

Political Implications of Natural Resources: A Case Study of Guano on Monito and Mona Islands

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Resumen

El guano, como factor fertilizante, impactó la vida política y económica de Puerto Rico en la segunda mitad del siglo XIX. Este llamado “oro blanco”, codiciado por los agricultores, trajo prominencia a las áridas y aisladas islas de Mona y Monito. Esto fue patente en la década de los cincuenta de aquel siglo cuando España y los Estados Unidos estuvieron a punto de serio conflicto por el guano de estas islas, buscado ávidamente por los agricultores norteamericanos del sector intermedio de la costa atlántica, cuyos suelos se habían empobrecido por el cultivo intensivo del tabaco. Sin embargo, un esfuerzo conjunto para desarrollar la producción de guano en la isla de Mona durante los años ochenta, y luego de nuevo en los noventa tropezó con intereses comerciales de mayor envergadura. El comercio internacional, combinando la demanda y el precio desembocaría en un giro hacia los mercados europeos. El artículo destaca la participación de Puerto Rico en el desarrollo de un producto agrícola menos conocido que dirigió a la Isla hacia el comercio mundial de los fertilizantes.

Palabras clave: Puerto Rico, Guano, Comercio Internacional, Abono, Isla de Mona

Abstract

Guano as a source of fertilizer impacted Puerto Rico in the second half of the nineteenth century. This “white gold”, in high demand among agronomists, brought the dry, isolated islands of Monito and Mona to prominence. This was evident in the mid-1850s when Spain and the United States nearly entered into conflict over the guano of the island of Monito, which was sought by the mid-Atlantic farmers with their depleted soils from tobacco production. However, a concerted effort to develop the production of guano on Mona Island in the 1880s and again in the 1890s would witness the impact of larger business interests. International trade, combining demand and price, would result in a shift of interests from the Mid-Atlantic States to European markets. This article is interested in Puerto Rico’s participation in the development of a lesser known agricultural product which pushed the island into the world fertilizer trade.

Key words: Puerto Rico, Guano, International Trade, Fertilizer, Mona Island

One of the lesser known parts of the economic history of Puerto Rico in the second half of the nineteenth century and the beginning of the twentieth century is

the Guano Industry. Although never reaching the stature or importance of sugar and coffee, for a short period at the end of the nineteenth century it was the

third most important export for the island. It also brought some international interest to Puerto Rico.

Guano production, mainly from the islands of Monito and Mona, would connect Puerto Rico to markets both in Europe and the United States. For a short period rapid population growth, depleted soil fertility, and new advances in science would connect in a manner to make seemingly barren islands into sources of wealth. The future of Monito and Mona Islands were thus changed as their uninhabited and isolated locales proved to be desirable for the producers and collectors of guano.

Guano, which is the excrement of seabirds or bats, came to prominence at the beginning of the nineteenth century due to the Chincha Islands off the coast of Peru. The combination of a German explorer and French botanist – Baron Alexander von Humboldt and Aimé Bonpland – developed the concept of a new fertilizing agent in Europe. Humboldt and Bonpland are credited with bringing the Moche / Inca secret to Europe at the opening of the nineteenth century. The Chincha Islands became the major source of guano (from seabirds) and England quickly claimed this resource and enforced their domination of these islands.¹

Need for increased agricultural production to offset a European population explosion, sent Europeans in search of means by which to augment harvests. England, with an expanded economic emphasis on manufacturing, felt especially vulnerable to food shortages. Thomas Robert Malthus along with a number of his conservative followers, the Mathusians, predicted that food supply could not keep pace with

human reproduction. Malthus' own bleak prediction can be found in his work *Population: The First Essay* published in 1798: ...the power of population is indefinitely greater than the power in the earth to produce subsistence for man.

Population, when unchecked, increases in a geometrical ratio. Subsistence only in an arithmetical ratio.²

This grim prediction was cause for concern in England; however, increased industrialization and soil infertility were not limited to Great Britain.

