter. They did not devastate the area within the center of production, he speculated, because their population was small. The causes of the population explosion every few years were still disputed.⁶⁰⁰ He hypothesized that the zone of stable population was probably in the frontier region between Bolivia and Argentina. He noted that Domingo Astorga, in a recent exploration of the region, claimed to have discovered a river island that was covered with locusts. If such a place could be found, he argued, Argentina should establish the Central Commission within the Chaco itself.⁶⁰¹ The behavior patterns of locusts—migration, reproduction, and the link between the two—would be a source of constant investigation and scientific dispute over the next forty years.

Lemée hoped that venturing into the Chaco would serve other purposes than pest control. “The exploration of the Chaco,” he wrote, “the detailed drawing of its map, the establishment of the necessary pathways of communication, would be a work of national importance and immense results for the wealth of the country, even without entering into the problem of the locust.”⁶⁰² Here, Lemée hinted at the political undertones of what was, on one level, a technical, scientific question: he cast the locust as one creature that represented a larger set of problems that Argentina had to address in the Chaco. He portrayed the destruction of the locust as the first step of a longer process of colonizing the newly-

⁶⁰⁰ Carlos Lemée, *La langosta: Sus costumbres; su extinción* (La Plata: Talleres Sesé y Larrañaga, 1906), 46-55.

⁶⁰¹ Lemée, *La langosta*, 56-61, 81.

⁶⁰² Lemée, *La langosta*, 62.

conquered region and integrating it into the nation. For Lemée, the projects necessary for finding the permanent zone were important even beyond protecting the agricultural regions; they were crucial for the “colonization of that rich territory, which begins to call attention inside and outside the country.”⁶⁰³ Just as the Commission for Agricultural Defense hoped that mandatory participation in anti-locust work would instill a sense of collective, national identity in peasants closely tied to their land, Lemée saw the search for a permanent zone as a way to nationalize a large area over in which the presence of the Argentine state, and the presence of creole Argentine society, was still minimal.

In 1908, on the heels of major locusts invasions in the previous couple of years, Enrique Lynch Arribálzaga obtained permission from the governments of Argentina and Bolivia to search for the permanent zone. He was at the time the sub-inspector for Agricultural Defense in Resistencia, Chaco Territory. Though Resistencia was in the Chaco, it was on the eastern edge on the banks of the Paraná River. Lynch suspected that a potential permanent zone might exist in the western edges of the region, in the borderlands with Bolivia, part of the Chaco that was far more isolated from the national government than Resistencia, which was easily linked by water. He had been thinking about such an expedition since at least 1881. Federico Gándara, a former member of the national central commission, raised the idea in a conversation with Lynch in 1907. Locusts inhabited virtually all of South America to varying degrees, but Lynch strongly suspected that the locusts that afflicted Argentina were separate from those that afflicted the northern Andean countries of South America. Since western Bolivia, whose dominating features were the two massive parallel ranges of the Andes mountain and the altiplano between them, was too high-

⁶⁰³ Ibid.

altitude to be suitable for locusts, Lynch believed that they might live in southeastern Bolivia, the Chaco region, year-round.⁶⁰⁴

Gándara obtained permission from the central commission for Lynch to travel to Buenos Aires. There, he met with the president of Agricultural Defense Joaquín S. Anchorena and one Julio Hardy. Hardy had accompanied Otto Asp on an earlier expedition up the Pilcomayo River in the Argentine territory of Formosa. He had also corresponded with the Bolivian Ministry of Colonization and Agriculture, so he was well placed to brief Lynch on the region. Anchorena approved the journey by decree on 4 April 1908.⁶⁰⁵ According to the proposal, Lynch would travel from Jujuy to Santa Cruz by way of Orán and Yacuiva, and then return by a more northerly route. His budget would be 2,000 pesos. He would take a secretary and a guide, along with a few mules. He would be granted credentials from the Argentine government to facilitate his requests for information from Bolivian officials. The proposed journey would take about four months.⁶⁰⁶

They arrived in Argentina's northwest province of Jujuy in mid-April 1908. There they were joined by Eduardo Holmberg, who had traveled extensively in Jujuy, and Emilio Gemignani, an employee of the National Museum in Buenos Aires, along with six mules. Though they could take a train almost the whole way to Orán, Lynch insisted on riding muleback even for this first stretch of the journey to see how they traveled as a group. He also personally reached out to the Bolivian Minister of Colonization and Agriculture, Manuel Ballivián, who offered the support of the Bolivian government.⁶⁰⁷

⁶⁰⁴ Enrique Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia acerca de la región permanente de la langosta voladora* (Buenos Aires: Talleres Heliográficos de Ortega & Radaelli, 1910), 6-9.

⁶⁰⁵ Ibid.

⁶⁰⁶ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 84-85.

⁶⁰⁷ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 9-11.

From Jujuy they traveled southeast towards La Mendieta, then north to Orán. From Orán, they traveled southeast, crossing the Bermejo River at Embarcación. From there he passed through the Franciscan mission of Aguiarenda, through Caiza, on to Santa Cruz. From there, as planned, he returned via Cochabamba. However, in his account of the journey he omitted to give a detailed route, as it was beyond the regular scope of locusts and thus not of interest for his purpose.⁶⁰⁸ They returned to Buenos Aires on 22 August 1908; the entire journey took one hundred and thirty-three days.⁶⁰⁹

Lynch noted that one of the purposes of the Central Commission for the Extinction of Locusts, and its new incarnation as Agricultural Defense, was to track the movements of locusts. Establishing multiple commissions in various jurisdictions across the country certainly helped in this respect. Lynch described the advisability of setting up permanent observation posts in neighboring countries such as Bolivia, Paraguay and Bolivia, which he compared to meteorological stations. Lynch's idea anticipated an important aspect of the preventative approach that would become crucial in the second half of the twentieth century. But for the time being, since such a network was not possible, he decided that interviewing local residents, especially older ones, would have to serve. This could be done by means of a detailed, standardized questionnaire.⁶¹⁰

Two examples of this questionnaire were provided in the appendix to his report. One he sent to the prefect of Santa Cruz, General Rosendo A. Rojas. He asked Rojas: which provinces are usually invaded? How far north of Santa Cruz do they travel? How far east do they reach? Which months in the year do they usually come? In what direction do they travel

⁶⁰⁸ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 13-17.

⁶⁰⁹ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 104.

⁶¹⁰ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 18-19.

when they leave? And lastly, which years could the prefect remember invasions taking place?⁶¹¹ The prefect responded that the province of Cordillera was the most frequently invaded, and they always came from the south. He guessed that locusts did not go further than 200 km north of Santa Cruz, probably because it was too humid. To the east, he reported that he knew they reached as far as Puerto Suárez on the Paraguay River, but he had no knowledge of them going further. They usually arrived between August and October, but prevailing winds eventually always turned them back south. According to him, this even effected the *saltona*, the jumping locust that could yet fly. He had no knowledge of the specific years of prior invasions, because, as he said, no one had ever asked, and prior to this, “nothing has been done to study this scourge” of locusts.⁶¹²

Lynch sent a similar questionnaire to a Brazilian official, J. Amandio Sobral, regarding locust invasions in São Paulo. Sobral reported that the most recent invasion was not very large, only affecting a few municipalities. They came between November and December; wherever they invaded, they laid eggs and died shortly after, and the eggs hatched in January and February. He did not offer a reason for the inability of the invaders to survive.⁶¹³ Interestingly, Lynch also sent the same questionnaire to Bolivia’s Minister of Colonization and Agriculture, Manuel V. Ballivián, with one additional question asking if, to his knowledge locusts ever invaded Bolivia from Peru. Unfortunately, he did not include Ballivian’s response to his question in his report, but he concluded independently that the Peruvian locust was distinct from that affecting Bolivia and Argentina.⁶¹⁴

⁶¹¹ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 96.

⁶¹² Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 97-98.

⁶¹³ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 100.

⁶¹⁴ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 91.

In his report he made sure to detail the conversations and information that he gathered from residents in various places, in addition to the responses of officials to his questionnaires. For example, in Yacuiva, the capital of the Bolivian province of Gran Chaco, he spoke with sub-prefect Aráoz, who told him that the “new locust” (“*langosta nueva*”) that is, locusts that gestated in the area, always headed towards the south. Leocadio Arce, an official from Villa Montes in the Bolivian Chaco, also described witnessing swarms of locusts traveling southward. He said that in his region at least some locusts came every year. Another farmer near Aguirenda also said that locusts were in the area every winter. In other places, like the province of Cordillera, Lynch’s interlocutors said locusts only came every few years. A number of people that Lynch spoke to observed that locusts migrating southward often had different coloration from those moving northward. They generally concurred that the locusts did not go too much further north than Santa Cruz. The importance of relying on local eyewitnesses demonstrated the difficulties of tracing an animal that rapidly traversed great distances in a highly unpredictable fashion.⁶¹⁵

In the next section of his report, Lynch described three zones of locust activity: the permanent zone, the semi-permanent zone, and the seasonal region (see Fig. 10). He clarified that the permanent zone was not necessarily a small area with easily identifiable boundaries, but a fairly large area that was still smaller than the total area affected by locusts. The frontiers of the zone could change depending on climate. In describing the seasonal region, he employed the metaphor of a lake, in which the overflow zone, the area that was only covered by water in times of flooding, was analogous to the seasonal region. The sub-permanent zone, lying between the seasonal zone and the permanent zone, was affected by

⁶¹⁵ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 20-25.

greater or lesser immigrations of locusts, if not every year, then nearly every year. Within the sub-permanent zone, according to Lynch, there were some places where a few locusts would spend the winter occasionally; this was what Carlos Frers referred to as the *zona invernäl* or wintering zone. Another peculiar feature of the sub-permanent zone was that locusts returning for the winter would occasionally lay eggs in that intermediary region, which they did not do in the seasonal region. These zones were not precise markers, but, he insisted, they were valid conceptual distinctions because the region where locusts could be found at any time of year was much smaller than their total range.⁶¹⁶

Lynch discussed a range of expert opinions on the permanent zone. Most, though not all, of the experts he cited agreed in principle that a “permanent zone” existed, and that it was in or near the Chaco, though they differed in its precise location. Ricardo J. Huergo argued that the zone existed either on the eastern slope of the Andes or the Chaco. Pennington doubted whether there was a permanent zone, while Carlos Frers put the zone in the Chaco *salteño*; Brüner thought there might be multiple separate permanent zones, and Künkel d’Herculaïs thought it didn’t much matter where the permanent zone was. Lynch, for his part, had no doubt that the permanent zone existed, because other species of locusts had such zones. He emphasized, however, that the locust that periodically invaded Argentina was geographically distinct from other locusts of South America. There were locusts in Peru and in the northern Andean states, but these were cut off from the Argentine locusts by the Andes and the Amazon basin, respectively.⁶¹⁷

Within Bolivia, Lynch argued, the permanent zone had to be south of Santa Cruz de la Sierra. Thus Lynch placed the permanent zone “in the Bolivian east, from the 19th parallel

⁶¹⁶ Lynch Arribälzaga, *Informe sobre una investigación realizada en Bolivia*, 26-38.

⁶¹⁷ *Ibid.*

towards the south.”⁶¹⁸ According to Lynch, this area was the most likely place for the permanent zone for climatic reasons: it was dry and clear of thick forests, but with plenty of low underbrush. To the east, Lynch argued that the permanent zone lay somewhere west of the Río Paraguay; locusts could sometimes be seen traveling near the river but they were not a permanent feature of the area. In any case, the eastern Chaco, and especially the land east of the Paraguay River, was far too humid to be ideal for locusts year-round. The southern edge of the permanent zone was the hardest to trace, because it blended into the semi-permanent zone. Moreover, he suggested that the southern boundary of the permanent zone could shift northward during “truce years” or the periods of several years in which locusts did not invade.⁶¹⁹ The neighboring semi-permanent zone he identified approximately with northwestern and western Argentina, as well as southeastern Bolivia. Finally, the seasonal region included larger portions of Argentina and Bolivia, as well as Uruguay, Paraguay, and southern Brazil. Chile was rarely affected by locusts because of the high Andes.⁶²⁰

Lynch dismissed the idea that locusts were slowly becoming acclimated to regions outside the permanent zone—in other words, that the permanent zone was expanding (this was a major fear among some Argentine politicians). There were two variations of this theory. The first was that the expanding area under cultivation was altering the climate; to which he noted that the total area under cultivation was still miniscule compared to the physical size of the country. The second, related theory, was that deforestation was driving a gradual desiccation of the climate (this theory was not limited to discussions of locusts or to

⁶¹⁸ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 33.

⁶¹⁹ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 26-38.

⁶²⁰ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 26-39.

Argentina; the Swiss-Paraguayan scientist Moisés Bertoni expressed similar fears at roughly the same time).⁶²¹

Interestingly, Lynch also dismissed the idea that locusts were specifically attracted to fields of wheat and maize. Rather, they came to such places because these places were most suitable for reproduction, and cleared of brush. In other words, large-scale agriculture of any kind created expanses of land that were hospitable to locust eggs and larvae. Finally, he noted that locusts had inhabited the continent for untold eons. He noted that according to all available sources from the colonial period, the climate had not undergone drastic changes, nor had it done so in the last few decades. For all these reasons, he argued, there was no reason to believe that the locust was expanding the range of its permanent zone.⁶²²

Lynch believed that an expedition or series of expeditions to exterminate the locust within the permanent zone would be worth the effort. For one thing, even if it cost as much as several anti-locust campaigns in the agricultural provinces of Argentina, it would still be cost-effective. The alternative was to keep launching those defensive campaigns, year after year, indefinitely. Such campaigns had undoubtedly been effective in protecting Argentina's crop, he argued, but it would be more effective to destroy them once and for all. Having done that, any remnants of the species could simply be monitored over the long term for signs of resurgence. He argued that the best time would be in winter, ideally a cold winter, during one of the "truce years" when locusts were not periodically invading the surrounding provinces.⁶²³

⁶²¹ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 39-41.

⁶²² Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 39-41.

⁶²³ Lynch Arribáizaga, *Informe sobre una investigación realizada en Bolivia*, 46-48, 55.

The other necessity, of course, would be a plentiful and cheap source of labor—campaigns in the provinces had shown that anti-locust work was labor-intensive and could potentially lead to civil unrest. Lynch optimistically predicted that the Indigenous population of the purported permanent zone would serve for this purpose. They were already to some extent integrated into the regional creole socioeconomic fabric, as many Indigenous people in southeastern Bolivia worked seasonally in Jujuy, in northwestern Argentina. He had personally seen long caravans of migrant workers in his journey through the region. Moreover, they were generally paid a pittance to work in these sugarcane fields, so he predicted that they would be similarly compliant working with anti-locust commissions. He described Indigenous women as “hardworking and strong” and foresaw them and even their children contributing to this task. Bags of captured locusts could be transported on muleback or even on the backs of these women, who, according to Lynch, commonly transported up to fifty kilograms on their own.⁶²⁴ This racialized and gendered approach to locust eradication reflected a larger process of Argentina’s attempts to forcibly integrate Indigenous groups, in the Chaco and elsewhere, into the country mainly as a cheap labor pool.⁶²⁵

Payment, either as a daily wage or a per-kilo reward, would be especially necessary in the far reaches of Argentina and southeastern Bolivia because private establishments were rare. In the provinces, communities and individuals could be obliged to defend private property from locusts, but there were no such provisions for operating on public land, and certainly not public land in a foreign country. Any prospective campaign in southeastern

⁶²⁴ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 47-48.

⁶²⁵ Ana A. Teruel, *Misiones, economía y sociedad: La frontera chaqueña del Noroeste Argentino en el siglo XIX* (Buenos Aires: Editorial Universidad Nacional de Quilmes, 2005), 58-59, 115; Gastón Gordillo and Juan Martín Leguizamón, *El río y la frontera: movilizaciones aborígenes, obras públicas y Mercosur en el Pilcomayo* (Buenos Aires: Editorial Biblos, 2002), 33-37, 49.

