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Havana's Botanical Garden in the Construction of  
Cuban National Identity

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## **Abstract**

The aim of this article is to deepen the knowledge of the two projects of liberal identity that were forming on the island of Cuba during the eighteenth and nineteenth centuries. This struggle can be seen in various fields, and one of these is the confrontation around the construction and working of the Botanical Garden of Havana. This study has to be placed in the frame of a revision of the history of empires during the transition from the Ancien Régime to the liberal world. I seek to demonstrate that, in the process of construction of states during that period, the power elites of the so-called 'colonial peripheries' confronted and tried to transform the state projects outlined by the metropolitan elites that relegated them to simple colonies.

## **Keywords**

Botanical garden, Cuba, identity, liberalism, centralism, autonomy.



## *Havana's Botanical Garden in the Construction of Cuban National Identity*

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### **Introduction\***

The history of empires, during the transition from the Ancien Régime to liberalism, has been written from a historiographical standpoint that considers states were built by metropolitan groups of power from their metropolises.<sup>1</sup> However, in recent years, some writers have shown us how, in the process of assembling states during the nineteenth century, the power elites of the so-called 'colonial peripheries' confronted the state projects that reduced them to the category of colony, and tried to get a more advantageous situation for their territories.<sup>2</sup> This article is at the heart of this debate and it aims to clarify the form in which it was settled by two liberal projects, with diverse concepts of identity, for the island of Cuba. One of these liberal groups, headed by Claudio Martínez de Pinillos and Ramón de la Sagra, defended the centralist peninsular liberalism that reduced the island to the category of colony<sup>3</sup>. Opposing this group,

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\* I wish to thank Noble David Cook for overseeing the early writing of this paper.

<sup>1</sup> Karl Marx, *El colonialismo* (Mexico City, 1970); Max Weber, *Estructuras de poder* (Buenos Aires, 1985); Emmanuel Wallerstein, *The Modern World System* (New York, 1974).

<sup>2</sup> Subaltern Studies and Postcolonial Studies have helped developments in this direction. Partha Chatterjee, "A Brief History of Subaltern Studies", in *International Encyclopedia of the Social and Behavioral Sciences*, vol. 22, pp. 1537-41; Gyan Prakash, "Subaltern Studies as Postcolonial Criticism", *American Historical Review*, vol. 99, no. 5 (1994), pp. 1475-1490; Edward Said, *Orientalismo* (Barcelona, 2004); Frederick Cooper, *Colonialism in Question. Theory, Knowledge and History* (Los Angeles, 2005), pp. 3-54; Christine Daniels and Michael V. Kennedy, *Negotiated Empires: Centers and Peripheries in the Americas, 1500-1820* (New York, 2002), pp. 2-15.

<sup>3</sup> Ramón Dionisio José de la Sagra y Periz was born in La Coruña, on 8 April 1798, and died in Switzerland, on 25 May 1871. In the island of Cuba he was promoted and protected by the Superintendent of the Treasury, Claudio Martínez de Pinillos, of Cuban origin. Ramón de la Sagra, *Historia económico-política de la isla de Cuba* (Havana, 1831); Ramón de la Sagra, *Historia física, política y natural de la isla de Cuba*, 12 vols. (Madrid-Paris, 1838); Ascensión Cambrón Infante, *El socialismo racional de Ramón de la Sagra* (La Coruña, 1989); VV.AA., *Ramón de la Sagra y Cuba*, vol. 2 (La Coruña, 1991).

the faction headed by Francisco Arango, Domingo del Monte and José Antonio Saco, defended a Cuban identity project which gave a conscious identity to a region of the Spanish Empire, the island of Cuba, that had lacked it until then<sup>4</sup>. This last project was supported by a part of the Havana sugar oligarchy. Their objective was to look for a more advantageous position for the island of Cuba in the framework of the Spanish liberal state that was under construction throughout the nineteenth century. The originality of this research is that it deepens the study of these two groups through the polemic that began around the construction of the Botanical Garden of Havana.