Science would develop some solutions, using the discoveries and early work of Baron Alexander von Humboldt and Aimé Bonpland, respectively. A German scientist of a new field called agronomy – Justus von Liebig – brought a new alternative to fertilizing fields. Agronomy would combine the Moche / Inca secret with the rapidly developing science of chemistry to attempt to solve the envisioned food shortages. Liebig, who became a friend of Humboldt in Paris, made the use of fertilizer into a science with his widely read 1840 book, **Organic Chemistry in its Application to Agricultural and Physiology** (Published in German and English). This German scientist emphasized the use of nitrogen, phosphate and potassium to overcome soil infertility.³ Guano provided a natural source – rich in carbon, nitrogen and phosphorous – which could play an important role in this budding field of agronomy.

The story of interest in Guano in Puerto Rico spans the period from 1848 until 1923, not counting more recent

attempts in the 1970s to revive “natural fertilizers” such as guano.⁴ This essay will look at the 1850s and 1860s, an early period of the guano intrigue. Although less important in terms of output, it is a period when one can see governments, politics, and territorial claims at work over their national concerns in locating natural resources. Among the interested nations we will see the United States, Spain, Germany, and England. Sometimes the pursuit of natural resources led to political decisions which appear to extend beyond reasonable behavior.

The earliest interest in guano was by private entrepreneurs concerned about the profits they envisioned from fertilizer products. An initial clandestine attempt to retrieve guano in 1848 from the islands of the Mona Channel, by a citizen of the island of Puerto Rico, received no formal response nor appeared to continue. This passing interest was never acted upon perhaps due to the general fertile nature of the soil in Puerto Rico and a still rather extensive amount of land that had yet to be cultivated.

In the United States the 1840s had brought the Middle Atlantic states, especially Maryland and Virginia, to seek new agricultural alternatives or solutions. By 1840 the growing of tobacco had seriously depleted the fertility of the soil of the region. This led to two diametrically opposed solutions. One was to make these two states the largest participants in the slave commerce over the next twenty years, selling more than 400,000 slaves to the “deep south”. This was the most lucrative agricultural product of the region from 1840 to 1860. The other

solution was to try to revive the soil with “new” fertilizers, as the traditional animal manure proved ineffective against the damaging effects of tobacco production. The “new” fertilizers were natural chemicals aimed at reviving the soil fertility, among the earliest of this new breed of fertilizer was guano. As the demand for guano rose, the question of source location(s) became an important issue.⁵

It was the British who first acted upon the discoveries of Humboldt and Bonpland, as well as the scientific theories of Liebig in their claim to the guano deposits off the coast of Peru on the Chincha Islands. In 1842 British investors and the Peruvian government made the official arrangements that would seal a monopoly for this guano production. Thus, the period known in Peruvian history as the “age of guano” would be dominated by the British. One of the effects of this monopoly was the high price of Peruvian guano – \$55 per ton. (An economist of the time indicated that a free market would lower the price to \$27 per ton).⁶ British monopoly acted to encourage American entrepreneurs to find alternatives.

The key to finding new sources was felt to be the similarity between the new location and the Chincha Islands. Three of the most important factors were a tropical or subtropical climate, an area scarce in rainfall, and an abundance of seabirds. (The boobies would eventually be identified as the best avian producers of guano).⁷ In December 1843 the international guano hunters would descend upon Ichaboe Island, southwest coast of Africa, and by 1845 they would employ 6,000 workers who literally “scraped bare” the island. Increased

agricultural demand witnessed that Baltimore, which was the import center for guano at this time, saw an increase from 700 tons in 1845 to 175,849 tons in 1854.⁸ The first official government interference came in 1847 when, at the behest of Maryland farmers, guano was added to the duty-free list of U.S. imports.⁹ The government's decision acted to encourage the further search for guano off the coasts of South America and Africa, as well as in the Pacific Ocean and the Caribbean Sea.