Bolivia would, of course, have to be undertaken in cooperation with the Bolivian government, but Lynch's own experience suggested that would not be difficult to achieve. Finally, he also predicted that although the use of "locusticidal fungi" had failed so far, in the future such fungi might be a useful tool.⁶²⁶

Upon returning from his trip, Lynch made a few suggestions to the head of the central commission, Joaquín S. Anchorena. He argued that the central commission should get in touch with both Paraguay and the Brazilian state governments and send them the same eight-question survey that he had employed. They should also ask the Brazilian states, as well as several other South American and Central American countries, to send samples of locusts found within their borders, at different stages of their lifecycles.⁶²⁷ Anti-locust efforts were already to some extent internationalized. In Brazil, for example, the government had taken some preliminary steps towards creating a national anti-locust apparatus, but Lynch Arribálzaga did not go into these in great detail.⁶²⁸

The expedition undertaken by Lynch Arribálzaga was a major topic of discussion at the 1913 conference on agricultural defense in Uruguay. This was the first regional conference on locusts in South America, and one of the first in the world.⁶²⁹ The Swiss-Paraguayan scientist Moisés Bertoni, a member of the Paraguayan delegation, doubted that the permanent zone even existed. Writing in the Paraguayan *Anales Científicos*, he recalled the debate. Bertoni believed that if such a zone existed, it was much smaller than that proposed by Lynch. Bertoni argued that much of the zone proposed by Lynch was not a

⁶²⁶ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 47-48.

⁶²⁷ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 106-107.

⁶²⁸ Lynch Arribálzaga, *Informe sobre una investigación realizada en Bolivia*, 64-65.

⁶²⁹ Current Science Association, "The Fourth International Locust Conference, Cairo, 1936," *Current Science* 6 No. 12 (June 1938), 585. This article lists the 1913 conference as second only to one held in Pretoria in 1906.

suitable environment—variously too heavily forested, too prone to winter frosts, or too low in elevation—for a permanent zone. Bertoni also faulted Lynch for merely skirting the edges of the Chaco rather than traveling into the interior, which damaged his credibility. But in general, Bertoni doubted that such a place existed anywhere. He also thought that locusts were much less of a problem in Paraguay than they were in Argentina. However, he feared that locusts were becoming more prolific in Paraguay than they had been historically.⁶³⁰

The Montevideo conference apparently concluded with a resolution to promote international cooperation with respect to identifying the permanent zone (though not to fighting locusts in neighboring countries) though Bertoni did not say in his article what form that cooperation might take.⁶³¹ He also argued (contradicting what Lynch had claimed) that it was in fact likely that locust invasions in Paraguay were becoming more frequent and more destructive than they used to be, and that this might be because of drying of the climate and deforestation that made previously humid and forested regions more hospitable to locusts.⁶³²

On other points, however, Bertoni agreed with Lynch: that anti-locust efforts were almost always made in response to invasions already in progress and thus such efforts were less effective.⁶³³ Like Lynch, he also called for increased cross-border cooperation, and expressed approval that another conference was scheduled for the next year (1914) in Buenos

⁶³⁰ Moisés Bertoni, “Informe de los trabajos de la conferencia internacional de la defensa agrícola,” *Anales científicos* No. 2 (1913): 4-8; Moisés S. Bertoni, “Memorial referente a la langosta en el Paraguay y a su persecución. Respuestas al cuestionario sometido por el Instituto Internacional de Roma y comunicado á la División de Agricultura con fecha de 16 de Agosto 1913,” *Primera serie de informes de la División de Agricultura: Boletín no. 3* (1913): 8-9.

⁶³¹ Moisés Bertoni, “Informe de los trabajos de la conferencia internacional de la defensa agrícola,” *Anales científicos* No. 2 (1913): 4-8.

⁶³² Moisés S. Bertoni, “Memorial referente a la langosta en el Paraguay y a su persecución. Respuestas al cuestionario sometido por el Instituto Internacional de Roma y comunicado á la División de Agricultura con fecha de 16 de Agosto 1913,” *Primera serie de informes de la División de Agricultura: Boletín no. 3* (1913): 6-7.

⁶³³ Moisés Bertoni, “Memorial referente a la langosta en el Paraguay,” 6-7, 9.

Aires.⁶³⁴ Bertoni and the Paraguayan delegation argued that regional cooperation was necessary not just to deal with locusts but to deal with existing and new threats to agriculture that might arrive from overseas. He argued that such new invasions were practically inevitable in the absence of a regional, coordinated policy. He noted, for example, that so far South America had been spared pathogens affecting oranges, cotton, coconuts, coffee, bananas and sugarcane. Prevention of the entry of these pathogens was crucial because there were no known cures. Paraguay was especially vulnerable because the health of its agricultural produce was largely dependent on measures taken by neighboring countries.⁶³⁵

These early meetings reflected an incipient regional cooperation against locusts and eventually other pests and diseases that crossed borders easily. As early as 1909 Arturo Pereyra, in his detailed report of the Argentine locust problem, called for international cooperation. He included a letter from the head of the central commission, Joaquín S. Anchorena, calling for Argentina to work with its neighbors. So far, among its neighbors, only Brazil had developed an anti-locust program. Even there, it was only active in the state of Rio Grande do Sul, and the program had been set up and supervised by Argentine officials. Anchorena suggested such cooperation could help for other agricultural problems beyond locusts.⁶³⁶ Meanwhile, Argentina's search for the permanent zone continued after Lynch Arribálzaga's 1908 expedition.

In 1917 Carlos Lizer followed Lynch Arribálzaga's footsteps into the Chaco (he explicitly described his journey as being a follow-up to that undertaken by Lynch Arribálzaga) to locate, if possible, the permanent zone (here referred to as the "zone of winter

⁶³⁴ Moisés Bertoni, "Memorial referente a la langosta en el Paraguay," 11.

⁶³⁵ Moisés Bertoni, "Informe de los trabajos de la conferencia internacional de la defensa agrícola," 11-15.

⁶³⁶ Arturo Pereyra, *Historia, costumbres y medios de destrucción en la República Argentina y otros países* (Buenos Aires: Casa Editora M. Rodríguez Gíles, 1909), 163-164.

refuge”).⁶³⁷ They set out from the capital in June and reached Carandaiti, in southeastern Bolivia, in a few weeks. From there, Lizer sent out one party into the Chaco to look for water sources while Lizer himself traveled to the Ibo mission and interviewed the Franciscan prefect, Bernardino de Nino, about his knowledge of locusts in the area. When the scout party they came back they all entered the Chaco as a group. They stayed at Irentangüe for a week before running out of water and returning to Carandaiti. From there, they traveled north to Santa Cruz de la Sierra. At that point, Lizer went to Corumbá in Brazil while an entomologist in the party traveled to northeastern Bolivia.⁶³⁸

Between Carandaiti and Santa Cruz, Lizer and his colleagues stopped in various places and interviewed people about their knowledge of and experiences with locusts. Residents expressed varying ideas about the permanent zone. One, an inhabitant of the Izozo (also Izoso) plains between Charagua and Santa Cruz, thought that the permanent zone probably lay along the banks of the Pilcomayo or nearby; the Pilcomayo River ran southeast from the foothills outside Santa Cruz to empty into the Paraguay River northwest of Asunción. Another interlocutor thought it was probably further south than Lynch Arribálzaga claimed; another doubted the permanent zone existed. At this point in the report, he also described what he learned from the prefect Bernardino de Nino, although I am unsure if this was from another interview or the one mentioned earlier. According to the prefect, locusts used to come to the area about once every three years, but recently, the swarms had been sighted annually. He also mentioned that he believed the locusts came from the region in and around the basin of the Pilcomayo River. In any case, Lizer appeared to agree with Nino that

⁶³⁷ Carlos Lizer, *Informe sobre la Expedición al Chaco Boliviano presentado a la 1.ª Comisión de Defensa Agrícola* (Buenos Aires: Talleres Gráficos del Ministerio de Agricultura de la Nación, 1919), 3-4.

⁶³⁸ Lizer, *Informe sobre a expedición al Chaco Boliviano*, 9-11.

the permanent zone was probably near the Pilcomayo.⁶³⁹ The Commission for Agricultural Defense, which had sponsored his expedition, had established “a cordon of observers along the length of the Pilcomayo.”⁶⁴⁰ In guessing at the limits of the permanent zone Lizer mostly agreed with Lynch Arribálzaga’s hypothesis. The eastern boundary, Lizer thought, was probably the Paraguay River, since locusts were rarely reported at Corumbá, on the Brazilian side of the river. The western boundary was doubtless the high Andes range, but the southern boundary remained an open question.⁶⁴¹

A crucial development in anti-locust efforts in Argentina and across the globe came with Boris Uvarov’s development of “phase theory.” Uvarov, a Russian émigré in Great Britain, was crucial to the work of Britain’s Imperial Bureau of Entomology, which led anti-locust efforts across the empire’s vast colonies. His breakthrough was to prove that locusts were not a distinct species from grasshoppers. Rather, certain species of grasshoppers could, under certain conditions, transform from “solitary” to “gregarious” creatures, a change accompanied by changes in coloration and other aspects, which led to the belief that they were distinct species.⁶⁴² Even though he pointed out in the 1928 English-language edition of his book surveying locusts globally, “the phase theory cannot yet be fully applied to the locust in question” he still insisted that *Schistocerca Cancellata* was mostly a solitary

⁶³⁹ Lizer, *Informe sobre a expedición al Chaco Boliviano*, 22-24.

⁶⁴⁰ Lizer, *Informe sobre a expedición al Chaco Boliviano*, 25.

⁶⁴¹ Lizer, *Informe sobre a expedición al Chaco Boliviano*, 24-26.

⁶⁴² Michael Worboys, “Imperial Entomology: Boris P. Uvarov and Locusts, c. 1920-c.1950,” *The British Journal for the History of Science* 55 (2022), 31; Eduardo V. Trumper et al., “A Review of the Biology, Ecology, and Management of the South American Locust, *Schistocerca cancellata* (Serville, 1838), and Future Prospects,” *Agronomy* 12 No. 1 (2022), 2.

https://www.researchgate.net/publication/357630722_A_Review_of_the_Biology_Ecology_and_Management_of_the_South_American_Locust_Schistocerca_cancellata_Serville_1838_and_Future_Prospects.

grasshopper, “even if there is no distinct solitary phase.”⁶⁴³ But in Argentina phase theory continued to co-exist with a conception of a permanent zone or zone of winter refuge.

Between May and August 1933, the Central Commission of Investigations on the Locust (*Comisión Central de Investigaciones sobre la Langosta*) carried out the largest coordinated effort to determine the existence and location of the permanent zone. The commission launched nine coordinated expeditions across northwestern Argentina to find and demarcate wintering zones. In the introduction to the reports, Fernando Lahille noted that over the last three decades, such zones had appeared on maps in an ever-widening area. Lahille had requested that expeditions be launched to find these areas in 1920 and again in 1927, and these expeditions were the fulfillment of that goal. Originally, they had planned to launch 10 expeditions, believing that there were ten wintering zones, but in the event only nine were launched. The main question they sought to answer was this: “whether the locust that is found in a *dispersed* state during the winter, in the regions of the north of the country, lays eggs precisely there [i.e. in the north] and if it does not then form, in certain conditions, *migratory swarms*.”⁶⁴⁴ In other words, they sought to provide some confirmation of Uvarov’s phase theory.

Each commission followed a pre-determined itinerary in a specific part of the country, usually though not always confined to one province. Each commission also issued its own report, independently of the others. The result was that some commissions reached different conclusions. Some commissions flatly said there were no wintering zones; others

⁶⁴³ Boris Uvarov, *Locusts and Grasshoppers: A Handbook for Their Study and Control* (London: William Clowes and Sons, Ltd., 1928), 266.

⁶⁴⁴ “si la langosta que se encuentra en estado *disperso* durante el invierno, en las regiones del norte del país, desova allí mismo y si no forma, entonces, en ciertas condiciones, *mangas migratorias*.” Comisión Central de Investigaciones sobre la Langosta, *Informes de las comisiones exploradoras mayo a agosto de 1933* (Buenos Aires: Talleres Gráficos del Ministerio de Agricultura de la Nación, 1934), 5-9.

were unsure. Some thought that a “winter campaign” would be feasible and would solve the problem once and for all. Others thought that such a campaign was too challenging for the moment, and still others thought such campaigns had to be carried out in conjunction with, not instead of, anti-locust work in other seasons. The general conclusion, however, was that the permanent zone as it was previously understood could not be found and probably did not exist.⁶⁴⁵

INDIOS DE 1937



En la misión franciscana de Lashi, durante los trabajos realizados recientemente para combatir la plaga de langosta, los aborígenes dieron pruebas de su capacidad para los trabajos más difíciles.

Figure 16 Photo of Indigenous anti-locust workers at the Franciscan mission of Lashi, or Laishi, in Formosa Province, Argentina. From *Caras y Caretas*, 9 October 1937.

⁶⁴⁵ Comisión Central, *Informes de las comisiones exploradoras*, 9-12.

In 1939 the Central Commission of Investigations on the Locust published a report drawing on work done three years earlier and reached similar conclusions about the existence of a permanent zone. This was the fourth such report, and it was divided into different regions. Juan B. Daguerre and Victorio J. Fontana focused on the eastern region, based in the town of Metán, and Pablo Köhler and Eduardo Freyer focused on the west, based in the town of Fontana. The division between the two zones was a north-south line that roughly split the country in half, running from the Pilcomayo border south through Córdoba. Despite the conclusions reached in the report, the instructions given to the locust commissions took for granted the existence of a “winter ‘habitat’”. The report contained studies of locusts’ movements, how wind affected those movements; of maturation; of the possibility of laying eggs in the same place at different times, and when it laid eggs; of which environments locusts favored; of parasites of locusts; and whether “locusts of other species” joined locust swarms.⁶⁴⁶

The 1939 commission included a summary of the conclusions of previous expeditions. They summarized the 1933 expedition as follows:

In the short time that the explorations took the following was proved: a) our locust does not reproduce in the North during the Winter and its center of procreation is the agricultural region, in the months of spring and summer b) the extraterritorial origin of swarms is not confirmed, and those that invade the agricultural region arrive from the North of Argentina c) ‘winter refuges,’ ‘permanent zones’ in the strict sense of the word are not proven; only temporary migrations and stopping places exist.⁶⁴⁷

Of the 1934 expeditions, the report summarized the following results:

“a) confirmation that the swarms that invade the agricultural región proceed from the Argentinian North, as had been observed, for the first time, the previous year. b) proof of the theory, enunciated in

⁶⁴⁶ Comisión Central de Investigaciones sobre la Langosta, *Memoria de la Comisión Central de Investigaciones sobre la Langosta correspondiente al año 1936* (Buenos Aires: Ministerio de Agricultura de la Nación, 1939), 5-6.

⁶⁴⁷ “En el corto tiempo que duraron las exploraciones se comprobó: a) que nuestra langosta no se multiplica en el Norte durante el invierno y que su centro de procreación es la región agrícola, en los meses de primavera y verano. b) no se confirma el origen extraterritorial de las mangas y las que invaden la región agrícola llegan desde el Norte argentino. c) no se comprueban ‘refugios invernales’, ‘zonas permanentes’ en el sentido estricto del vocablo; sólo existen ambuleos y estacionamientos temporarios.” Comisión Central, *Memoria de la Comisión Central*, 12.