To carry out this study, it is fundamental to understand that the concept of 'nation', such as we understand it today, is a recently created construction in history. Historiography, however, has taken time to understand this fact. From the nineteenth century, the term 'nation' was used to designate those human groups that were believed to share some cultural characteristics. This legitimised their possession of political power, that is, as an independent state or a relatively autonomous government inside a wider political structure. But studies about the nation and nationalism have changed a lot in the last forty years. Hans Kohn or Carlton Hayes had no doubt that nations were natural realities, and they debated only the elements which defined them.<sup>5</sup> For this reason, all authors were forced to make, in their research, an almost canonical review through race, language, religion, and the historical past. However, towards 1960, Elie Kedourie observed that states needed the support of the population. At the same time and for this reason, a state could not allow anyone to debate the cultural identity that supported its uniqueness. Because of this, states made the effort to guide the population's will, to educate it. The national problem, concluded Kedourie, was an educational question, and the main promoter of political education was the state. Instead of accepting national identities as natural realities, historians began to see them as artificial creations, moved by political interests.<sup>6</sup> The fundamental studies of Ernest Gellner, Benedict Anderson, and Eric Hobsbawm, among others, have continued on this path over the last thirty years.<sup>7</sup>

Subaltern studies have also contributed, from the 1980s, to advances in this direction. This school of historiography has underlined the relative historicity of the state-nation as a political organisation. It has allowed us to understand the history of

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<sup>4</sup> José Antonio Saco y López-Cisneros was born in Bayamo in 1797. In 1816 he left that city to live in Havana. There, he came into contact with Félix Varela's liberal thinking. After being the editor of the *Revista Bimestre Cubana*, he was expelled from the island in 1834 because of his political ideas; he died in Barcelona in 1879. José Antonio Saco, *Papeles sobre Cuba*, vol. 2 (Havana, 1962); Manuel Moreno Fraguinals, *José Antonio Saco. Estudio y bibliografía* (Havana, 1960); Manuel I. Mesa Rodríguez, "José Antonio Saco, escritor y patriarca", *Revista Bimestre Cubana*, no. 24 (1932), pp. 86-129; Antonio L. Valverde, Antonio, *José Antonio Saco: aspectos de su vida* (Havana, 1930).

Domingo del Monte y Aponte was born in Maracaibo, in 1804, and he died in Madrid on 4 November 1853. He arrived in Santiago de Cuba in 1810, and soon after he moved to Havana with his family. He studied law in the Seminario de San Carlos, and came into contact with the liberal thinking of Félix Valera and José Agustín Caballero. Domingo del Monte, *Humanismo y humanitarismo* (Havana, 1936); Domingo del Monte, *Centón epistolario*, vol. I (Havana, 2002), XI-XXIII; Domingo del Monte, *Escritos de Domingo del Monte*, 2 vols. (Havana, 1929).

<sup>5</sup> Hans Kohn, *The Idea of Nationalism: a Study in Its Origins and Background* (New York, 1944); Carlton Hayes, *Nationalism: a Religion* (New York, 1960).

<sup>6</sup> Elie Kedourie, *Nationalism* (London, 1960).

<sup>7</sup> Ernest Gellner, *Nacionalismo* (Barcelona, 1998); Benedict Anderson, *Comunidades imaginadas. Reflexiones sobre el origen y la difusión del nacionalismo* (Mexico City, 1993); Eric Hobsbawm, *Nación y nacionalismo desde 1780* (Barcelona, 1992).



empires and colonial relationships from the point of view of the colonised, to understand the role of peripheral groups of empires in the construction of nations. Along the same lines, the comparison between different models of political evolution and between regions or territories inside empires, proposed by 'comparative history', has helped us to put into relation the role of the nation-state, and to understand the internal complexity of these territories. Finally, 'trans-national history' has stressed the relationships between human groups in 'different imagined communities'. This approach has also allowed us to reach a more complex vision of the internal relationships established in the heart of imperial organisations. These were not only structural relationships polarised in central states (settlers) and peripheral states (colonised), but also entities that were sustained in much more complex relationships (of an economic, social and cultural nature). This has allowed us to discover the different voices that communicated in that relationship and the processes of miscegenation that took place.<sup>8</sup>