American entrepreneurs or “guanopreneurs” as they became known grew more daring in their search for “white” gold. (The preferred appearance of a guano source was like the Chincha Islands, which were also known as the Sierra Nevada – snowy mountains.) The government encouraged the increased searching for this fertilizer. In 1850 President Millard Fillmore included guano in his annual message to Congress, stating: “Peruvian guano has become so desirable to the agricultural interest of the United States that it is the duty of the Government to employ all means properly in its power for the purpose of causing that article to be imported into the country at a reasonable price.”¹⁰ Two years later, the Secretary of State Daniel Webster assured a guanopreneur (James Jewett) that it is the “duty of this government to protect citizens of the United States ... [in] obtaining guano.”¹¹ In 1854 the American guanopreneurs would encounter naval resistance from Venezuela on the islands of Aves and Los Monjes, as well as from Mexico on Alacranes; indicating the growing international recognition of guano's importance. Dreams of profits made the

search for guano an ever more tempting and potentially dangerous activity.

The fertilizer demand of the Middle Atlantic region – specifically the port of Baltimore – increased the enthusiasm of the growing number of guanopreneurs searching for new sources of guano. By the middle of the decade of the 1850s it was becoming more obvious that the actions of these entrepreneurs were becoming dangerous and needed additional support. Using the position of President Fillmore and Secretary Webster, Congress decided to define and enact its new policy. The result was the “Guano Act of 1856”¹² which gave guanopreneurs the right to seek new sources of guano on uninhabited islands, rocks, and keys; and further guaranteed protection to these activities. Although originally written to safeguard the American Guano Company and its owner Alfred G. Benson (a prominent New York businessman) in its activities in “American Polynesia”; the implications of the “Guano Act of 1856” applied to the Caribbean as well.

The first adventure by a United States merchant around the island of Puerto Rico came about in the mid-1850s. Looking for guano, Captain Jacob Stokely came across what appeared to be an opportunity for a new source of the fertilizer in the Mona Channel – the island of Monito. The Captain had located a mountain of bird excrement within a subtropical and arid region (similar to the Chincha Islands). In 1855 his schooner, the General Scott, was loaded and the cargo was taken to Baltimore. The following year a second schooner was sent to Monito and it also

returned to Baltimore loaded with a cargo of guano.¹³ Bolstered by the Guano Act and successful sales of his cargo, Captain Stokely sent a third expedition to Monito this time with the intention of filling several vessels with the fertilizer. The Spanish, however, saw this as an invasion of their territory and the stealing of their natural resources. The Spanish warship Bazan was sent to stop the unauthorized removal of guano from Monito and evict the intruders. Captain Stokely was forced to leave with partially empty holds in the vessels of the expedition.¹⁴

The question of Monito Island and its pile of natural resources then took on several avenues of discussion. On the one hand, the United States decided to use diplomatic channels, rather than military (as Captain Stokely would have preferred), in order to resolve the problem. Several meetings between Spanish and United States authorities in San Juan apparently clarified the Spanish claim to this island. Captain Stokely, who was not privy to these meetings, continued to push his rights under the "Guano Act". In 1859 the Captain officially filed a claim with the United States government for the island of Monito. Several months later a second Baltimore Captain, John M. Cole would file a second claim for Monito. The tardy official reply came in 1864 when Secretary of State William H. Seward informed Captain Stokely that the Spanish government had a rightful previous claim to this pile of excrement.¹⁵ Like many of the unsuccessful claims of the guanopreneurs, the lesson was that the United States government was not willing to go to war over guano.

There are several indications that there was a growing Spanish interest in the natural resources of Monito Island. In 1858, José Julián Acosta made a number of requests concerning the extraction of the guano. His interests were apparently beyond local markets as he indicated analyzing its real value for the world market.¹⁶ In that same year a Mayagüez resident, Claudio Federico Block, was attempting to gain permission to fish off the western coast of Puerto Rico. In order to improve his case with Spanish authorities, he also offered to do reconnaissance work watching for guano smugglers around the islands of Monito and Mona.¹⁷ There appeared to be a growing awareness about the potential value of the Mona Channel natural resource.