1933, respecting the autumnal concentration and spring dispersion of the swarms, in the North and South of the country respectively. c) confirmation of the existence, in all the Northern region, of a kind of ‘dispersed’ or solitary locust, of different habits than those that the common [locust] has....e) proof that the locust does not procreate in the Winter and that in this season it is found in a state of sexual diapause.”⁶⁴⁸

These conclusions contradicted decades of theories about the existence of a permanent zone, in favor of a permanent pattern of migration. The locust was not some foreign plague from abroad but lived and reproduced within Argentine territory. The seasonal reproduction of the locust, followed by a long “sexual diapause” was an important discovery. At the same time their conclusions were somewhat ambivalent. For example, they noted: “It is possible to destroy enormous quantities of flying locust, when it is found swarmed in the north, during the winter season, if enough spraying teams are available, that is to say before the flight of dispersion.”⁶⁴⁹ The report argued that Argentina’s recent efforts had brought the country to the forefront of international anti-locust efforts. Important new tools such as flamethrowers and arsenic powder had been proven effective against locusts. Scientists had discovered “insecticides recently tested that advantageously replace the arsenic [insecticides] because they lack the toxicity for man and for higher animals.”⁶⁵⁰

The 1939 report also recorded experiments done on locusts in captivity. For this purpose they used an “Insectarium.” This lab setting had several advantages. For one, it allowed scientists to control the temperature. Air temperature was understood to be a major factor affecting locust behavior, including the crucial phase transition from solitary to gregarious. But in a natural setting it changed constantly, whereas in the “Insectarium”

⁶⁴⁸ “a) confirmación de que las mangas que invaden la región agrícola, proceden del Norte argentino, como se había observado, por primera vez, el año anterior. b) comprobación de la teoría, enunciada en 1933, respecto de la concentración otoñal y dispersión primaveral de las mangas, en el Norte y Sur del país respectivamente. c) confirmación de la existencia, en toda la región Norte de un tipo de langosta ‘dispersa’ o ‘solitaria’, de hábitos diferentes de los que tiene la común....e) comprobación de que la langosta no se procrea en el invierno y que en esta estación se halla en estado de diapausa sexual.” Comisión Central, *Memoria de la Comisión Central*, 13.

⁶⁴⁹ Comisión Central, *Memoria de la Comisión Central*, 15.

⁶⁵⁰ Comisión Central, *Memoria de la Comisión Central*, 15.

temperature, along with humidity, could be controlled, at least to an extent. These and other experiments demonstrated that climatic factors, especially “temperature, humidity, precipitation and wind” were crucial in explaining locust behavior.⁶⁵¹ According to the report, when locusts encountered cold weather, they stayed in place and waited for the temperature to rise again before moving. Morning frosts prevented locusts from moving (as had been observed earlier by anti-locust commissions) until the frost burned off. Generally speaking, according to the report, “it is observed that the locations most visited during the winter by the flying locust are those that completely lack rains at the end of winter.”⁶⁵²

One of the key conclusions of the 1939 report was to confirm that “our ‘solitary’ locust is, morphologically, identical to *Schistocerca cancellata*”—in other words, to lend some credence to Uvarov’s theory of phase change.⁶⁵³ This was crucial because it proved that locusts could be solitary or gregarious, and only in the latter stage did they pose a major threat to agriculture. They were not, however, different species, as had been believed earlier. But this was still a controversial argument. In fact, one of the contributors to the 1939 report, Juan B. Daguerre, had written an article the previous year in the *Revista de la Sociedad Entomológica Argentina*. In this article he reiterated his claim that there were two different species, a sedentary, or *Schistocerca cancellata*, and a gregarious, or *Schistocerca paranensis*. The key to controlling locusts was maintaining what he called a “biological equilibrium” to prevent the gregarious species from growing in number. The gregarious locust was more difficult to control specifically because it migrated frequently. He ended his report by arguing that the key to fighting locusts was learning how to turn their migratory habits against them

⁶⁵¹ Comisión Central, *Memoria de la Comisión Central*, 6, 21, 193-198.

⁶⁵² Comisión Central, *Memoria de la Comisión Central*, 26-28, 40.

⁶⁵³ Comisión Central, *Memoria de la Comisión Central*, 10.

in some way.⁶⁵⁴ Another contributor to the 1939 report, Carlos Bruch, expressed some degree of skepticism regarding the theory, and called for continued study.⁶⁵⁵

The following year, Carlos Lizer revisited the conclusion of his 1919 report. In 1940 he wrote another report in which he concluded that his initial placement of the permanent zone was incorrect. Citing his colleague Juan B. Daguerre, he now argued that there were at least three, possibly four, permanent breeding grounds for locusts: one in Córdoba province, one in Entre Ríos, one in Uruguay and a final possible area in southern Brazil. Despite this change, he continued to advocate an offensive strategy of destroying locusts in these areas rather than waiting for them to develop into swarms and attack agricultural areas.⁶⁵⁶

In his 1928 overview, Uvarov marveled at the scope of the locust problem in Argentina. “There is, probably, no other country in the world (apart from other South American Republics),” he wrote, “where locusts are a *permanent* pest, invading in some years as much as 48 per cent. of the whole territory of the country, as happened in Argentina in 1922-23” (emphasis in original).⁶⁵⁷ He also offered a succinct indictment of Agricultural Defense: “Each year enormous sums of money are expended on the anti- locust measures, and millions of kilograms of the insects are reported destroyed, but the figures of the extent of locust invasions from year to year demonstrate most clearly that the work has no practical

⁶⁵⁴ Juan B. Daguerre, “Nuestros actuales conocimientos sobre la langosta,” *Revista de la Sociedad Entomológica Argentina* 10 (1938), 65-69.

⁶⁵⁵ Comisión Central, *Memoria de la Comisión Central*, 169.

⁶⁵⁶ Carlos Lizer y Trelles, *La lucha moderna contra la langosta en el país* (Buenos Aires: Academia Nacional de Agronomía y Veterinaria, 1940), p. 18-20, 29-30; Comisión Central de Investigaciones sobre la Langosta, *Memoria de la Comisión Central de Investigaciones sobre la Langosta correspondiente al año 1936* (Buenos Aires: Ministerio de Agricultura de la Nación, 1939), p. 12-15.

⁶⁵⁷ Boris Uvarov, *Locusts and Grasshoppers: A Handbook for Their Study and Control* (London: William Clowes and Sons, Ltd., 1928), 270.

effect on the course of events. There can only be one explanation of these remarkable facts, namely, that the organisation of control is ineffective.”⁶⁵⁸

But, curiously, he did not argue that this was a result of deficient technological methods. For him it was a problem of deficient organization, and argued that “wholly satisfactory results could be obtained at the same expense (counting the labour, which is not fully paid), but with an organisation based on different principles, namely, headed by responsible specialists and conducted by paid labour and more efficient methods.” Chief among those methods was poisoned bait, aside from which he argued that the metal barriers long in use were the most effective remedy.⁶⁵⁹ He noted that the international scope of the problem also made Argentina’s locust a particularly pernicious challenge. He argued that the 1913 regional agreement between Argentina and its neighbors “provided only for an exchange of information on the movements of locust swarms and contained a formal obligation on the part of each State to control locusts on its territory.”⁶⁶⁰ He argued that anti-locust efforts should begin before each invasion, and that “it ought to be perfectly possible to organise an effective service for the extermination of hibernating swarms, even if they actually migrate to some special refuges, which is highly improbable. The present method seems to leave hibernating swarms in peace, since they do practically no damage, but this is obviously a very short-sighted policy.”⁶⁶¹

In his section on the proper organization of anti-locust efforts, Uvarov noted some of the difficulties that Argentine legislators had already observed. For example, he noted that creating a specialized group was crucial, but such an organization “seems an unreasonable

⁶⁵⁸ Uvarov, *Locusts and Grasshoppers*, 271.

⁶⁵⁹ Uvarov, *Locusts and Grasshoppers*, 271.

⁶⁶⁰ Uvarov, *Locusts and Grasshoppers*, 272.

⁶⁶¹ Uvarov, *Locusts and Grasshoppers*, 272.

one in the intervening periods, when the organisation must be necessarily curtailed, involving the loss of some valuable workers.”⁶⁶² He also criticized the rather de-centralized structure of anti-locust efforts, not just in Argentina but in general: such decentralization, “while having certain advantages, is on the whole less convenient than the appointment of a special temporary personnel, directly responsible to the central control organization.”⁶⁶³

By the middle of the following decade, major locust attacks in Argentina seemed to have abated. By this time, anti-locust efforts had come to rely increasingly on DDT and other pesticides, often sprayed from airplanes. The new policy was based on “preventive” management whereby special “teams equipped for surveillance and control operations” could watch for “any gregarizing groups of nymphs or adults found early in an outbreak.”⁶⁶⁴ This was not a new idea; as we have seen Enrique Lynch Arribálzaga had proposed something analogous in his 1910 report, but it became effective in combination with pesticides and insecticides.

Planes, Trains, Automobiles, and Pesticides

Uvarov’s theory of phase change, combined with the use of mobile teams in trucks and airplanes, proved crucial in radically altering Argentina’s approach to locusts. In 1933 Fernando Lahille discussed his recent research on locusts in a paper delivered at the Facultad de Agronomía y Veterinaria de Buenos Aires. He began with a comparison to the battlefield, by now quite common in discussions of locusts. The first task of any campaign “consists in

⁶⁶² Uvarov, *Locusts and Grasshoppers*, 205.

⁶⁶³ Uvarov, *Locusts and Grasshoppers*, 205.

⁶⁶⁴ Eduardo V. Trumper, Arianne J. Cease, María Marta Cigliano, Fernando Copa Bazán, et al., “A Review of the Biology, Ecology, and Management of the South American Locust, *Schistocerca cancellata* (Serville, 1838), and Future Prospects,” *Agronomy* 12 No. 1 (2022): 11.

https://www.researchgate.net/publication/319987703_The_resurgence_of_the_South_American_locust_Schistocerca_cancellata.

studying the enemy, calculating its forces, not falling for its tricks, and adopting a plan for immediate defense; meanwhile it is not possible to undertake the offensive fight, the only way to crush the enemy and arrive at the final triumph.” So it was with the locust. He rejected the idea that all you needed was a few tools: “a few thousand meters of barriers, a few wells, and a few employees whose number varies with the available funds” in order to destroy locusts. The locust was an incredibly complex problem.⁶⁶⁵

To illustrate his approach to his audience, he compared his task to that of a flight reconnaissance mission—just at the time when airplanes were becoming the crucial new tool to fight locusts. Such initial overviews were important to examine the basic dimensions of the problem without getting lost in the weeds of detail. This was the task of his paper, and he offered four main points of research: the locusts themselves, the environment, the human actors, and finally “the field of heroic contest and triumph.” Within the category of the locusts themselves, he likewise enumerated four broad methods of study: field observations, lab experiments, “graphic representation of their activities and migrations,” and their potential commercial use. Observation, at first glance perhaps the simplest, was no easy task. As an analogy, he noted that people had always observed gravity in action, for it was a part of life, but only Newton had been able to derive a “scientific law” from such observations.⁶⁶⁶

Echoing Lynch Arribálzaga’s earlier proposal, he argued that since some invasions *did* come from other countries, it would be advisable to establish

⁶⁶⁵ “consiste en estudiar al enemigo, calcular sus fuerzas, desconfiar de sus tretas y adoptar un plan para la defensa inmediata, mientras tanto no resulte posible emprender la lucha ofensiva, único modo de aplastar al enemigo y llegar así al triunfo final.” Fernando Lahille, “El dominio de las langostas visto desde un avión” (presentation before the Facultad de Agronomía y Veterinaria de Buenos Aires, Argentina, 23 October 1933), 195-196.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

⁶⁶⁶ Lahille, “El dominio de las langostas visto desde un avión,” 197-198.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

along the whole length of our borders, a series of observers (military forts, trainstations, primary schools, commissaries, hired personnel, etc.), that are charged with signaling, with the greatest speed, the passings of the locust (place, date and time, direction of the wind, approximate density and width of the swarm, duration of the passage, temperatura, direction and force of wind, etc.).⁶⁶⁷

He described the organization of Agricultural Defense into 33 “sectionals” across the country. Ideally each section would have an entomologist. Since this was not feasible, he proposed at least to establish one entomologist in Metán, Salta province, one in Rafaela colony, Santa Fe province, and one as a kind of itinerant worker, following locust swarms. These would be in charge of studying the locusts and how they responded to temperature, wind, pressure, and precipitation.⁶⁶⁸

Lahille understood that locust eradication was at once a scientific as well as political problem. For that reason he argued that the legislation and decrees governing locust eradication efforts needed to be thoroughly reviewed to understand why efforts up to that point had been at best only partially effective. For example, he pointed out that the government had spent large sums of money during the 1915-1916 campaigns, but their efforts had fallen far short. In response, Minister of Agriculture Pueyrredón had called for the creation of “a permanent commission” in April 1917, whose task would be “to try new methods of fighting [locusts], to perfect the old ones” and to train a corps of personnel, but his call went unheeded. Nevertheless, that idea formed the basis of the commission that was established in 1933, the year in which Lahille delivered his talk. This commission, he emphasized, was and should be responsible for communicating with and heeding the wishes

⁶⁶⁷“en todo lo largo de nuestras fronteras, de una serie de observadores (fortines militares, estaciones de ferrocarriles, escuelas Láinez, comisarias, personal rentado, etc.), que tengan el encargo de señalar, con la mayor rapidez, los pasajes del acridio (localidad, fecha y hora, dirección del viento, densidad y ancho aproximado de la manga, duración del pasaje, temperatura, dirección y fuerza del viento, etc.)” Lahille, “El dominio de las langostas visto desde un avión,” 214.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

⁶⁶⁸ Lahille, “El dominio de las langostas visto desde un avión,” 222-223.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

of the public.⁶⁶⁹ That meant that anti-locust workers had to find ways of winning over the public when they opposed the commissions. The actual work of studying locusts had to be done by trained professionals; he argued that the current personnel were not up to the task. Lab experiments, according to Lahille, were of limited value and could not substitute for field observations.⁶⁷⁰

⁶⁶⁹ Lahille, “El dominio de las langostas visto desde un avión,” 224-225.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

⁶⁷⁰ Lahille, “El dominio de las langostas visto desde un avión,” 226.

https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

DIAGRAMA DEL PLAN DE UNA
OFICINA TÉCNICA
PARA EL ESTUDIO DE LA LANGOSTA.

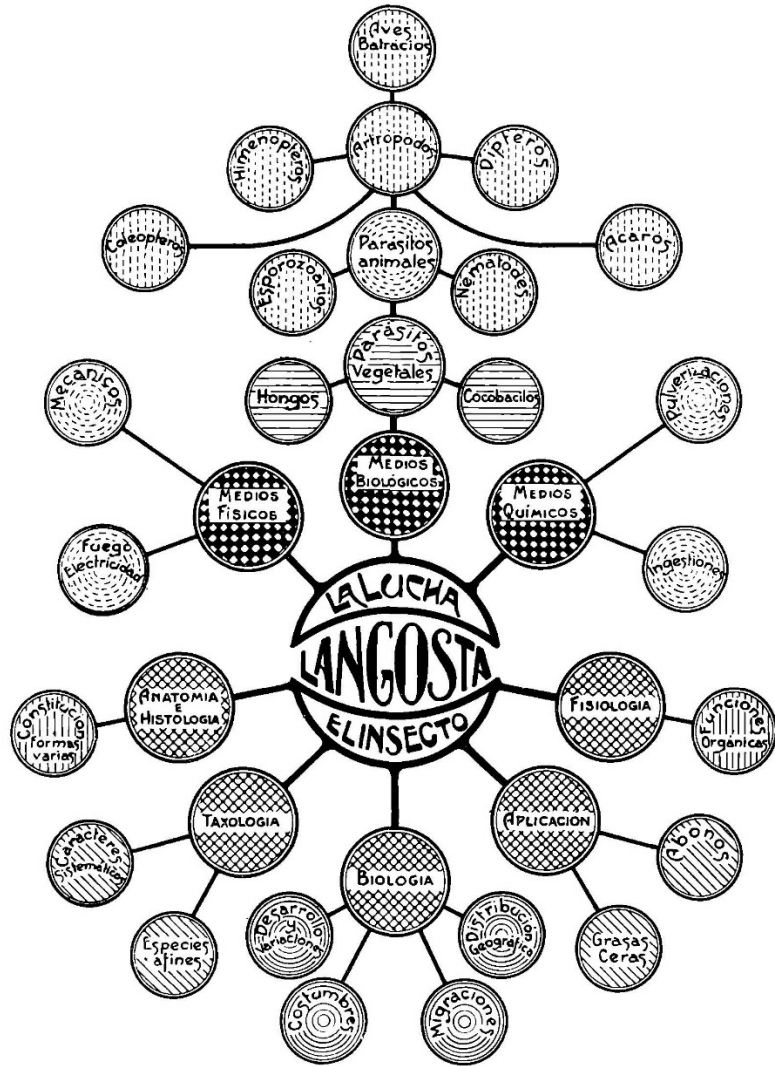


Figure 17 Diagram of the organization of anti-locust work, from Fernando Lahille, "El dominio de las langostas visto desde un avión" (presentation before the Facultad de Agronomía y Veterinaria de Buenos Aires, Argentina, 23 October 1933).