With this historiographical perspective as background, I will now move on to explain the part played by the Botanical Garden of Havana in the process of construction of Cuban identity. First we must understand the role of the sciences of collection and comparison - botany, zoology, anthropology, and geology, for example -, during the second half of the eighteenth century and the first half of the nineteenth. This was one of the ways in which the metropolis could control colonial territories, and put them completely at their service, and this provoked a powerful response from the peripheries. These 'sciences of freedom' gave a modern inflection to older political and economic assumptions, projects, and superstitions. The first gardens in Europe were planted in the palaces of monarchs and the aristocracy, and were a form of accumulation of knowledge, a recreation of a lost Eden and a demonstration of power<sup>9</sup>. The sixteenth century was a particularly promising period for amassing all the plants of the world. The European discovery of America, and the opening of a trade route to the East, meant an unparalleled flood of strange new plants. The first botanical gardens emerged in Italy out of the combined traditions of the prince and the apothecary. In May 1545, the Senate of the Republic of Venice founded by decree an '*orto botanico*' at Padua; in the same year, Cosimo de' Medici ordered the creation of such a garden in Pisa. Over the next decade, the medical schools of Florence and Ferrara formed their own collections. The structure of these collections expressed the hubristic ambition of their planters: that they should contain the world in a garden. The catalogue of the Oxford Botanic Garden

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<sup>8</sup> Bartolomé Yun Casalilla, "Estados, naciones y regiones en perspectiva europea. Propuestas para una historia comparada y transnacional", *Alcores. Revista de Historia Contemporánea*, (forthcoming). I am grateful to the author for allowing me to read his article; Ranajit Guha, *Las voces de la historia y otros estudios subalternos* (Barcelona, 2001); Marc Bloch, « Pour une histoire compare des sociétés européennes », *Revue de Synthèse Historique*, no. 46 (1928), pp. 15-50; M. Espagne and M. Werner (eds.), *Transferts: les relations interculturelles dans l'espace franco-allemand (XVIIIe et XIXe siècle)* (Paris, 1988).

<sup>9</sup> Richard Drayton, *Nature's Government. Science, Imperial Britain, and the "Improvement" of the World* (New Haven and London, 2000); David Arnold, *The Problem of Nature. Environment, Culture and European Expansion* (Oxford, 1996); Jorge Cañizares-Esguerra, *Nature, Empire, and Nation. Exploration of the History of Science in the Iberian World* (Stanford, 2006); Kapil Raj, *Relocating modern science. Circulating and the construction of Scientific Knowledge in South Asia and Europe* (Asijac, 2006); Stuart McCook, *State of Nature: Science, Agriculture, and Environment in the Spanish Caribbean, 1760-1940* (Austin, 2002).

(1658) declared: '*as all creatures were gathered into the Ark, comprehended as in an epitome, so you have the plants of this world in microcosm in our garden*'<sup>10</sup>.

But, all these governments and collectors soon realized that it was impossible to contain the immensity of the whole natural world in a garden and that more plants could be collected in a book. Gardens, instead, should be transformed into places of experimentation and research. The medical and, particularly, the economic importance of plants was understood. The Spanish Bourbons, certainly in imitation of Louis XV's patronage of science, created the Royal Botanic Garden of Madrid in 1755 and the Royal Natural History Museum in 1776. A year later they dispatched an expedition to their New World colonies in an order thus framed by Charles III : '*To foster nature, describing and making drawings of the plants found in these, my fertile dominions, in order to enrich my Museum of Natural History and the Botanical Garden of the Court*'. In the eighteenth century, this association of the scientific garden with agriculture became particularly important. The colonies were transformed into store-houses to supply the metropolises with the raw materials they needed and thus the tropical world became more and more characterized by the cultivation of sugar cane, coffee, cotton, rubber and quinine. It is true that there was exchange between the different colonies of the Caribbean in the earlier phase of European expansionism, but now this became more clear<sup>11</sup>. Botanical Gardens were used in this way to put the economy of the colonial territories at the service of their metropolises. This meant that the economy of the colonial territories depended heavily on their metropolises in the development of the new national states. Because of this, and at the same time, power elites appeared in all the colonial territories that opposed this idea and argued for a more advantageous position for the colonial territories<sup>12</sup>.