An evaluation of the Monito and Mona Islands guano was an important step in the marketing and use of the fertilizer. The first assay was handled by a London firm in 1861. This evaluation was made of samples brought back by the Spanish warship Bazán in 1858, both from Mona and Monito Islands.¹⁸ Although the actual chemical assay has escaped this author, a later report as well as subsequent assays indicates the make-up of the Mona Island guano deposits. The phosphatic nature of the guano made it less appealing, in part because it was different from the Chincha Islands guano. One author who studied the United States fertilizer industry reported about this time period:

Since the phosphatic guano generally lacked the strong odor of ammonia which farmers expected, the success of these guanos may also have helped change the age-old prejudice of

farmers that "good manure must have a bad smell."...it was difficult to convince farmers that a phosphatic guano with "no more smell than sand" was valuable.¹⁹

This general conception was from 1859 but would not be altered until the 1870s. The Islands of Monito and Mona just failed to meet the stereotypical source of guano sought by the agriculturalists of the time period.

Spanish authorities, however, continued to probe and test the Mona Channel resources in order to get an evaluation of true worth on the international market. An assay in 1868 by the Schloss Brothers of London and other locations, tested the guano and concluded that it proved quite unsatisfactory. They tested both the red and the white guano and concluded that although the white was deemed superior it was substantially "inferior" to the international standards.

In the quantitative evaluation of its bonafide properties it [Mona's guano] is at least 50% inferior to the Peruvian guano, according to the findings of the chemical analysis, and secondly by color the white is superior to the red guano.²⁰

The guano's poor rating, 50% inferior at least--Peru 53.53% to white 24.06% to red 22% in useable chemicals, could hardly make it appear to be a valuable natural resource to exploit. The 1868 chemical analysis most likely pushed the Spanish authorities to hesitate before going ahead with a full scale mining operation on either of the islands in the Mona Passage.

Even with its poor rating in comparison to Peruvian guano, English interest for Mona Channel resources

existed. There may be a small quandary over the first concession granted for Mona Island by the Spanish authorities, but after some evaluation it seems logical. In 1871 the first concession of mining rights for guano on Mona Island was awarded to an Englishman named "Huighes," who apparently never utilized his rights and the concession lapsed in 1874.²¹ The concession fell under the Royal Decree of 15 January 1867 which set the fee at 3% of production.²² Since the revenue percentage was so low, the Spanish authorities probably anticipated that a British citizen could produce more of the valuable fertilizer and thus increase the share of proceeds for the government. He was also assumed to be more aware of the needs of the fertilizer market in Great Britain. Additionally, the British citizen would theoretically have access to the largest fertilizer market at that particular time. This gave Spanish authorities several valid reasons to choose an Englishman over their own citizens in 1871. The failure of Mr. Huighes to stimulate revenue for the Spanish Crown probably led to a reevaluation of their choice for granting future concessions.

In 1874, when the concession lapsed for Mr. Huighes, the Spanish authorities were in the position to find a more profitable person to grant these rights. Their search now narrowed to a closer proximity to the guano source. Therefore, in 1874 Manuel Homedes y Cabrera from San Germán was granted a six year concession for the exploitation of guano from Mona Island.²³ Unfortunately, for the Spanish authorities, the new concession proved no more fruitful than the first one. After just three years, the decision was made

to grant the extraction rights to a new party. The lack of production proved to be the downfall of the San Germán resident as well. The proximity to the island of Mona did not aid in getting the mining started.