He included a diagram showing how such a commission would be apportioned (Fig. 17). At the center of the diagram was “La Lucha Langosta”—“the locust fight.” Branching downward were the various forms of studying locusts: biology, taxonomy, anatomy, and physiology. Branching upwards were three categories of techniques for fighting locusts: physical methods, biological methods, and chemical methods. Lahille identified chemical methods as the future of anti-locust efforts. Such methods still had drawbacks. The obvious one was the potential they had to poison the crops, but they could also become quite expensive if used in high quantities, and rain could wash away arsenic powder. Using bait was one alternative that Uruguay had employed successfully, but one that required careful study to make the bait both lethal and more attractive to locusts than their ordinary fare.⁶⁷¹

He acknowledged the potential of planes to expand the capacity of anti-locust work, and the promising results of experiments carried out since 1925 to that effect. They could be especially useful in spraying areas that were uninhabited and hard to reach by land; this would, however, require the establishment of infrastructure like air strips and supply depots, which could make the cost prohibitive. He tentatively suggested that small, light airplanes should be designed specifically for this task. Lahille emphasized that for anti-locust work to be effective, it had to be ceaseless: all year, every year. In addition, he called for the appointment of a single person that would have total authority “as in a state of war” to use all means possible to exterminate the plague. He also called for the maintenance of close links with international scientific communities in Europe, especially the Imperial Institute of Entomology in London. Entomologists should be stationed in major cities throughout the northwest, and they should be equipped with “a small mobile laboratory.” He concluded by

⁶⁷¹ Lahille, “El dominio de las langostas visto desde un avión,” 228-231.
https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

reiterating “the *fundamental problem* of acridiology: the periodicity of the invasions and their causes” (emphasis in original).⁶⁷² This question was at the heart of discussions of the permanent zone: for where and how did locusts exist in between invasions?

Skepticism of the permanent zone had been a feature of the debate since the idea was first proposed in the 1890s. Lahille dismissed the possibility of a “winter refuge.” He criticized those who had voiced “the opinion that the locusts arrive from neighboring countries, commit their misdeeds and lay eggs in our [country] during the spring and the summer, to return afterwards towards the north to pass the autumn and winter in certain zones of refuge.” For one thing, the 1933 invasion, he wrote, had certainly not come from either Bolivia or Paraguay. If such an idea had any basis in reality, he argued, the problem would already have been solved. But Argentina’s government had sent numerous expeditions and spent a great deal of time and money, and had yet to identify any such zones. Lahille insisted that there may be “winter foci” but, crucially, these were not the only or even the primary places where locusts reproduced. They merely referred to places where locusts spent the winter, and they were not “refuges” in the sense of hiding somewhere from some external threat.⁶⁷³

But Lahille still admitted the probability of one or more of what he called an “area of permanent multiplication of the solitary forms” i.e. the locusts who had not undergone a phase change to form a swarm. The key, then, seems to have been the relationship between migration and reproduction. Insofar as a “winter zone” was thought to be a place in which locusts reproduced exclusively, it was inaccurate. Rather, taking into account the phase

⁶⁷² Lahille, “El dominio de las langostas visto desde un avión,” 232-240.
https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

⁶⁷³ Lahille, “El dominio de las langostas visto desde un avión,” 208-211.
https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

change from solitary to gregarious, he argued that there probably were places—and Salta was one such place he identified, where locusts lived year-round in their solitary state. Another place was the area around Metán, of which he said: “I believe it is within this zone that we will find an area of permanente multiplication of the solitary forms, better called independent, autonomous or sedentary locusts, in opposition to the gregarious or mimicking [remedadora] locusts.”⁶⁷⁴ Two problems had to be explained: the tendency to change phase from solitary to gregarious, and the tendency to migrate. Lahille argued that cold weather could drive gregarization, but not migration. A change in air pressure was key in driving the latter process.⁶⁷⁵ In any case, the idea of an area of permanent habitation persisted, although it was no longer seen as the only place where locusts would reproduce. Lahille’s enthusiastic support of insecticides would also be validated by Argentine policy beginning in the 1930s, as this became the method of choice, superseding the arduous, labor intensive methods of earlier decades.

At the end of the decade, the 1939 Commission report discussed some of the earliest attempts to use pesticides. The first summary was authored by Pablo Köhler. He wrote that they had been experimenting with a chemical solution to locusts since 1933. The first problem was to find a machine that would allow them to spray an insecticide “in the form of powder.” At first they had sought planes, which Köhler described as “the ideal mechanism to quickly destroy in that way [i.e. by chemical means] the masses of locusts” largely because land-based machines relied on good roads and firm soil, and the former, at least, was hard to come by. The design of their machine was partly inspired by a similar device developed at

⁶⁷⁴ Lahille, “El dominio de las langostas visto desde un avión,” 210-211.
https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

⁶⁷⁵ Lahille, “El dominio de las langostas visto desde un avión,” 208-211.
https://repositoriosdigitales.mincyt.gob.ar/vufind/Record/SEDICI_e1112e66f034faaa6fa9eb2aa3a09ff4.

UC Berkeley in California, which had been employed to spray citrus crops. In any event, they attached their contraption to a truck and would spray the locusts wherever they found them. The hose itself was powered by a used car engine.⁶⁷⁶

The first experiments, carried out in Santiago del Estero, were disappointing, as the mixture did not spray evenly and the different components (chalk, sodium arsenate, and disodic phosphate) tended to disaggregate, so they had to experiment with different proportions of the components of the aerosol spray. With their new mixture in hand they carried out further trial runs in Santa Fe. At night they sprayed trees that were covered in locusts, and they returned in the morning to find all the locusts had fallen off the tree and died. After several more runs, they declared the method a success. The one drawback he noted in his report was the use of arsenic. “Having experienced grave inconveniences of a personal and other kind,” he wrote, “because of the elevated toxicity of the arsenic mixtures, it was necessary to study all the langosticidal options, as long as they could be applied in the form of powder in the sprinkler.” This cryptic reference to the dangers of arsenic, and the fact that they were using high enough quantities to affect the humans using them, hinted at a recurring problem in the use of insecticides. He experimented with two other non-arsenic solutions and found at least one of them satisfactory, but did not detail their chemical composition.⁶⁷⁷

Juan Daguerre also reported on experiments with insecticides in the 1939 report. He and two other officials used a long “telescopic tube” to spray across 10,000 km² a few kilometers away from a railway that linked Santiago del Estero and Chaco provinces in June

⁶⁷⁶ Comisión Central de Investigaciones sobre la Langosta, *Memoria de la Comisión Central de Investigaciones sobre la Langosta correspondiente al año 1936* (Buenos Aires: Ministerio de Agricultura de la Nación, 1939), 243-244.

⁶⁷⁷ Comisión Central, *Memoria de la Comisión Central*, 247-251.

and July of that year. Depending on how close the locusts were to the main body of the cloud, Daguerre reported that the locusts died within 24 or 48 hours of being sprayed. Over the following days they experimented with varying proportions of the mixture which included sodium arsenate, disodic phosphate, and chalk. They also experimented with spraying directly onto locusts or spraying into the air above them, and found that the latter worked better. They concluded their experiments in early August and Daguerre returned to Buenos Aires. He cautioned that the use of this mixture should be limited to trained professionals who knew when it would be most effective. The best time was during cold, humid weather when locusts crowded together and stayed put on the ground or in trees. During hot or dry weather, locusts were more apt to move and less densely crowded, thus the spray would be less effective.⁶⁷⁸ Large-scale spray campaigns across much of central and northern Argentina would become the main tool of Argentina in the 1940s and 1950s, while the search for the permanent zone fell by the wayside.

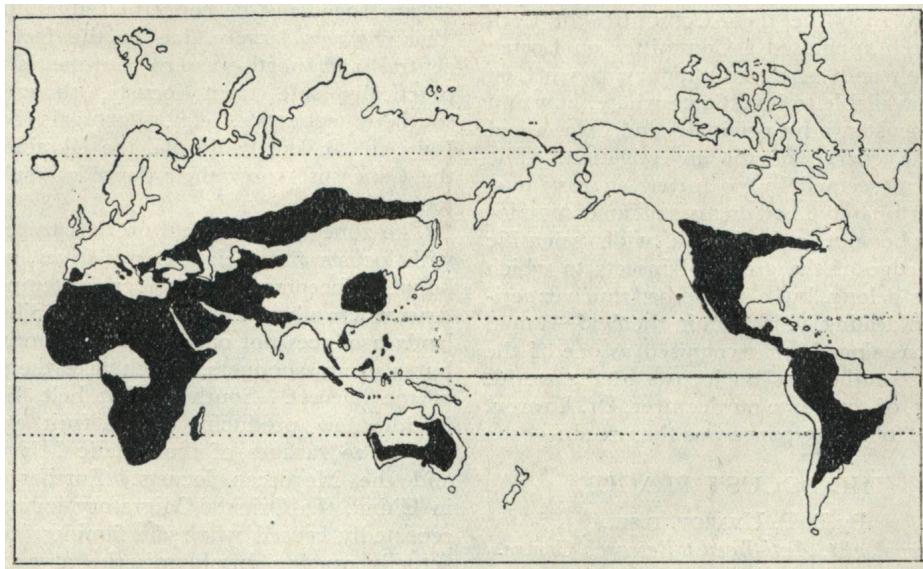


Figure 18 Areas affected by locusts. From Boris P. Uvarov, "The Locust Plague," *Journal of the Royal Society of Arts* 91 No. 4631 (January 22nd 1943).

⁶⁷⁸ Comisión Central, *Memoria de la Comisión Central*, 253-258.

In 1970, Daguerre returned to the problem of the locust and acknowledged that locusts had been largely inactive since the mid-1940s after a “brutal chemical fight” so that now the campaigns were largely seasonal, localized affairs focusing on management and prevention. “Small little swarms gather bit by bit in the winter in places of impenetrable forests of the plains of La Rioja and Catamarca,” he wrote, “especially in some inaccessible ravines of the Ancasti, Ambato and Velazco ranges, where they pass the cold winter days.” Then in the spring and summer, he noted, these small swarms migrated south to provinces like Mendoza. “I ask, why are these locusts that go south not followed, and fought in their spring generation, since once located, it could be easier to fight [them] than waiting for them to reproduce to launch, later, a difficult and onerous campaign, to destroy the summer generation?” In other words, he argued that it should be possible to eliminate even the small numbers of locusts that continued to enter the gregarious phase each year, rather than continually spraying them when they emerged. Tracing the migrations of locusts and interrupting their cycle of reproduction thus remained a continual problem and aspiration for anti-locust control. The timing of the campaigns, and the tension between the need to be prepared and the expense and difficulty of maintaining an anti-locust apparatus at all times, continued to be subjects of debate. Daguerre ended by warning that locusts could come roaring back at any point, as indeed they did half a century later.⁶⁷⁹

Modern studies have emphasized that the South American locust, *Schistocerca cancellata*, is a single species that exhibits “a phenotypic plasticity known as phase polyphenism in that they behave as solitary individuals at low densities but shift to a completely different behavior and morphology when at high density.” Studies also revealed

⁶⁷⁹ Juan B. Daguerre, “Estado actual de la langosta voladora,” *Revista de la Sociedad Entomológica Argentina* 32 (1969-1970): 115-116.

that locusts had two generations per year, not one, although the lifespans of each generation were quite disproportionate. Mating typically began shortly before the rainy season. Although the idea of the permanent zone was modified (and the term itself fell into disuse) the concept of a small population in a small area subject to periodic outbreaks continued to drive locust policy. Though there was only one species, the phenotypic changes “occurred in specific arid areas of La Rioja and Catamarca provinces” i.e. the same two provinces that Daguerre had emphasized in 1970.⁶⁸⁰

The causes of these outbreaks remain under study. One theory is that early rains allowed for a third generation to emerge in a single year, and that this increased population density drove outbreaks. One of the few times it rained early in the 20th century in the Catamarca/ La Rioja region was in 1943-1944, right before the last outbreak of the twentieth century. Another factor may be over-grazing livestock on pastureland which may increase the carbohydrate intake of locusts, a necessary prerequisite for long-distance flight. By the 1950s, locust outbreaks had declined and Argentine agricultural management confined locusts to a small region in Catamarca and La Rioja provinces, to the south of the old suspected “permanent zone” in Salta province or southeastern Bolivia. After the thorough chemical campaigns of the 1940s and 1950s, locust control became a fairly local issue, leading to a loss of institutional memory and technical expertise which had to be re-learned during the outbreaks after 2015.⁶⁸¹

⁶⁸⁰ Trumper et al., “A Review of the Biology, Ecology, and Management of the South American Locust,” 2. https://www.researchgate.net/publication/357630722_A_Review_of_the_Biology_Ecology_and_Management_of_the_South_American_Locust_Schistocerca_cancellata_Serville_1838_and_Future_Prospects.

⁶⁸¹ Trumper et al., “A Review of the Biology, Ecology, and Management of the South American Locust,” 2-8, 12-14. https://www.researchgate.net/publication/357630722_A_Review_of_the_Biology_Ecology_and_Management_of_the_South_American_Locust_Schistocerca_cancellata_Serville_1838_and_Future_Prospects.

The return of locusts began in the northwestern province of Santiago del Estero in 2015. Smaller swarms affected Bolivia the following year, leading Bolivia to cooperate with Argentina's agricultural authorities. In June 2017 locusts invaded Argentina from Paraguay. The small permanent staff working in Catamarca and La Rioja had to begin training large numbers of new workers to address the problem.⁶⁸² Thus far, even with the post-2015 return of locusts, the era of massive labor mobilization, locust bounties, and the search for a permanent zone, has passed.⁶⁸³

Conclusion

The long-standing belief that locusts lived permanently in the Gran Chaco reflected an implicit view of that region as being somehow part of Argentina but also apart from Argentina. Only conquered in the 1880s, the Chaco remained, for creole Argentines outside the region, largely unknown. The expeditions launched to find the permanent zone, then, were also military, scientific, and anthropological missions to map the region and make it knowable to the state. The belief that locusts originated in the Gran Chaco also drove Argentina to seek cooperation with Bolivia and Paraguay, the other two countries with territorial claims in the Chaco. Proponents of locating the permanent zone argued that as expensive and arduous as such journeys were, they were less expensive than the massive campaigns launched by Agricultural Defense each time locusts invaded.

⁶⁸² Hector A. Medina, Eduardo V. Trumper, and Arianne Cease, "The Resurgence of the South American Locust (*Schistocerca cancellata*)," *Metaleptea* 37 No. 3 (Sept. 2017): 17-19. https://www.researchgate.net/publication/319987703_The_resurgence_of_the_South_American_locust_Schistocerca_cancellata.

⁶⁸³ Medina et al., "The Resurgence of the South American Locust (*Schistocerca cancellata*)," 11-12. https://www.researchgate.net/publication/319987703_The_resurgence_of_the_South_American_locust_Schistocerca_cancellata.