### **First proposals to create a botanical garden in Havana**

From the late eighteenth century, and particularly after the arrival of Napoleon's army in the peninsula in 1808, the Spanish Empire underwent a profound transformation in the structure of the Ancien Régime and a movement towards a liberal-capitalist system. The concept of the king's vassals was substituted with that of citizens, the right to private property was secured, liberal constitutions and the sharing of power developed, and territory ceased to be the King's patrimonial possession and instead a national state developed.<sup>13</sup> This system of liberal organisation of the state, after some vacillation and the loss of most of the American territories, advanced in the peninsular territory of the Empire after Fernando VII's death in 1833. A *Consejo de Regencia* (Regency Council) took power and was presided over by Fernando VII's wife, María Cristina, and after her

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<sup>10</sup> Drayton, *Nature's Government*.

<sup>11</sup> Through botanical gardens networks were created among the different tropical territories of America, Africa, Asia and the Pacific. Botany might also provide a cover for espionage. French collectors, using Cayenne, such as Le Blond, had long offered intelligence on the Atlantic coast of South America. In the 1790s, in turn, Alexander Anderson, keeper of the St. Vincent Botanical Garden, offered careful political and strategic reports on the southern Caribbean, and in particular on the Dutch colonies of Demerara and Essequibo. Arnold, *The Problem of Nature*.

<sup>12</sup> Londa Schiebinger and Claudia Swan (ed.), *Colonial Botany. Science, Commerce, and Politics in the Early Modern World* (London, 2004)

<sup>13</sup> Josep Fontana, *La crisis del Antiguo Régimen* (Barcelona, 1979); Eric Hobsbawm, *Las revoluciones burguesas* (Barcelona, 1985); Alberto Gil Novales, "Tras la revolución: Europa a partir de 1800", *Trienio*, no. 38 (2001), pp. 5-19.

by Baldomero Espartero until Isabel II became of age. At the same time as this was taking place, the liberal state was moving towards centralisation. In this process, the overseas territories were reduced to the category of colony<sup>14</sup>. However, over this entire period, Havana had been transformed into one of the most important economic centres in the Spanish Empire. This stimulated the families of the sugar oligarchy (i.e. Arango, Aldama and Soler), to demand that its power and its economic contribution to the coffers of the state be reflected in the leadership of the society in which they were based.<sup>15</sup>

I am going to try to show how the confrontation between these two different conceptions of the state in relation to the position the island of Cuba should have inside the Spanish state in construction, through a polemic which took place inside the Botanical Garden of Havana. In the pages of the newspaper published by this institution, the *Anales de economía, comercio y agricultura*, in 1833 debate took place between Ramón de la Sagra, director of the Garden and the *Anales*, and the young ideologist José Antonio Saco. The discussion arose around the question of the origins of the cholera epidemic that ravaged Havana and most of the island between 1833 and 1834, and which resulted in the deaths of more than twenty thousand people. The pandemic arrived in Cuba as a result of the lifting of the quarantine by the Superintendent of Finance of the island, Claudio Martínez de Pinillos. From the beginning of 1833 all ships coming from the United States were allowed into Cuba, as it appeared that the epidemic was already over in America. Sagra wanted to justify the Superintendent's action and he argued that the disease arose out of the characteristics of tropical weather and territory, which encouraged the development of this type of illness. He denied that there was any contagious character to the epidemic. This argument led him to write that these territories should be under the protection of the metropolis. In opposition to this, Saco argued that the cholera pandemic arrived on the island as a consequence of infection and not as a result of the characteristics of its land and weather and, therefore, if the Superintendent had maintained the quarantine the epidemic would never have arrived in Cuba<sup>16</sup>.