Spanish authorities would successfully alter their policies of granting concessions for guano twice in the next two decades. Each time they will attempt to expand the guano production and increase markets. The period from 1877 to 1884 will be the first period of massive production of guano from Mona Island. There will be several important factors, not the least of which was the expertise of a Canadian named John Miller. There will also be a further definition of markets and guano types for the production of fertilizers. These changes will aid the development of the exploitation of resources from the Mona Channel islands. Miller's expertise and the marketing of the company of Señores Porrata Doria y Contreras will expand production to 2,284 long tons in 1884. The guano will mainly be distributed to the East coast of the United States and England.²⁴ This will also mark the period when, for the first time, guano will rise to become the third most important export of Puerto Rico.²⁵

The failure of the Company Señores Porrata Doria y Contreras to recuperate from the untimely death of John Miller in early 1885, led Spanish authorities to contract another company. With an emphasis on sales in Europe, they chose the Theodor Schmidt Company of Hamburg, Germany. The company agent, Antonio Mobins y Hohenstein – citizen of Hamburg and resident in Mayagüez – proved

successful in coordinating production and markets which led to greatly expanded sales. The 1890s will be a time when production will pass 9,000 long tons in fiscal years 1893-4 (9,453) and 1894-5 (9,136). Rotterdam will receive the lion's share of the guano and the rest will be distributed to other European ports.²⁶ Guano production from Mona Island will reach its peak in the last decade of the century.

Conclusion

Although there was little guano production during the period which is the main focus of this essay, there were large political implications. The interplay of international powers, as well as, governmental decisions played an interesting role. Before the influence of 19th century explorers and scientists few would have seen these uninhabited islands –like Monito and Mona– as little more than useless rocks above the ocean surface. Guano brought them notoriety and international attention, which included military force and national policy. The search for fertilizer also created a new international businessman – the guanopreneur. Guano, for a short period, was in essence a natural resource of international interest. Ultimately, it declined in interest because of discoveries of large deposits of phosphates –in South Carolina and especially Florida– as well as the development of chemical fertilizers.

NOTES

¹ Among those who have studied this case are included W.M. Mathew, The House of Gibbs and the Peruvian Guano

Monopol. London: Royal Historical Society, 1981. Heraclio Bonilla, Guano y burguesía en el Perú, Ecuador: Facultad Latinoamericana de Ciencias Sociales, 1994, and Paul Gootenberg, Between Silver and Guano. Princeton: Princeton University Press, 1991; each of these authors has also published a number of articles on the topic.

² Thomas R. Malthus, Population: The First Essay. Ann Arbor, MI: University of Michigan Press, 1959. page 5. Additional comments on Malthus and his followers from William Petersen, Malthus. Cambridge: Harvard University Press, 1979.

³ Willaim H Brock. Justus von Liebig: The Chemical Gatekeeper. Cambridge University Press, 1997. See especially chapter 6 "Liebig and the Farmers: Agricultural Chemistry. See also Margaret W. Rossiter, The Emergence of Agricultural Science: Justus Liebig and the Americans, 1840-1880. New Haven: Yale Universty Press, 1975.

⁴ "Informe acerca del guano de las Islas Mona y Monito," 1868, Obras Públicas, Propiedad Pública, 1858-1887, Caja 307. This report is very difficult to read but is also summarized in Angel Vasconi, "Reseña de las Islas Mona y Monito," Obras Públicas, Propiedad Pública, Caja 307. Another nineteenth Century source is Juan Brusi y Font, "Viaje a la Isla de Mona, 1884. In addition there is the study by Clifford A. Kaye "Geology of Isla Mona, Puerto Rico, and Notes on Age of Mona Passage." U.S. Geological Survey Professional Paper #317-C. 1959. The best work to date is Frank H. Wadsworth, "The Historical Resources of Mona Island," who makes reference to the initial search for guano in 1848.

⁵ Jimmy M Skaggs, The Great Guano Rush: Entrepreneurs and American Overseas Expansion. New York: St.

Martin's Press, 1994. Richard A. Wines, Fertilizer in America: From Waste Recycling to Resource Exploitation. Philadelphia: Temple University Press, 1985. Roy F. Nichols. Advance Agents of American Destiny. Philadelphia: University of Pennsylvania Press, 1956, and Lawrence G. Green, Panther Head: The full story of the bird islands off the southern coasts of Africa, the men of the islands, and the birds in their millions. London: Stanley Paul & Co., Ltd., 1955.