Nonetheless, no permanent zone was ever located in the Chaco. The phase theory promoted by Boris Uvarov in the 1920s forced a re-thinking of locusts. He showed that locusts and grasshoppers were not separate species. The permanent zone did not exist as a unique place outside of which locusts could not reproduce; indeed, observers had noted since the beginning of the anti-locust fight that locusts very often laid eggs in agricultural zones. Nevertheless, the idea of the permanent zone did not completely vanish; the question, rather, was which areas were most likely to have the environmental conditions necessary to promote the phase change from solitary grasshoppers to gregarious locusts. Pesticides, the subject of decades of experimentation, finally became a powerful solution when combined with airplanes and trucks.

Conclusion

By 1954, locust plagues had been, for the most part, eradicated, and the anti-locust efforts were reorganized into “permanent exploratory commissions, each one composed of two environmental experts, provided with emergency tools to locate and destroy incipient focal points that could appear” in the major agricultural zones of the country.⁶⁸⁴ With permanent observation stations established throughout the western provinces, it was relatively easy to contain the small outbreaks that occurred between 1962 and 1964.⁶⁸⁵ Neighboring countries, especially Uruguay and Brazil, also benefited from these massive campaigns in Argentina, and the “great center of procreation and irradiation” was identified as being located in La Rioja.⁶⁸⁶ The days of massive, organized labor campaigns, of burying thousands of kilos of dead locusts, it seemed, were over. So were the days of acrimonious debates about the infringement of the national government on provincial sovereignty, at least as far as locusts were concerned. So were the days of arduous, expensive expeditions into the Gran Chaco in search of locusts. For the next half-century, locust swarms largely disappeared from Argentina.

This thesis has argued that locusts became a problem as much for what they symbolized as for the monetary damages they inflicted on Argentina’s growing agricultural export economy. For Argentina’s elites the locust invasions represented a threat from the natural world that was not only beyond control but largely beyond scientific understanding of the day. Where they came from, why they came in some years and not others, what drove their migratory, reproductive, and egg-laying patterns—all these questions perplexed

⁶⁸⁴ Gastón, “Sintesis histórica,” 27.

⁶⁸⁵ Gastón, “Sintesis histórica,” 27-28.

⁶⁸⁶ Gastón, “Sintesis histórica,” 29-30.

politicians, farmers, and scientists alike. Answering these questions drove a wave of scientific research. Argentina brought scientists from abroad to try to eradicate locusts. Argentines experimented with natural predators: birds, flies, and even some species of fungus, but these efforts were largely unsuccessful. A range of chemical sprays were advertised and discussed in newspapers and specialized periodicals, although they did not become the prevailing method until combined with airplanes.⁶⁸⁷ Scientists forged links with anti-locust efforts elsewhere in the world, and Argentine newspapers closely followed those efforts, especially in the United States and French colonial North Africa.

Newspapers also covered the progress and history of Agricultural Defense, opening a window for the historian into life in Argentina beyond the capital city. Correspondents from interior provinces reported on the achievements, failures, and controversies surrounding Agricultural Defense. They also offer tantalizing references to the use of soldiers, both in the regular army and in the national guards, in anti-locust work; unfortunately, thus far I have not been able to find detailed records in the Archivo Histórico del Ejército. The efficacy of the armed forces in anti-locust work was itself the subject of dispute: some saw it as improper in principle for the nation to engage the army for such purposes, and others argued that they were simply not the right tool. For the most part, Agricultural Defense relied on mechanical methods: burning, stomping, burying, or simply erecting barriers to protect fields.

Locusts were not, however, new to Argentina. As we have seen, Jesuit naturalists from the Spanish colonial period observed locusts. They repeatedly noted that Indigenous groups, especially in the Chaco, viewed locusts as a source of food. Most often, they were either fried or ground up into a kind of “flour” that could be baked. Spanish colonists, by

⁶⁸⁷ *Anales de la Sociedad Rural Argentina* Vol. XXXIII (Buenos Aires: Argentina, 1898), ix; *La Prensa*, 29 November, 7; *La Prensa*, 17 January 1898, 7.

contrast, viewed locusts as a danger to their own food supply, but there was little that could be done, and agriculture was generally a small-scale, subsistence practice in colonial Río de la Plata. That is, locusts might be devastating in a given locale, much like drought or flooding could be, but they were not a problem with which the colonial government generally concerned itself. By contrast, as commercial, export-oriented agriculture expanded across the Pampas in the late nineteenth century, locust invasions became a major concern.

The transformation of the Pampas into a regional breadbasket involved military conquest and colonization, the expansion of railroad networks, and the arrival of large numbers of European immigrants who turned to commercial agriculture, focusing on staple crops like wheat and maize. Both national and provincial forces pushed the frontiers of Santa Fe westward and northward. Agricultural production was not necessarily concentrated in frontier areas; rather, it was focused in the areas around the two major cities of Santa Fe and Rosario. Nevertheless, military conquest did encourage the establishment of more agricultural colonies. Railroads reached into the interior and drastically reduced the price of shipping wheat to the Atlantic coast. Immigrants, largely from Spain and Italy, established agricultural colonies that became major producers of commercial crops like wheat and maize. Cattle and sheep did not disappear from the Pampas by any means, but a region that had once been the exclusive domain of this sector became the domain of labor-intensive agriculture as well.

As Argentina became one of the world's largest exporters of wheat, and a major producer of maize as well, what had been a private concern of the farmer became a major threat to the nation's economy. That did not mean, however, that everyone agreed on how to address the problem. Part of the challenge was that the technology of the day—and indeed of

all previous anti-locust efforts, whether in South America or elsewhere—was fairly rudimentary. It is instructive, for example, that many of the techniques used by Agricultural Defense were hardly distinguishable from those advocated in manuals from peninsular Spain in the mid-eighteenth century. Rather, the key to anti-locust efforts through the 1930s was the organization of labor—at the right time, at the right place, and in the right quantity.

Anti-locust efforts also challenged the reigning conceptions of property and authority, Agricultural Defense was heavily criticized as being alternately a waste of money or a politicized tool of the Radical Party. From the very inception of the program, critics in congress derided the anti-locust legislation as a dangerous, unconstitutional overreach of the authority of the national government. Even if they agreed that locusts were a serious problem (and they usually did) and even if they did not question the crude methods of fighting locusts, provincial representatives insisted that fighting locusts was the domain of provincial authorities. They occasionally argued that Agricultural Defense was only the first step on the road to total prostration of the provinces before Buenos Aires. Supporters emphasized that if locusts did not respect provincial or, indeed, national borders, then efforts to control them had to be coordinated across those same borders. Critics also attacked the methods used to fight locusts as completely useless. Some critics argued that finding a biological method—finding and propagating a natural predator of the locust—would be better. Others alleged that Agricultural Defense's focus on defensive, mechanical methods, that is, fighting locusts in the agricultural provinces themselves, was ineffective and futile. The only way was to find their place of origin, the region where they lived year-round, and attack them there. Indeed, many of the strongest advocates of finding the permanent zone argued that no amount of defensive, reactionary effort would bear fruit until locusts were eradicated at their source.

Some of the fiercest criticism was focused on the accusation that Agricultural Defense was corrupt. One line of attack portrayed individual anti-locust officials as extortionate and interested in personal gain. These criticisms found a hearing not just in the halls of congress but in newspapers like *La Nación*, which reported various accusations against local anti-locust officials. Another criticism, launched by opposition politicians, especially socialists, during the Radical administration, was that Agricultural Defense was a tool of the ruling party not to fight locusts or any other plague, nor to educate rural farmers in new scientific methods, but to act as surrogates for the Unión Radical in the interior. Agricultural Defense officials, they alleged, paid from public coffers, used their nation-wide reach to engage in pure electioneering. The accusation of politicking persisted beyond the years of the Radical Party in power; as late as 1935 *El Orden* in Santa Fe denounced Agricultural Defense, saying that it was “well known that electoral campaigns are more important to that group [“*repartición*”] than the situation of the humble people who give their youth, their lives, and the lives of their family to labor.”⁶⁸⁸ In another article, *El Orden* described Agricultural Defense workers as people who “prefer to occupy a post without working, because they want to earn money, lots of money, but not to bother themselves with the people [“*el pueblo*”] that are tired of their continual abuses” and their lack of any progress in destroying locusts.⁶⁸⁹

Santa Fe passed early provincial anti-locust legislation in 1880. The law gave broad authority to force residents to fight locusts and to impose fines on those who refused. But beyond that, it did not specify methods, plans, or goals. Ten years later, the province revisited the legislation and called for the political chiefs to establish local anti-locust commissions. As we have seen, the early national legislation of 1891-1892 was similarly bare bones. The

⁶⁸⁸ *El Orden*, 18 January 1935, 13.

⁶⁸⁹ *El Orden*, 18 January 1935, 13.

national legislation of 1897 and 1898 was much more specific, establishing a hierarchy of Central Commission, provincial commissions, and local sub-commissions. It authorized the destruction of fields sown with locust eggs, with indemnities; it authorized the president to use the troops from the standing army; it gave locust commissions sweeping authority to compel virtually anyone, even non-citizens, to lend their labor and their property (tools, for example), to fight locusts, with few exceptions; it obligated citizens, besides fulfilling the labor duty, to report locust sightings to the local commission; and finally it established an office of entomology within the Ministry of Agriculture.

Gradually, the organization and scope of the efforts increased, culminating in the establishment of Agricultural Defense in 1905. The major transformation was that it grew from being specifically an anti-locust program to being an anti-pest program broadly, targeting vicuñas and various insects, and was further empowered to regulate the importation of crops and animals deemed to be infected with some contagion.

Agricultural Defense took advantage of relatively new technologies like railroads and telegraphs to, it was hoped, overcome the difficulties of controlling locusts in sparsely populated areas. Agricultural Defense made deals with rail and telegraph companies to get preferential rates for their employees and their supplies. But aside from transportation and communication technology, the actual work of killing locusts used methods that would have been equally familiar to peasants in the eighteenth and sixteenth centuries. Observers in the nineteenth and twentieth centuries, like their predecessors, observed that flying locusts became lethargic in cold or wet weather and at night. They laboriously collected locusts, either for a wage or a bounty, and then buried or burned them. A few innovations, like the

carcaraña, the zinc barriers, and the flamethrower, were used, but in general, the methods of killing locusts were similar.

The new agency operated, in theory, with a strict hierarchy of commissions and sub-commissions, and claimed authority independent of provincial or local actors. Partly for that reason they were extremely controversial. In Santa Fe, almost all the records I examined were complaints against Agricultural Defense. Likewise, the newspapers were rife with reports of corruption, inefficiency, and failure. On numerous occasions ministers of agriculture were called before congress to defend the value of the institution. In congress, the focus of the criticisms shifted from challenging the authority of the national government to condemning Agricultural Defense as a total waste of money. Nevertheless, despite persistent attacks from a vocal group of congress members, the organization continued to receive funding.

The search for the “permanent zone” in the borderlands of the Gran Chaco came immediately after the military conquest of the Argentine Chaco and largely coincided with the colonial settlement of the region. The fear that locusts originated in the Chaco, then, reinforced the idea of that region as dangerous, backward, and beyond the control of the national government. The national government sent a series of expeditions into the Chaco to try to identify this area; these expeditions played other roles as well, as the participants sought to map the region and plan for its integration into the larger nation. Eventually, the theory of the Gran Chaco as the site of a hidden permanent zone fell by the wayside.

The work of eradicating locusts, it was hoped, would foment a sense of national identity and solidarity amongst inhabitants of the interior provinces. But locusts were also a malleable symbol whose meanings were not monopolized by ministers of agriculture or

officials of Agricultural Defense. From popular cartoons to critics in congress, locusts became a metaphor for bureaucratic inefficiency, the greed of the political class, or the anti-locust workers themselves.

Nor were the agricultural colonies themselves enamored of Agricultural Defense. Of the dozens of extant letters written by development commissions to the provincial government that I examined, virtually none wrote to praise the anti-locust work. Many wanted to confirm that the anti-locust commissions even had the authority that they claimed. Others pointed out that they simply did not have the money to carry out the labor-intensive work required by anti-locust employees. Still others bluntly pointed out that destroying the public roads was both counterproductive and directly contradicted the major reason for the existence of development commissions. Overall, farmers appeared much more concerned with harvesting their crop in time; they did not want to be drafted to dig up eggs in public areas or on someone else's land.

Gradually, Boris Uvarov's development of the theory of phase-change, coupled with the advent of airplanes and chemical pesticides, changed the way that Argentina fought locusts. Uvarov showed that locusts were not a species distinct from grasshoppers. Rather, under certain climactic factors, and given a certain population density, grasshoppers exhibited changes in both their physical appearance and in their behavior, becoming the swarms known as locusts. The new methods of aerial spraying were employed not just in Argentina but in the Near East and North Africa. Although Uvarov himself did not play a direct role in anti-locust work in Argentina, as he did the British and, to a lesser extent, French colonial efforts, his key insight changed the way that Argentine authorities fought locusts. Curiously, however, Uvarov himself did not believe that technological innovation

was key to fighting locusts; rather he stressed organization, discipline, and preparation, thus in some ways reflecting the view of Agricultural Defense.

A 1946 meeting in San Nicolás, in the province of Buenos Aires, brought together governors and representatives from three major provinces affected by locusts: Buenos Aires, Santa Fe, and Córdoba. One speaker, the engineer Antonio D. Paluso, symbolically linked the meeting to another famous meeting that took place in San Nicolás nearly a century before: that to write the constitution of 1853. “The country being organized and having a constitution,” he declared, the next step was “to organize its economy.” This, according to Paluso, was the purpose of the ultimate purpose of the meeting and the ultimate goal of the new government under Juan Perón. Reaching further back to the wars of independence against Spain, Paluso linked the fight against locusts to the long-standing aspiration to economic independence: just as the government sought to maintain political sovereignty, it sought to achieve “economic independence and liberty, the principal motor of Mariano Moreno, genius of the May Revolution.”⁶⁹⁰

Although locusts had drastically declined as a threat to agriculture by the mid-1950s, a 1954 article in Santa Fe’s *El Litoral* pointed out the continuing problem of international cooperation. According to the article, despite the existence of treaties between Argentina and its neighbors, Argentina had been carrying the bulk of the burden in its anti-locust efforts, which benefited its neighbors.⁶⁹¹ Much later, in 1969, another article noted that the Argentine Agrarian Federation (*Federación Agraria Argentina*) had complained to the Ministry of Agriculture that yet again, the wealthy could refuse to participate in anti-locust work and pay

⁶⁹⁰ *El Orden*, 30 October 1946, 2.

⁶⁹¹ *El Litoral*, 14 March 1954, 2.

no penalty.⁶⁹² Another source of continuity was the notion of a “wintering zone”; in the 1954 article from *El Litoral* and another article published the following year in that paper, the authors argued that chasing the locust to the “winter refuge” had been key to its destruction.⁶⁹³ The idea of a permanent zone or zone of refuge persisted long after the general acceptance of phase theory.

In 2015, swarms of locusts began to appear again in Argentina’s Santiago del Estero province, and in parts of Bolivia in the following year. More recently, in February of 2024, SENASA (the successor to Agricultural Defense) declared a “national emergency.” Far from identifying a single “permanent zone” the agency identified “more than one thousand foci of the plague in different provinces of the country” whose population were increasing and which risked becoming swarms.⁶⁹⁴ Locusts, it appears, have returned to Argentina. According to some studies, anthropogenic global warming will increase the frequency of locust invasions. Youngblood et al. have suggested that by 2070 global warming will have significantly enlarged both the area in which locust swarms can form and the amount of matter they can digest, thus in a sense vindicating the fears voiced over a century ago that locusts might become a permanent feature of Argentina’s agricultural zone. At the same time, the human population is expected to expand to about 10 billion by the middle of the century.⁶⁹⁵ Some scholars have begun to study the use of locusts and other insects as a food

⁶⁹² *El Litoral*, 19 May 1969, 2.