This polemical discussion marked the beginning of the confrontation between these two intellectuals. This was not only a discussion between two men but between two ways of understanding the position Havana and the island of Cuba should have in the Spanish nascent liberal state in construction. Sagra, supported by Claudio Martínez de Pinillos and the Captain General of the island, Miguel Tacón, defended the centralist liberalism of the metropolitan authorities whose aim was to reduce Havana and the island to the category of colony, in an inferior position to the rest of the provinces of the liberal nascent state. Another group, led by José Antonio Saco and Domingo del Monte, and which counted among its members Francisco Arango y Parreño and other

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<sup>14</sup> Josep María Fradera, *Colonias para después de un imperio* (Barcelona, 2005); François Chevalier, *América Latina. De la independencia a nuestros días* (México City, 1999); John Lynch, *Las revoluciones hispanoamericanas 1808-1826* (Barcelona, 1985)

<sup>15</sup> Manuel Moreno Friginals, *El Ingenio. Complejo económico social cubano del azúcar* (Barcelona, 2001); Levi Marrero, *Cuba: economía y sociedad.*, vol. 2 (Madrid, 1983); Fradera, *Colonias para después de un imperio*; Juan Pérez de la Riva, *Correspondencia reservada del capitán general don Miguel Tacón, 1834-1838* (Havana, 1963); Louis A. Pérez, *Cuba: Between Reform and Revolution* (New York, 2006); Sherry Johnson, *The Social Transformation of Eighteenth-Century Cuba* (Gainesville, 2001).

<sup>16</sup> This polemic is in *Anales de ciencias, agricultura y comercio*, December 1828 and January, February and March 1829; *Mensajero Semanal*, 3 October 1829; José Antonio Saco, *Papeles sobre Cuba*, vol. 2 (Havana, 1962).

families of the Havanan oligarchy such as Aldama, Alfonso and Soler, and intellectuals such as Tomás Romay, and José Agustín Caballero, sponsored the autonomist liberalism that sought to transform the island into a province with the same rights as the peninsular provinces and with an autonomous government. Each faction consisted of individuals of diverse origin, whether peninsular, American, or of the island of Cuba itself, and the political projects of each were not fully developed from the outset, but were negotiated and modified over time.

This confrontation, which took place inside the Economic Society and in part because of the Botanical Garden and with the arrival of the cholera epidemic on the island, had its origin in the process of constitution of this same Garden. At the end of the eighteenth century the first proposals to create a botanical garden in Havana were bound to the development on the island of a powerful sugar plantation elite. This was a true oligarchy in the landed economy of the island and an authentic elite in political-military issues. This faction rose out of the old landowning families, many of them bound for decades to the business of the *Real Compañía de La Habana* (Royal Company of Havana), and sugar and tobacco production. Among these, the most important families were the Aldama, Soler, Arango y Parreño and Martínez de Pinillos. The efforts of these men meant that the number of sugar plantations grew from 96 in 1763, to 245 in 1792, 305 in 1800 and 625 in 1817, with sugar production figures rising from 12,000 boxes in 1740 to 230,000 in 1802. The arrival of the English in Havana in 1762-1763 allowed for the opening of the Havana trade and it facilitated the entrance of slave labour onto the island, an indispensable requirement for the development of the plantation system. This period also coincided with the independence of Haiti in 1791 which provoked a rise in the demand for Cuban sugar in the European and North American markets with a corresponding rise in prices.<sup>17</sup>

Francisco Arango y Parreño is the most obvious representative of this Havana elite because of his sugar plantations, his commercial business, his family relationships with the rest of the group, his political power in the metropolis and on the island, and his intellectual wisdom which was always directed towards the improvement of the interests of the Havana elite. For this latter reason, even before the independence of Haiti, Arango wrote to the government requesting the creation of a *Junta de Agricultura*, a *Sociedad Económica* (Economic Society), to study the island's territory and natural resources in order to develop the sugar industry. He also explained that it would be necessary to improve the roads of the island and to send industrial spies to neighbouring countries. In relation to the development of scientific and technical knowledge, Arango saw botany as one of the important subjects for its possible application to the development of the sugar industry. He suggested the construction of a Botanical Garden inside the Economic Society, constituted in 1793 and the place where the most cultured minds of the island met<sup>18</sup>. Following this one of the members of the

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<sup>17</sup> Montserrat Gárate Ojanguren, *Comercio ultramarino e ilustración. La Real Compañía de La Habana*, (San Sebastián, 1993); Moreno Friginals, *El Ingenio*; Johnson, *The Social Transformation*.