⁶ Wines, Fertilizer in America. p. 51.

⁷ George B. Hutchinson. Survey of Existing Knowledge of Biogeochemistry. 3: The Biogeochemistry of Vertebrate Excretion. New York: Bulletin of the American Natural History, vol. 96, 1950.

⁸ Wines, Fertilizer in America. p. 39.

⁹ Skaggs, The Great Guano Rush. p. 11.

¹⁰ Wines, Fertilizer in America. p. 51.

¹¹ Ibid. p. 57.

¹² Guano Act, August 12, 1856. The complete document can be found in Appendix 1, Department of State--Guano, Monita.

¹³ "Jacob Stokely's Statement" filed in Baltimore in February, 1859. Records of the Department of State Relating to the Guano Islands 1852-1905, Roll 4, Monita. Additional information can be found in Custom House, Baltimore, Collector's Office, Report dated February 15, 1873. This report was in regard to the first United States citizen to claim Monito as a source of guano. Department of State--Guano, Monita. Unfortunately, no exact number of workers can be given since additional documents were lost in an 1858 office fire.

¹⁴ Wadsworth, "Historical Resources," p. N-9.

¹⁵ The correspondence can be seen in: Jacob Stokely's Statement, February

1859. In this testimonial he placed the value of his losses at no less than \$200,000. For this reason he was petitioning the State Department and President to aid in his recovery of his "rightful" possessions. Department of State--Guano, Monita. and Letter from Jacob Stokely to Secretary of State William H. Seward dated December 16, 1860. Department of State--Guano, Monito. The letter was written for Captain Stokely by B.J. Hanna who presumably was his lawyer. The tardy reply from the State Department came in Letter from Secretary of State William H. Steward to B.J. Hanna, January 14, 1864. Department of State--Guano, Monito. The demands of the Civil War made guano extraction a low priority.

¹⁶ Obras Públicas, Propiedad Pública, file named José Julian Acosta, 1858.

¹⁷ Letter from Claudio Federico Block to Gob. Capt. General y Superior de Puerto Rico, 24 September 1858 (File?). Sr. Block also requested hunting rights on Mona Island.

¹⁸ Wadsworth, "Historical Resources", N-9.

¹⁹ Wines, Fertilizer in America, p. 75.

²⁰ Angel Vasconi, "Reseña de las Islas Mona y Monito," Obras Públicas, Propiedad Pública, Caja 307.

²¹ Wadsworth, "Historical Resources", N-9.

²² Angel Vasconi, "Reseña de las Islas Mona y Monito," Obras Públicas, Propiedad Pública, Caja 307.

²³ Letter from Alcaldía Municipal de San Germán, Manuel Homedes, #2530, Obras Públicas, Propiedad Pública, letter dated April 23, 1874.

²⁴ See the Admon. Local de Rentas y Aduana de Mayagüez, a record of guano ships (date, flag, destination, and tonnage) from 1887 to 1884. This report is dated 9 September 1887 and written by Justo Sánchez Taboado. Obras Públicas, Propiedad Pública, Caja #307.

²⁵ The interesting story can be seen in the future article "Mona Island and the Guano Industry, 1877-1885" by this author. An early version of this article was presented at the Association of Caribbean Historians meeting in Barbados in 1995.

²⁶ Document dated 13 October 1894 from the city of Mayagüez, Puerto Rico for T. P. Concession and signed by Joaquín Gisbert who was a representative of the Porrata Doria y Contreras Compañía, Obra Pública, Propiedad Pública, Caja #308, and Document dated 30 June 1895 and signed by the assistant representative of the Navy in Puerto Rico, José Castillo, which indicated 9,136 long tons of guano and phosphatic rock had been shipped from Mona Island during the fiscal year 1894-5, Obras Públicas, Propiedad Pública, Caja #308