⁶⁹³ *El Litoral*, 14 March 1954, 2; *El Litoral*, 15 March 1955, 2.

⁶⁹⁴ “Las langostas están difíciles de controlar y obligaron al Senasa a declarar la emergencia nacional,” *Infocampo*, 26 July 2024, https://www.infocampo.com.ar/las-langostas-estan-dificiles-de-controlar-y-obligaron-al-senasa-a-declarar-la-emergencia-nacional/?utm_source=Cenital&utm_campaign=9241d8e059-ADM_615&utm_medium=email&utm_term=0_a38084492c-9241d8e059-405137958.

⁶⁹⁵ Jacob P. Youngblood et al., “Climate change expected to improve digestive rate and trigger range expansion in outbreaking locusts,” *Ecological Monographs* 93 No. 1 (February 2023), 14.

source.⁶⁹⁶ Given that current studies show there are 19 different species of locusts spread across the continent (out of over 6,000 species of grasshoppers), it seems assured that humans will have to find some way to co-exist with this “pest” for the foreseeable future.⁶⁹⁷

⁶⁹⁶ J.P. Egonyu, S. Subramanian, C.M. Tanga, T. DuBois, S. Ekesi and S. Kelemu, “Global overview of locusts as food, feed and other uses,” *Global Food Security* 31 (December 2021), 1-8.

⁶⁹⁷ Marion Le Gall, Rick Overson and Arianne Cease, “A Global Review on Locusts (Orthoptera: Acrididae) and Their Interactions With Livestock Grazing Practices,” *Frontiers in Ecology and Evolution* 22 (July 2019), 2.

Appendix 1

Law num. 2793 Measures for the extirpation of the locust [1891]⁶⁹⁸

Article 1° The executive power, in agreement with the governors of the province, will quickly take all possible measures conducive to combat and extirpate the locust in whichever part of the Republic that it appears.

Art. 2° It is declared obligatory for every farmer or rancher [“*agricultor ó ganadero*”] of the place invaded by the locust, their attendance whenever it is required by the authorities or the commissions that shall be named with that object.

Art. 3° The executive power is authorized to make, from the general revenue, the expenses that the execution of this law demands, with imputation to the same.

Art. 4° Let it be communicated to the executive power.

Given in the hall of sessions of the Argentine congress, in Buenos Aires on the 24th of August 1891.

Ley núm. 2793 Medidas para extirpar la langosta [1891]

Artículo 1° El poder ejecutivo, de acuerdo con los gobiernos de provincia, tomara á la brevedad posible todas las medidas conducentes á combatir y extirpar la langosta en cualquier punto de la Republica que apareciere.

Art. 2° Declárase obligatorio para todo agricultor ó ganadero del lugar invadido por la langosta, la prestación de su concurso cada vez que les sea requerido por las autoridades ó comisiones que se nombraren con ese objeto.

Art. 3° Autorízase al poder ejecutivo para hacer de rentas generales los gastos que demande la ejecución de esta ley, con imputación á la misma.

Art. 4° Comuníquese al poder ejecutivo.

Dada en la sala de sesiones del congreso Argentino, en Buenos Aires, á 24 de agosto 1891.

Law num. 2893 Help for the destruction of the locust in all the territory of the Republic⁶⁹⁹ [1892]

Article 1° The executive power is authorized to invest, in the present year, up to the sum of five hundred thousand national pesos, to assist the destruction of the locust in all the territory of the Republic

Art. 2° The aforementioned sum will be distributed, giving it to the governments of the provinces and national territories in the proportion that corresponds to their needs.

Art. 3° The spending will be made from general revenues allocating it to the present law.

Art. 4° Let it be communicated to the executive power.

Given in the hall of the sessions of the Argentine congress, in Buenos Aires on the 17 of September of 1892.

⁶⁹⁸ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados año 1891 Tomo segundo* (Buenos Aires: Compañía Sud-Americana de Billetes de Banco, 1892), 645-646.

⁶⁹⁹ Cámara de Diputados, *Diario de sesiones de la Cámara de Diputados año 1892 Sesiones Ordinarias* (Buenos Aires: Imprenta «General Belgrano», 1892), 1016-1017.

Julio A. Roca—*Adolfo J. Labougle*—Secretary of the Senate—Torcuato Gilbert—*Alejandro Sorondo*—Secretary of the Chamber of Deputies.

Ley núm. 2893 Ayuda para la destrucción de la langosta en todo el territorio de la República [1892]

Artículo 1° Autorízase al poder ejecutivo para invertir, en el presente año, hasta la suma de quinientos mil pesos nacionales, para ayudar á la destrucción de la langosta en todo el territorio de la República.

Art. 2° La suma anterior será distribuida entregándola á los gobiernos de provincial y territorios nacionales en la proporción que corresponda á sus necesidades.

Art. 3° El gasto se hará de rentas generals imputándose á la presente ley.

Art. 4° Comuníquese al poder ejecutivo.

Dada en la sala de sesiones del congreso Argentino, en Buenos Aires á 17 de septiembre de 1892.

Julio A. Roca—*Adolfo J. Labougle*—Secretario del senado—Torcuato Gilbert—*Alejandro Sorondo*—Secretario de la cámara de diputados.

Law num. 3490 Extinction of the locust⁷⁰⁰ [1897]

Article 1° The Executive Power will take measures conducive to the extinction of the locust in all the territory of the locust.

Art. 2° The Executive Power will ensure compliance with this law by way of a Central Commission and provincial commissions designated by [the Central Commission].

The commissions of each province will name in their turn the sub-commissions that shall be necessary. All these commissions will be considered as an obligatory, gratuitous public office.

The provincial commissions and sub-commissions will depend on the Central Commission, and this [Central Commission will depend] on the Executive Power.

Art. 3° The Central Commission will have as its charge the resources that it will receive from the Executive Power, and by itself, or by way of the commissions or sub-commissions, will administer them, applying them strictly to the destruction of the locust.

The commissions and sub-commissions will give an account of the investment of the funds that they receive, whenever it is demanded of them by the Central Commission, and this [Central Commission will give an account] to the Executive Power.

Art. 4° The Central Commission and the provincial commissions and sub-commissions will be empowered to practice all the acts of administration conducive to the fulfilling of their commitment within the terms of the present law, and the authorities, both national and provincial, will be obliged to give them the help they request.

Art. 5° When the execution of the work of the extinction of the locust makes indispensable the destruction of crop fields, the commissions or sub-commissions will give the orders necessary to that effect, after the compensation that in no case may exceed the value that the field represents, according to its current state of vegetation.

The appraisal will be done by members of the immediate commission and two residents of the respective district, designated by the owner of the field. Of the destruction and appraisal will be drawn up a record, and at the foot of this will be printed the order for

⁷⁰⁰ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores período de 1897* (Buenos Aires: Imprenta del Boletín Oficial, 1897), 697-699.

the destruction of the field and the receipt of its price, signed by the owner or their representative.

Art. 6° In all cases in which the Executive Power considers it necessary, the national soldiers of the line will lend their assistance to the extinction of the locust. In this case they will proceed under the direction of the local commissions.

Art. 7° All the inhabitants of the Republic, be they citizens or foreigners, between the ages of fifteen and fifty years of age, are obliged, within the district of their domicile, to lend their personal services and to facilitate the utensils of their property, appropriate for the work of destruction of the locust, whenever they are required by the authorities designated in this law.

For this purpose the territorial sub-division of smallest distance from the place of domicile of the obliged [person] will be considered a district.

Art. 8° Excepted from this obligation to lend personal services:

1° The physically incapacitated

2° The employees of the Nation and of the provinces who have the obligation to go to their office daily.

3° The employees and peons of the railroad companies, these [companies] being obligated to extinguish the eggs and larvae of the locust in the lands of their property without the intervention of the commissions in this work.

Art. 9° The personal services to which art. 7° refers will be remunerated. The Central Commission will publish with due anticipation the rate of the salaries, which could differ in different places, according to the prices of the salaries.

The payment will be made in the place of the work. In absence of the rate [of pay], the commissions or sub-commissions may in no case pay a salary greater than that equivalent to the average [salary] that would have been paid in the place in which the locust was being destroyed.

Art. 10° The obligation to lend personal service cannot exceed twenty consecutive days and can be redeemed by a fee of fifty pesos national currency in the treasury of the respective Commission or by way of a representative.

Art. 11° During the period of personal service for the destruction of the locust, the residents cited by the commissions will be exonerated from [the obligation to] attend the exercises of the national guard.

Art. 12° Every proprietor or tenant has the obligation to give warning to the respective commission of the apparition of the locust, determining the direction that it takes, the date and the place of ovation, and the date of the birth of the larvae and mosquitos in the act of emerging.

This warning will be in the charge of the respective commission.

Art. 13° The violators of art. 7° will be penalized with double the obligatory personal service or a fine of one hundred pesos.

The violators of art. 8°, section 3° with a fine of five hundred to three thousand pesos, according to the gravity of the case.

The violators of art. 12°, with a fine of five to fifty [pesos], according to the gravity [of the case].

Art. 14° These penalties will be made effective by the respective commissions, or, at their request, by the immediate national or provincial authority, administratively and by way of court order.

Art. 15° The application of these penalties can be appealed before the immediate Federal Judge, pending payment of the imposed fine, without which the appeal will not be conceded.

Art. 16° The fines imposed by the infractions and the redemption quotas will be directed to the payment of the expenses that the execution of the present law demands.

Art. 17° The Executive Power is empowered to emit a new series of four millions of titles of the same interest and amortization as those authorized by the law num. 3059, which will be directed exclusively to defraying the expenses that are effected in fulfilling the present [law].

The amortization will be cumulative and will be made by lottery at par or by tender below par, the amortizable fund being augmentable.

Art. 18° The commissions named for the extinction of the locust can make free use of the mail and telegraph of the Nation to fulfill their duty.

Art. 19° An entomology section will be created, dependent on the Office of Agriculture directed to study the locust, and other insects prejudicial to agriculture that are in the Republic; to diffuse in the country practical knowledge about the methods to guard against them and to destroy them.

Art. 20° The Executive Power is authorized to invest up to the sum of twenty thousand pesos national currency to install that section and pay its personnel as long as it is not included in the general Budget.

Art. 21° Let it be communicated to the Executive Power.

Given in the hall of sessions of the Argentine Congress in Buenos Aires, on the 6 of August of 1897.

Ley Número 3490 Extinción de la langosta [1897]

Artículo 1° El Poder Ejecutivo tomará las medidas conducentes á la extinción de la langosta en todo el territorio de la República.

Art. 2° El Poder Ejecutivo dará cumplimiento á esta ley por medio de una Comisión Central y de comisiones provinciales designadas por aquélla.

Las comisiones de cada provincia nombrarán á su vez las subcomisiones que fueren necesarias. Todas estas comisiones serán considerados como cargo público, obligatorio y gratuito.

Las comisiones provinciales y sub-comisiones dependerán de la Comisión Central, y ésta del Poder Ejecutivo.

Art. 3° La Comisión Central tendrá á su cargo los recursos que recibirá del Poder Ejecutivo, y por sí, ó por intermedio de las comisiones ó sub-comisiones, los administrará, aplicandolos estrictamente á la destrucción de langosta.

Las comisiones y sub-comisiones rendirán cuenta de la inversion de los fondos que recibieren, siempre que se les exigiera por la Comisión Central, y ésta al Poder Ejecutivo.

Art. 4° La Comisión Central y las comisiones provinciales y sub-comisiones estarán facultadas para practicar todos los actos de administración convenientes para llenar su cometido dentro de los términos de la presente ley, y las autoridades, tanto nacionales como provinciales, están en el deber de prestarles la ayuda que les solicite.

Art. 5° Cuando para la ejecución de trabajos de extinción de langosta fuera indispensable destruir sementeras, las comisiones ó sub-comisiones darán las órdenes

necesarias al efecto, previa indemnización que en ningún caso podrá exceder del valor que represente la sementera, según su estado actual de vegetación.

El justiprecio se hará por los miembros de la comisión inmediata y dos vecinos del distrito respectivo, designados por el dueño de la sementera. De la destrucción y justiprecio se levantará acta, y al pie de ésta se extenderá la orden para destruir la sementera y el recibo de su precio, firmado por el dueño ó su representante.

Art. 6° En todos los casos en que el Poder Ejecutivo lo considere necesario, las tropas de línea nacionales prestarán su concurso en la extinción de la langosta. En este caso procederán bajo la dirección de las comisiones locales.

Art. 7° Todos los habitantes de la República, sean ciudadanos ó extranjeros, entre los quince y cincuenta años de edad, están obligados, dentro del distrito de su domicilio, á prestar sus servicios personales y á facilitar los útiles de su propiedad, aptos para los trabajos de la destrucción de la langosta, siempre que fueren requeridos por las autoridades designadas en esta ley.

A estos efectos se condierará como distrito la sub-división territorial de menor extensión del lugar del domicilio del requerido.

Art. 8° Exceptúanse de esta obligación de prestar servicios personales:

1° Los incapacitados físicamente.

2° Los empleados y peones de las empresas de ferrocarriles, quedando éstas obligadas á extinguir los huevos y larvas de langosta en los terrenos de su propiedad sin la intervención de las comisiones en este trabajo.

Art. 9° Los servicios personales á que se refiere el art. 7°, serán remunerados. La Comisión Central publicará con la debida anticipación la tarifa de los salarios, la que podrá ser diversa para diferentes lugares, según los precios de los salarios.

El pago se hará en el lugar del trabajo. En defecto de la tarifa, las comisiones ó sub-comisiones no podrán en ningún caso pagar un salario mayor que el equivalente al término medio de los que se hubieran pagado durante el año en el lugar en que se estuviera destruyendo la langosta.

Art. 10° La obligación de prestar el servicio personal no podrá exceder de veinte días continuos y podrá ser redimido por una oblación de cincuenta pesos moneda nacional en tesorería de la Comisión respectivo ó por medio de personero.

Art. 11° Durante la prestación de los servicios personales para la destrucción de la langosta, los vecinos citados por las comisiones quedan exonerados de asistir á los ejercicios de la guardia nacional.

Art. 12° Todo propietario ó arrendatario tiene obligación de dar aviso á la comisión respectiva de la aparición de la langosta, determinando la dirección que lleva, la fecha y lugar de la ovación, y la fecha del Nacimiento de las larvas y mosquitos en el acto de producirse.

Este aviso será á cargo de la comisión respectiva.

Art. 13° Los infractores al art. 7° serán penados con el doble del servicio personal obligatorio ó cien pesos de multa.

Los infractores al art. 8, inciso 3°, con quinientos á tres mil pesos de multa, según la gravedad del caso.

Los infractores al art. 12, con multa de cinco á cincuenta, según la gravedad.

Art. 14° Estas penas se harán efectivas por las comisiones respectivas, ó á su requisición, por la autoridad inmediata nacional ó provincial, administrativamente y por vía de apremio.

Art. 15° De la aplicación de estas penas podrá apelarse para ante el Juez Federal inmediato, previo pago de la multa impuesta, sin cuyo requisito no se concederá la apelación.

Art. 16° Las multas impuestas por infracciones y las cuotas de redención se destinan al pago de los gastos que demande la ejecución de la presente ley.

Art. 17° Facúltase al Poder Ejecutivo para emitir una nueva serie de cuatro millones de títulos del mismo interés y amortización que los autorizados por la ley núm. 3059, los que serán exclusivamente destinados á sufragar los gastos que se efectuen en cumplimiento de la presente.

La amortización será acumulativa y se hará por sorteo á la par ó por licitación abajo de la par, pudiendo aumentarse el fondo amortizable.

Art. 18° Las comisiones nombradas para la extinción de la langosta, podrán hacer uso libremente del correo y telégrafo de la Nación para llenar su cometido.