<sup>18</sup> Pedro R. Campomanes, (conde de Campomanes), "Discurso sobre el fomento de la industria popular, 1774", in John Reeder, (ed.), *Discurso sobre el fomento de la industria popular y discurso sobre la educación popular de los artesanos* (Madrid, 1975), pp. 41-124; José Álvarez Junco, *Mater Dolorosa: la idea de España en el siglo XIX* (Madrid, 2003), pp. 12-13; François-Xavier Guerra y Annick Lempérière, *Los espacios públicos en Iberoamérica* (México City, 1998), p. 83; Izaskun Álvarez Cuartero, *Memorias de la Ilustración: las sociedades económicas de amigos del país en Cuba, 1783-1832* (Madrid, 2000), pp. 329-358; Larry R. Jensen, *Children of colonial despotism* (Tampa, 1988), pp. 7-9; María Dolores González-Ripoll, *Cuba, la isla de los ensayos. Cultura y Sociedad, 1790-1815* (Madrid, 1999); Diana

Society, Mariano Espinosa, wrote a report in 1795 in favour of establishing a garden, and in it he explained how that garden should be organized. Espinosa explained his plan to Martín de Sessé, the director of the Botanical Expedition to New Spain. De Sessé had just arrived in Havana from Mexico in the course of his mission to explore the territories of the Empire in order to understand their resources, and now it was the turn of Cuba. De Sessé even provided the Society with the regulations to govern the future botanical garden for acclimatization, and he also recruited the young Havanan José Estévez to his mission, with the aim that he should be educated in botany. These initiatives were supported by three of the founders of the Economic Society, Tomás Romay, José Agustín Caballero and Juan José Díaz de Espada<sup>19</sup>.

Francisco Arango, as *sindico* (Chair) of the Consulate, also sponsored and supported the Guantánamo Commission in 1796. The aim of this mission was to study the geography of the island so as to build good roads and a canal from the Güines mountains to the coast, making it possible to transport the sugar from the interior of the island with lower costs.<sup>20</sup> Arango also got approval for a research trip by two Cubans to learn the techniques of the sugar industry in other countries and thereby to contribute to changes in the island's agriculture. This journey, which was not without its elements of espionage, was carried out by Arango and his good friend Ignacio Montalvo, Count of Casa Montalvo. The pair travelled from Madrid to Havana, and from March 1794 to February 1795, travelled to Portugal, Great Britain, Barbados and Jamaica. The conclusions they drew from their journey were explained in a report in which they suggested it would be necessary to introduce technical improvements (steam and other machinery), industrial improvements (the sugar refining process) and scientific improvements (varieties of sugar cane) to enlarge on and to improve on the agricultural yields on the island of Cuba.<sup>21</sup>

### **Planned Nursery versus Botanical Garden of Havana**

The arrival of Napoleon Bonaparte's troops on the peninsula in 1808 and the civil war that followed, resulted in the almost total paralysis of all scientific activities. José I's government maintained the scientific institutions of the metropolis through a division of the new Ministry of the Interior, directed by Francisco Antonio Zea, once the director of the Botanical Garden of Madrid. This American botanist (born in the Viceroyalty of

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Iznaga and Yolanda Vidal, "Apuntes para la historia de la Sociedad Económica de Amigos del País de La Habana", *Revista de la Biblioteca Nacional José Martí*, vol. 72, no. 1 (1981), pp. 153-173.

<sup>19</sup> The first scientific expedition to Cuba was that of Antonio Parra y Callado in 1763. Soon after, the Royal Botanical Expedition to New Spain was divided up and one of its branches went to explore Cuba. This expedition was proposed by the Aragonese doctor Martín Sessé to the director of the Royal Botanical Garden of Madrid, Casimiro Gómez Ortega in 1785. Miguel Ángel Puig-Samper Mulero, *Alejandro de Humboldt, las expediciones científicas españolas y la formación de las elites* (Madrid, 2002); Miguel Ángel Puig-Samper Mulero and Mercedes Valero, *Historia del Jardín Botánico de La Habana* (Madrid, 2000).

<sup>20</sup> The expedition was directed by Joaquín de Santa Cruz, with his brother-in-law, Juan Montalvo O'Farrill, as subdirector and assistant, and Anastasio Arango, as secretary. Puig-Samper Mulero, *Historia del Jardín Botánico*.

<sup>21</sup> Francisco Arango y Parreño, "Sobre las noticias comunicadas por el señor síndico don Francisco Arango y Parreño a la Junta de Gobierno del Consulado de Agricultura, Industria y Comercio de La Habana, adquiridas en el viaje que por encargo de S.M. ha hecho a Inglaterra, Portugal, Barbada y Jamaica", "Comisión diplomática al Guarico, 5 de marzo de 1803", in Francisco Arango y Parreño, *Obras*, vol. 1 (Havana, 1952), pp. 243-251 and 338-383.

New Granada), put forward a plan to establish 24 nurseries in the peninsula and in the overseas territories and to use them to promote the teaching of botany as applied to colonial agriculture. Although his plan was not fully carried out, because of the fall of José I's government, part of it began to be developed very soon after. On 16 May 1813, the Regency of the Kingdom informed the Captain General of Cuba, Juan Ruiz de Apodaca, of the latest decisions taken in the metropolis in relation to Espinosa's scientific work and of the possibility of establishing a nursery in Havana where research could be carried out on plants useful to the industry and to the needs of the metropolis. Espinosa was put in charge of this mission. In January of the following year, the Secretary of State, Juan Álvarez Guerra, thanked Espinosa for his first despatches from Havana and he reminded him of the necessity of establishing a nursery. This, according to Espinosa's testimony, had already begun<sup>22</sup>:

*La Regencia del Reino que no pierde de vista la necesidad de proporcionar a la península, en cuanto lo permitan las estrecheces del erario, los frutos y plantas medicinales y útiles a las artes y manufacturas que se hallan en las provincias de Ultramar, facilitando los medios de aclimatarlas, y que se propaguen en ella; teniendo presente que en La Habana existe D. Mariano Espinosa, corresponsal del Jardín Botánico de Madrid, se ha servido resolver que el expresado Espinosa, se encargue de remitir a la península las plantas medicinales exóticas y sus semillas que puedan ser más útiles y de formar un vivero de plantas, arbustos y árboles que produzcan frutos, u otros productos convenientes a la industria, artes y manufacturas de la península, variando las especies en cada remesa, y espera del celo e ilustración de Espinosa, que se prestará a hacer este servicio con la eficacia que recomienda su objeto y que se extenderá a proporcionar de la de Jamaica otras plantas medicinales y de utilidad y adorno originarias del Asia que se hallan allí aclimatadas ...*<sup>23</sup>.

However, the arrival in Havana, in July 1816, of the new Superintendent of Finance, Alejandro Ramírez, overturned the central government's project to establish a nursery. This man, who had always supported the ideas of the local oligarchies in all the places where he had governed, i.e., Guatemala and Puerto Rico, did the same thing with the initiatives of Arango in Cuba. In the year of his arrival, Ramírez was named president of the Section of Education at the Economic Society, where a paper was read about the necessity of establishing a botanical garden with accompanying instruction in botany and in chemistry<sup>24</sup>. The following month, as a result of this report, José Estévez was consulted about the feasibility of creating a botany class and another in chemistry with a laboratory, as well as the Botanical Garden. However, Estévez, in his response,

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<sup>22</sup> Archivo Nacional de Cuba (ANC), Intendencia de Hacienda, leg. 318, no. 33; Archivo General de Indias (AGI), Cuba, leg. 227B, no. 3.