Art. 19° Créase una sección de entomología, dependiente de la Oficina de Agricultura destinada á estudiar la langosta, y demás insectos perjudiciales á la agricultura que haya en la República; á difundir en el país conocimientos prácticos acerca de los medios á prevenirse de ellos y destruirlos.

Art. 20° Autorízase al Poder Ejecutivo para invertir hasta la suma de veinte mil pesos moneda nacional en instalar dicha sección y pagar á su personal mientras no sea incluído en el Presupuesto general.

Art. 21° Comuníquese al Poder Ejecutivo.

Dada en la sala de sesiones del Congreso Argentino, en Buenos Aires, á 6 de Agosto de 1897.

Law num. 3708 Extinction of the Locust [1898]⁷⁰¹

Article 1° The Executive Power will take the measures conducive to the extinction of the locust in all the territory of the Republic.

Art. 2° The Executive Power will give fulfillment to this law by way of a Central Commission and of sectional commissions designated by [the Central Commission].

The sectional commissions will name in their turn the sub-commissions that are necessary.

All these commissions will be considered as a gratuitous charge.

The sectional commissions will depend on the Central Commission and the sub-commissions, [will depend] on the sectional commission that has named them.

The territorial jurisdiction of the sectional commissions will be determined by the Central Commission. The sectional commissions will determine in their turn the [jurisdiction] of the commissions of the district of their dependency, pending approval by the Central Commission.

The Central Commission can establish paid commissioners in the sections where it deems convenient, which will direct the execution of the works, and will apply fines under the inspection of the sectional commission. This commission in its turn, can propose to the Central Commission district sub-commissioners in the invaded places, also paid, for the execution of the works and the application of the fines in the respective locations, under the

⁷⁰¹ Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores período de 1898* (Buenos Aires: Imprenta del “Boletín Oficial”, 1898), 940-943.

inspection of the district commission. The remuneration of all these employees will be fixed by the Central Commission.

Art. 3° The Central Commission will have as its responsibility the resources destined for the destruction of the locust and it will administer them by itself or by way of the sectional and district commissions, applying them strictly to the extinction of the locust.

The sectional and district commissions will render an account to the Central Commission and this [Central Commission will render an account] to the Executive Power of the investment of funds that they receive, the Central Commission being able, in exceptional circumstances, to agree with the General Accountant of the Nation, that this [i.e. the General Accountant] will receive directly the accounts of the sectional commissions.

Art. 4° The Central Commission and the sectional commissions and sub-commissions will be empowered to practice all the acts of administration conducive to fulfilling their commitment within the terms of the present law; and the Central Commission, [will be empowered to] sanction the instructions that should be observed in the destruction of the locust, and in the application of fines established by this law.

The authorities, both national and provincial, are obliged to lend the help that they solicit.

Art. 5° When, for the execution of the work of extinction of the locust, it is indispensable to destroy the crop fields, the district commissions will give the orders necessary to that effect, pending compensation, that in no case can exceed the value that the field represents according to its actual state of vegetation.

The appraisal will be done by the immediate commission and two residents of the respective district designated by the owner of the field.

Of the destruction and appraisal will be drawn up a report and at the foot of this will be the order to destroy the field, and the receipt of the price signed by the owner or the owner's representative.

Art. 6° In all cases that the Executive Power considers necessary, the national troops of the line will lend their aid to the extinction of the locust.

Art. 7° All the inhabitants of the Republic, be they citizens or foreigners, between the ages of fifteen and fifty years, are obligated to lend their personal service to the destruction of the locust, and to facilitate their tools and animals of their property, appropriate for that work, except fine animals destined to the refinement of the breed.

This obligation will have as a territorial range a radius of ten kilometers from the domicile, and within the jurisdiction of the local commission, being able to extend the radius for the residents of urban centers up to ten kilometers beyond the urban plan.

In the lending of personal service, the respective commission will have as its responsibility the transport of residents from the urban centers.

Art. 8° Excepted from the obligation to lend personal service:

1° The physically incapacitated, women and ecclesiastics.

2° The employees of the Nation and of the Provinces that are obliged to go to the office daily.

3° The employees and peons of the railroad companies outside of the lands of the same, remaining obliged to combat the flying locust and extinguish the eggs and larvae on the lands of their property.

Art. 9° The personal services and other performances to which article 7° refers will be remunerated.

The sectional commissions, in accordance with the Central, will fix a scale of the salaries, which can be different for different places, taking into account the common salaries and the character of public office of the service.

The payment will be made in the place of the work.

Art. 10° The obligation to lend personal service cannot exceed twenty consecutive days or thirty alternating [days], and can be redeemed by a payment of two pesos national currency for every day of service in the treasury of the respective commission, by way of a substitute, or turning in, when the district commission judges it convenient, a quantity of flying locust, *saltona* or eggs, in the measure that the Central Commission determines.

Art. 11° During the lending of personal service for the destruction of the locust, the residents called upon by the commissions will be exonerated from the exercises of the national guard.

Art. 12° Every proprietor, tenant or occupant and even the railroad companies, have the obligation to give notice to the commission to which they are responsible, of the appearance of locusts in their lands within twenty-four hours and to have began their destruction within the same time period, determining the direction that [the locust] flies, the date and the place of ovation, and the date of the birth of the larvae.

Art. 13° The proprietor or occupant of the land invaded by the locust will proceed to destroy it with the personnel, tools and animals of the establishment, within their property, gratuitously and in the form that the respective commission determines.

For this service only those included in section 1° of article 8° or those greater than 60 years old are exempted.

Art. 14° If the personnel of the establishment are insufficient for the destruction of the locust in the judgment of the commission, this [commission] can demand its increase at the expense of the owner or occupant, up to reaching the proportion of one man for every hundred and fifty invaded hectares in cattle fields and one for every fifty hectares in the agricultural zones also invaded. In [lands of] the railroad companies, at the rate of three men per kilometer of railway invaded; but in no case can [the commission] demand more than one hundred men for every one hundred kilometers of invaded zone.

Art. 15° In the uninhabited lands the same positions will apply as in the occupied [lands], with the exception of the notice of article 12 and the established fine.

Art. 16° when the proprietors or occupants do not give notice of the appearance of the locust and the beginning of works, the respective sub-commission will proceed to effect [the works] at the expense of the proprietor or occupant with a personnel double that established in article 14.

These measures will be applied to the railroad companies in the case of infraction of article 8°.

Art. 17° When a proprietor or occupant does not have locusts in their property, they may be obligated to contribute with half of the personnel of their establishment in the works that are carried out in neighboring lands.

The proprietor or occupant of an invaded land must bear the cost of feeding the personnel that come from neighboring properties.

Art. 18° Infractions of this law will be punished with the following penalties:

The violators of article 7°, with double personal service or a fine of fifty to one hundred pesos national currency.

In the case of infraction of articles 12, 13 and 14, with fines of five to one thousand pesos national currency.

The violators of section 3° of article 8, from one hundred to five hundred pesos national currency by district.

Those who use the destroyed locust or eggs, from gratuitous services, to sell to the treasury or to liberate private individuals from turning in the same, with a fine of fifty to one hundred pesos national currency or gratuitous personal service from five to ten days, or arrest for double the time, these penalties subject to be doubled in case of recidivism.

Art. 19° These penalties will be imposed by the sectional and district commission and by the commissioners and sub-commissioners in their case, and will be enforced by the same or at their request by the immediate national or provincial authorities, administratively or by way of a court order.

Art. 20° The application of these penalties may be appealed before the immediate federal judge, within the term of 30 days, pending payment of the fine to the respective commission.

Art. 21° The fines imposed by infractions and the redemption fees will be directed to the payment of the expenses that the execution of the present law demands.

Art. 22° In the management of the reimbursement of the expenses that the sub-commissions incur in accordance with article 16, the pay-scales duly authorized by those commissions will be taken in good faith, except when the contrary is proven.

Art. 23° For whatever measure having to do with the obligations of destruction of the locust, legal domicile of the obligated person will be considered the place where they must comply with that obligation, and for the railroad companies the station upon which depends the invaded territory.

Art. 24° In all cases in which the acts of the commissions, sub-commissions and other employees result in recourse to the Federal Judiciary, they will be represented by the *Ministerio Fiscal* and the summary procedure will be verbal, enacted and on plain paper [*verbal, actuado y en papel común*].

Art. 25° The commissions, sub-commissions and other employees named for the destruction of the locust, can make free use of the mail and telegraph of the Nation to fulfill their duties.

The receipts that they are granted to them will equally be exempt from the stamp tax.

Art. 26° The entomology section created by law 3490 will depend on the Central Commission in what concerns the studies and work of the destruction of the locust.

Art. 27° The presidents of the commissions, commissioners and sub-commissioners are empowered to enter property with the personnel of [anti-locust] work with the sole object of the completion of the functions commended by this law.

Art. 28° All previous legal dispositions regarding the destruction of the locust are repealed.

Art. 29° The expenses that the execution of this law demands, will be made from the emission authorized by laws number 3490 and 3656 and subsidiarily with general revenue, imputing to the present [law].

Art. 30 Let it be communicated to the Executive Power.

Given in the hall of sessions of the Argentine Congress, in Buenos Aires, on 17 of September of 1898.

Ley núm. 3708 Extinción de la langosta [1898]

Artículo 1° El Poder Ejecutivo tomará las medidas conducentes á la extinción de la langosta en todo el territorio de la República.

Art. 2° El Poder Ejecutivo dará cumplimiento á esta ley por medio de una Comisión Central y de comisiones seccionales designadas por aquélla.

Las comisiones seccionales nombrarán á su vez las subcomisiones que fueren necesarias.

Todas estas comisiones serán consideradas como cargo gratuito. Las comisiones seccionales dependerán de la Comisión Central y las subcomisiones, de la comisión seccional que las haya nombrado.

La jurisdicción territorial de las comisiones seccionales será determinada por la Comisión Central. Las comisiones seccionales determinarán á su vez la de las comisiones del distrito de su dependencia, previa aprobación de la Comisión Central.

La Comisión Central podrá constituir comisarios rentados en las secciones donde lo juzgue conveniente, los que dirigirán la ejecución de los trabajos, y aplicarán las multas bajo la inspección de la comisión seccional. Esta comisión á su vez, podrá proponer á la Comisión Central subcomisarios de distrito en los lugares invadidos, también remunerados, para la ejecución de los trabajos y la aplicación de las multas en las localidades respectivas, bajo la inspección de la comisión de distrito. La remuneración de todos estos empleados será fijada por la Comisión Central.

Art. 3° La Comisión Central tendrá á su cargo los recursos destinados á la destrucción de la langosta y los administrará por sí y por intermedio de las comisiones seccionales y comisiones de distrito, aplicándolos estrictamente á la extinción de la langosta.

Las comisiones seccionales y de distrito rendirán cuenta á la Comisión Central y ésta al Poder Ejecutivo de la inversión de los fondos que recibieren, pudiendo la Comisión Central, en circunstancias excepcionales, acordar con la Contaduría General de la Nación, que ésta reciba directamente las cuentas de las comisiones seccionales.

Art. 4° La Comisión Central y las comisiones seccionales y subcomisiones estarán facultadas para practicar todos los actos de administración convenientes para llenar su cometido dentro de los términos de la presente ley; y la Comisión Central, para sancionar las instrucciones que deban observarse en la destrucción de la langosta, y en la aplicación de multas establecidas por esta ley.

Las autoridades, tanto nacionales como provinciales, están en el deber de prestar la ayuda que les soliciten.

Art. 5° Cuando para la ejecución del trabajo de extinción de la langosta, fuera indispensable destruir sementeras, las comisiones de distrito darán las órdenes necesarias al efecto, previa indemnización, que en ningún caso podrá exceder del valor que represente la sementera según su estado actual de vegetación.

El justiprecio se hará por la comisión inmediata y dos vecinos del distrito respectivo designados por el dueño de la sementera.

De la destrucción y justiprecio se levantará acta, y al pie de ésta se extenderá la orden para destruir la sementera, y el recibo de su precio firmado por el dueño ó su representante.

Art. 6° En todos los casos en que el Poder ejecutivo lo considere necesario, las tropas de línea nacionales prestarán su concurso en la extinción de la langosta.

Art. 7° Todos los habitantes de la República, sean ciudadanos ó extranjeros, entre los quince y cincuenta años de edad, están obligados á prestar sus servicios personales para la

destrucción de la langosta, y á facilitar los útiles y animales de su propiedad aptos para esos trabajos, con excepción de los animales finos destinados al refinamiento de la raza.

Estas obligaciones tendrán como medida territorial un radio de diez kilómetros del domicilio, y dentro de la jurisdicción de la comisión local, debiendo extenderse el radio para los vecinos de los centros urbanos hasta diez kilómetros fuera de la traza urbana.

En la prestación del servicio personal, la comisión respectiva tendrá á su cargo la traslación de los vecinos de los centros urbanos.

Art. 8° exceptúase de la obligación de prestar servicio personal:

1° Los incapacitados físicamente, las mujeres y los eclesiásticos.

2° Los empleados de la Nación y de las Provincias, que tengan obligación de asistir diariamente ala oficina.

3° Los empleados y peones de las empresas ferroviarias fuera del terreno de las mismas, qu dando aquéllas obligadas á combatir la langosta voladora y extinguir los huevos y larvas en los terrenos de su propiedad.

Art 9° Los servicios personales y demás prestaciones á que se refiere el artículo7°, serán remunerados.

Las comisiones seccionales, de acuerdo con la Central, fijarán la tarifa de los salarios, la que podrá ser diversa para diferentes lugares, teniendo en cuenta los salarios comunes y el carácter de carga pública del servicio.

El pago se hará en el lugar del trabajo.

Art. 10. La obligación de prestar el servicio personal no podrá exceder de veinte días continuos ó treinta alternados, y podrá ser redimido por una oblación de dos pesos moneda nacional, por cada día de servicio en la tesorería de la comisión respectiva, por medio de personero, ó entregando, cuando la comisión de distrito lo juzgue conveniente, una cantidad de langosta voladora, saltona ó huevos, en la medida que la Comisión Central lo determine.

Art. 11. Durante la prestación de los servicios personales para la destrucción de la langosta, los vecinos citados por las comisiones, quedan exonerados de asistir á los ejercicios de la guardia nacional.

Art. 12. Todo propietario, arrendatario ú ocupante é inclusive las empresas ferroviarias, tienen obligación de dar aviso á la comisión de que dependa, de la aparición de la langosta en sus terrenos dentro de las veinticuatro horas y de haber comenzado su destrucción dentro del mismo término, determinando la dirección que lleva, la fecha y lugar de la ovación y la fecha del nacimiento de las larvas.

Art. 13. El propietario ú ocupante de un terreno invadido por la langosta, procederá á destruirla con el personal, útiles y animales del establecimiento, dentro de su propiedad, gratuitamente y en la forma que lo determine la comisión respectiva.

Para este servicio sólo quedan exceptuados los comprendidos en el inciso 1° del artículo 8° y los mayores de 60 años.

Art. 14. Si el personal del establecimiento fuera insuficiente para la destrucción de la langosta á juicio de la comisión, ésta podrá exigir su aumento por cuenta del propietario ú ocupante, hasta integrar la proporción de un hombre por cada ciento cincuenta hectáreas invadidas en los campos ganaderos y uno por cada cincuenta hectáreas en las zonas agrícolas también invadidas. En las empresas ferroviarias, á razón de tres hombres por kilómetro de vía general invadida; pero en ningún caso podrá exigirles más de cien hom bres por cada cien kilómetros de zona invadida.

Art. 15. En los terrenos inhabitados regirán las mismas cargas establecidas para los ocupados, con excepción del aviso del artículo 12 y la multa establecida.

Art. 16. Cuando los propietarios ú ocupantes no dieran aviso de la aparición de la langosta y comienzo de los trabajos, la subcomisión respectiva procederá á efectuarlos por cuenta del propietario ú ocupante con un personal doble del establecido en el artículo 14.

Estas medidas serán aplicadas á las empresas ferroviarias en los casos de infracción al artículo 8°

Art. 17. Cuando un propietario ú ocupante no tuviera langosta en su propiedad, podrá ser obligado á contribuir con la mitad del personal de su establecimiento en los trabajos que se realicen en los terrenos linderos. El propietario ú ocupante de un terreno invadido debe costear la alimentación del personal que concurra de las propiedades vecinas.

Art. 18. Las infracciones á esta ley se castigarán con las siguientes penas:

Los infractores al artículo con doble servicio personal ó multa de cincuenta á cien pesos moneda nacional.

En los casos de infracción á los artículos 12, 13 y 14, con la multa de cinco á mil pesos moneda nacional.

Los infractores al inciso 3° del artículo 8 , de cien á quinientos pesos moneda nacional por distrito.

Los que dispongan de La langosta ó huevos destruidos, por servicios gratuitos, para vender al fisco ó libertar á particulares de la entrega de los mismos, con multa de cincuenta á cien pesos moneda nacional, ó servicio personal gratuito de cinco á diez días, ó arresto por doble tiempo, pudiendo duplicar estas penas en caso de reincidencia.

Art. 19. Estas penas serán impuestas por las comisiones seccionales y de distrito y por los comisarios y subcomisarios en su caso, y se harán efectivas por los mismos ó á su requisición por la autoridad inmediata, nacional ó provincial, administrativamente ó por vía de apremio.

Art. 20. De las aplicaciones de estas, penas podrá apelarse ante el juez federal inmediato, dentro del término de 30 días, previo pago de la multa á la comisión respectiva.

Art. 21. Las multas impuestas por infracciones y las cuotas de redención se destinarán al pago de los gastos que demande la ejecución de la presente ley.

Art. 22. En las gestiones para el reembolso de los gastos que las subcomisiones efectúen con arreglo al artículo 16, las planillas debidamente autorizadas por dichas comisiones harán fe en juicio, salvo la prueba en contrario.

Art. 23. Para cualquier medida que verse sobre obligaciones de la destrucción de la langosta, se considerará domicilio legal de la persona obligada aquel donde deba cumplirse la obligación, y para las empresas ferroviarias la estación de que dependa el terreno invadido.

Art. 24. En todos los casos en que los actos de las comisiones, subcomisiones y demás empleados den lugar á recursos ante el Juzgado Federal, serán representados por el Ministerio Fiscal y el procedimiento sumario será verbal, actuado y en papel común.

Art. 25. Las comisiones, subcomisiones y demás empleados nombrados para la destrucción de la langosta, podrán hacer uso libre del correo y del telégrafo de la Nación para llenar sus cometidos.

Igualmente estarán exentos del impuesto de sellos los recibos que se les otorguen.

Art. 26. La sección de entomología creada por ley 3490, dependerá de la Comisión Central en lo que se refiere á los estudios y trabajos de destrucción de la langosta.

Art. 27. Los presidentes de las comisiones, comisarios y subcomisarios que dan facultados para penetrar en la propiedad ajena con el personal de trabajo al único objeto del cumplimiento de las funciones encomendadas por esta ley.

Art. 28. Quedan derogadas todas las disposiciones legales anteriores sobre la destrucción de la langosta.

Art. 29. Los gastos que demande la ejecución de esta ley, se harán con el saldo de la emisión autorizada por las leyes números 3490 y 3656 y subsidiariamente con rentas generales, imputándose á la presente.

Art. 30. Comuníquese al Poder Ejecutivo.

Dada en la sala de sesiones del Congreso Argentino, en Buenos Aires a 17 de septiembre de 1898.

Law num. 4863 Defense of Agricultural Production [1905]⁷⁰²

Art. 1° Agricultural defense in all the territory of the republic against the invasion of parasitic or prejudicial animals and plants, will be made effective by the Executive Power, by the methods that this law indicates and as long as those [animals and plants] constitute or may come to constitute a plague by their extensive, invasive or calamitous character or, appearing in one province or territory, being able to affect others.

Art. 2° The Executive Power in in regulating this law, will make a nomenclature of the plants and animals to which the first article refers and upon which its application falls; but they can only be declared “plagues” as understood in the dispositions of this law when the methods of practical and recognized efficiency to fight them are known and can be determined.

The Executive Power will be able to modify the aforementioned nomenclature when it sees fit and in accordance with the circumstances indicated in this article and the anterior, and is empowered:

1° To prohibit the introduction into the Federal Capital and National Territories, and from these into the provinces and vice versa, and in general, the traffic from one province to another and to the exterior, of every class of seeds, plants, or fertilizers that can develop plagues;

2° To apply all the procedures that scientific practice recommends to combat them, being able to order the partial or total destruction of plantations or crop fields.

Art. 3° Every proprietor, tenant, user or occupant in whatever title, of lands attacked by any of the plagues to which article 2 refers, has the obligation of giving warning of the fact immediately to the authority that the regulations determine.

Art. 4° The proprietors, tenants, users or occupants to which the previous article refers, have the obligation to execute within the properties that they possess or occupy, the measures that the regulations determine in order to destroy or combat the plagues with the equipment and tools of common use that they have in their establishment, freely and in the form that those regulations establish. They must permit the entry to those properties to effect the verification or the destruction, at the mere request of the functionaries authorized by the present law, of those who can require, in case necessary, the aid of the public forces to this object.

⁷⁰² Cámara de Senadores, *Diario de Sesiones de la Cámara de Senadores año 1905 Tomo I sesiones ordinarias* (Buenos Aires: Establecimiento Tipográfico «El Comercio», 1906), cxxxv-cxxxvi.

The authorities, both national and provincial, are under the obligation to lend aid to those who request it.

Art. 5° In the unpopulated lands the same duties established for the occupants will govern, with the exception of the warning ordered by the third article.

Art. 6° When the proprietors or occupants do not execute within the time that is established, [the measures] laid out in article 4°, the functionaries authorized by this law will proceed to apply the measures and to effect the destruction, at the cost of the proprietor or occupant with the personnel and means that the circumstances determine.

These measures will be applied pending notification and summons.

Art. 7° In the public lands, be they national, provincial or municipal, public establishments, roads and public way, the obligations of the present law will obtain, the authorities upon which they depend being obliged to proceed to execute the works.

Art. 8° Every infraction of the dispositions contained in articles 3° and 4° will be punished with a fine of 5,000 pesos national currency according to the importance of the infraction, the fines being able to be doubled in case of repetition.

Art. 9° The infraction being verified, the functionaries that this law and the regulations authorize, will make a verification for the record before the nearest national or provincial authorities or before two witnesses, residents of good character, determining in the same [record] the penalty imposed, which will be effected by the federal judges or the federal territories, in a summary judgment, and of which those functionaries will be a part.

Art. 10° The record to which the previous article refers will have executive authority and the fined [person] may appeal pending the payment of the fine imposed.

Art. 11° The fines imposed by infractions will be directed to the payment of the expenses that the execution of the present law demands.

Art. 12° In the administration for the reimbursement of the expenses made in accordance with article 6°, the payrolls duly authorized will have executive force.

Art. 13° For any measure pertaining to the obligation of the destruction of plagues to which article 2° refers, legal domicile of the obliged person will be considered [the place] where they must comply with that obligation.

Art. 14° In all cases in which the acts carried out in compliance with this law lead to recourse to the federal judiciary of the territories, the functionaries charged with compliance will be represented by the *ministerio fiscal* and the summary proceeding will be verbal, enacted, and on plain paper [*verbal, actuado y en papel común*].

Art. 15° The proprietors of forests, fields or plantations whose destruction is ordered will have the right to demand an indemnity in cash, which will be determined taking as a base of appraisal, the state in which the destroyed woods, fields or plantations were found, along with the pecuniary benefits that can be obtained from what was destroyed.

However, there will be no compensation when it is proven that the plague, by its intensity or its very nature, would have produced the destruction of those [woods, fields or plantations].

In no case will the proprietors who have disobeyed the orders of the Ministry of Agriculture to combat the plague have the right to an indemnity.

Art. 16° The value of what is destroyed will be estimated by the Ministry of Agriculture, or those specially commissioned that the Executive Power designates, and by the proprietor or their representative.

The federal tribunals or those of the National Territories will summarily resolve the disagreements that may occur upon making the appraisal.

Art. 17° The right to compensation is prescribed for four months from the verified destruction.

Art. 18° The Executive Power will ensure compliance with this law by means of the authorities charged with the destruction of the locust by law number 3708 and its faculties and functions will be regulated by the present law and by those regulations that the Executive Power dictates.

Art. 19° The Executive Power can commend to the same [authorities charged with destruction of locusts] the execution of the dispositions in force or the measures that going forward are established, tending to avoid the propagation of the plants and animals to which article 1° refers, regulating to that effect the transport within the country of products that can be considered vehicles for their propagation.

Art. 20° The resources allocated to the fulfilling of law number 3708 will also be allocated to the present law.

Art. 21° The expenses that the execution of this law demands, will be made subsidiarily with general revenues imputing to this law and law number 3708.

Art. 22° Let it be communicated to the Executive Power.

Given in the hall of sessions of the Argentine Congress, in Buenos Aires, on 28 of September of 1905.

Ley núm. 4863 Defensa de la producción agrícola [1905]

Artículo 1° La defensa agrícola en todo el territorio de la república contra la invasión de animales y vegetales parásitos ó perjudiciales, se hará efectiva por el Poder Ejecutivo, por los medios que esta ley indica y siempre que aqué llos constituyan ó puedan llegar á constituir una plaga por su carácter extensivo, invasor ó calamitoso ó que aparecidas en una provincia ó territorio puedan afectar á otros.

Art. 2° El Poder Ejecutivo al reglamentar esta ley, hará la nomenclatura de los vegetales y animales á que se refiere el artículo primero y sobre los que ha de recaer su aplicación; pero sólo podrán declararse «plagas», comprendidas en las disposiciones de esta ley

cuando se conozcan y puedan determinarse los procedimientos prácticos y de eficacia reconocida por el Poder Ejecutivo para combatirlas. El Poder Ejecutivo podrá modificar la nomenclatura citada cuando lo estime conveniente y de acuerdo con las circunstancias indicadas en este artículo y en el anterior, y queda facultado:

1° Para prohibir la introducción á la Capital Federal y Territorios Nacionales, y de éstos á las provincias y viceversa, y en general el tráfico de una provincia á otra y al extranjero, de toda clase de semillas, plantas ó abonos que puedan desarrollar plagas;

2° Para aplicar todos los procedimientos que la práctica científica aconseje para combatirlas, pudiendo ordenar la destrucción parcial ó total de sembrados ó plantaciones.

Art. 3° Todo propietario, arrendatario, usufructuario ú ocupante en cualquier título, de los terrenos atacados por alguna de las plagas á que se refiere el artículo 2° tiene obligación de dar aviso del hecho inmediatamente á la autoridad que los reglamentos determinen.

Art. 4° Los propietarios, arrendatarios, usufructuarios ú ocupantes á que se refiere el artículo anterior, tienen obligación de ejecutar dentro de los inmuebles que posean ú ocupen, las medidas que los reglamentos determinen para destruir ó combatir las plagas con los enseres y útiles de uso común de que dispongan en su establecimiento, gratuitamente y en la forma que dichos reglamentos establezcan. Deberán permitir la entrada á los inmuebles á efecto de la verificación ó de la destrucción y á la sola requisición de los funcionarios autorizados por la presente ley, los que podrán requerir, en caso necesario, el auxilio de la fuerza pública á este objeto.

Las autoridades, tanto nacionales como provinciales, están en el deber de prestar la ayuda que se les solicite.

Art. 5° En los inmuebles des poblados regirán las mismas cargas establecidas para los ocupados, con excepción del aviso ordenado por el artículo tercero.

Art. 6° Cuando los propietarios ú ocupantes no ejecutaren dentro los plazos que se establezcan, lo dispuesto en el artículo 4°, los funcionarios autorizados por esta ley procederán á aplicar las medidas y á efectuar la destrucción por cuenta del propietario ú ocupante con el personal y medios que las circunstancias determinen.

Estas medidas serán aplicadas, previa notificación y emplazamiento.

Art. 7.° En las tierras fiscales, sean nacionales, provinciales ó municipales, establecimientos públicos, caminos y vías públicas, regirán las obligaciones de la presente ley debiendo proceder á ejecutar los trabajos las autoridades de que dependan.

Art. 8.° Toda infracción á las disposiciones contenidas en los artículos 3° y 4°, será castigada con una multa de 5.000 pesos moneda nacional según la importancia de la infracción, pudiéndose duplicar las penas en caso de reincidencia.

Art. 9° Constatada la infracción, los funcionarios que esta ley y los reglamentos autoricen, la hará constatar en acta ante la autoridad nacional ó provincial más inmediata ó ante dos testigos, vecinos caracterizados, determinando en la misma la pena impuesta, la que se hará efectiva por los jueces federales ó de territorios federales, en juicio sumario, y en el que aquellos funcionarios serán parte.

Art. 10° El acta á que se refiere el artículo anterior tendrá fuerza ejecutiva y el multado podrá apelar previo pago de la multa impuesta.

Art. 11° Las multas impuestas por infracciones se destinarán al pago de los gastos que demande la ejecución de la presente ley.

Art. 12° En las gestiones para el reembolso de los gastos hechos con arreglo al artículo 6, las planillas debidamente autorizadas tendrán fuerza ejecutiva.

Art 13° Para cualquier medida que verse sobre la obligación de la destrucción de las plagas á que se refiere el artículo 2°, se considerará domicilio legal de la persona obligada aquel donde deba cumplirse la obligación.

Art. 14° En todos los casos en que los actos ejecutados en cumplimiento de esta ley den lugar á recursos ante el juzgado federal de los territorios, los funcionarios encargados de su cumplimiento serán representados por el ministerio fiscal y el procedimiento sumario será verbal, actuado y en papel común.

Art. 15° Los propietarios de bosques, sembrados ó plantaciones cuya destrucción se ordene tendrán derechos á exigir una indemnización en dinero, la que será determinada tomando como base de justipreciación, el estado en que se encontraban los bosques, sembrados ó plantaciones cuya destrucción se ha hecho, así como los beneficios pecuniarios que puedan obtenerse de las cosas destruidas.

Empero, no habrá lugar á indemnización cuando se probare que la plaga por su intensidad ó por su naturaleza misma debía producir la destrucción de aquéllos.

En ningún caso tendrán derecho á ser indemnizados los propietarios que hubieran desobedecido las órdenes del Ministerio de Agricultura para combatir la plaga.

Art. 16° El valor de lo destruido será estimado por el Ministerio de Agricultura ó los comisionados especiales que el Poder Ejecutivo designe y por el propietario ó su representante.

Los tribunales federales ó de los Territorios Nacionales resolverán sumariamente las disidencias que pudieran ocurrir al hacerse el justiprecio.

Art. 17° El derecho de indemnización se prescribe á los cuatro meses de verificada la destrucción.

Art. 18° El Poder Ejecutivo dará cumplimiento á esta ley por medio de las autoridades encargadas de la destrucción de la langosta por la ley número 3708 y sus facultades y funciones serán regidas por la presente ley y por los reglamentos que dicte el Poder Ejecutivo.

Art. 19° El Poder Ejecutivo podrá encomendar á las mismas la ejecución de las disposiciones vigentes ó de las medidas que en lo sucesivo se establezcan, tendientes á evitar la propagación de los vegetales y animales á que se refiere el artículo 1°, reglamentando al efecto el transporte dentro del país de los productos que puedan considerarse vehículos para su propagación.

Art. 20° Los recursos afectados al cumplimiento de la ley número 3708, lo serán también á la presente. Art. 21° Los gastos que demande la ejecución de esta ley, se harán subsidiariamente con rentas generales imputándose á la presente y á la ley número 3708.

Art. 22° Comuníquese al Poder Ejecutivo.

Dada en la sala de sesiones del Congreso Argentino, en Buenos Aires, á 28 de septiembre de 1905.

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