<sup>23</sup> The Regency of the Kingdom continues to see the need to provide the peninsula, as soon as financial circumstances permit it, with the fruits and medicinal and useful plants which are in the overseas territories. With this objective it is necessary to acclimatize the plants and after that to disseminate them in the peninsula. Don Mariano Espinosa, correspondent of the Botanical Garden of Madrid, who lives in Havana, is the best person to take charge of the sending of the medicinal exotic plants and seeds to the peninsula. A nursery of plants, bushes and trees could be constructed to produce fruits and products useful to the industry, arts and factories of the peninsula. Also for this reason, Espinosa must introduce different species with each set of samples sent. We hope the zeal and enlightened example of Espinosa will encourage him to do this effectively. If things go well, in the future Espinosa will extend his research to Jamaica from where he will send medicinal, useful and decorative plants originally from Asia and now acclimatized. ANC, Intendencia de Hacienda, leg. 318, no. 33.

<sup>24</sup> "Papel presentado a la Sección de Educación sobre el establecimiento de un jardín botánico", *Memorias de la Sociedad Económica de La Habana (Memorias)*, Havana, vol. 5, no. 21 (1818), pp. 294-302.

recalled the order given to Mariano Espinosa to establish a nursery. The Superintendent and the farmers ignored this and continued with their plans. Ramírez, as director of the Society, deployed all his abilities to found the Botanical Garden and applied immediately to the Captain General Cienfuegos to get his authorization, which Cienfuegos gave without any difficulty. The official inauguration of the Garden, under the direction of the Economic Society, took place on May 30 1817, with the main authorities of Havana in attendance. The direction of the Garden was given, from February 1818, to the Havana naturalist José Antonio de la Ossa, who followed Mariano Espinosa. This latter was removed from the new scientific institution, in spite of the orders received from the metropolis in 1813 and 1814, and of his known work such as correspondent of the Royal Botanical Garden of Madrid. José Antonio de la Ossa gave an explanation of this situation in a report in 1821, in which the Minister for Overseas requested information on the state of the nursery authorized in 1813<sup>25</sup>:

*Por la real orden de V.S. se ha servido comunicarme, fecha 24 de febrero último, que se solicita saber del Excmo. Sr. Jefe Superior político, el estado en que se halla el jardín de aclimatación que se cree establecido en esta isla, y las copias de otras Reales ordenes que se acompañan de 16 de mayo de 1813 y 18 de enero de 1814, se deduce claramente, que no se habla en ellas del jardín que la sociedad patriótica que, por medio de su director el Sr. Don Alejandro Ramírez, puso a mi cargo; pues por la última de dichas Reales órdenes se evidencia que habiendo manifestado al Ministerio Don Mariano Espinosa, corresponsal del Jardín Botánico de Madrid, haberse puesto en ejecución el vivero mandado establecer en la de 16 de mayo de 1813, es de éste, del que se solicita saber las causas de su decadencia, inferidas, sin duda, porque desde el siguiente en que dicho Espinosa remitió un cajón de semillas, parece no haber continuado con las remesas; y debe ser así, pues me consta que este individuo hace años que está enfermo y que por esta causa ha descuidado el único jardín que le he conocido en el patio de su casa, donde es cierto que hay algunos árboles interesantes, pero no semillas y plantas pues las varias semillas, y algunas plantas vivas que ha remitido, han sido fruto de sus excursiones en el campo...<sup>26</sup>.*

The complexity of what he is doing is clear, for while Alejandro Ramírez used the government orders authorizing the garden in 1813 and in 1814, to set up the new scientific establishment, the director of the garden reported that it was another garden, and not Espinosa's nursery<sup>27</sup>. José Estévez's participation in the initial development of the Botanical Garden of Havana was also limited, in spite of his possible appointment as Professor of Botany at the new institution. In the same year, the new Superintendent charged the French chemist Saint André with the creation of a chemical laboratory, but Saint André died in 1819, a victim of the yellow fever. This new situation forced

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<sup>25</sup> "Botánica y química", *Memorias*, vol. 4 (1817), pp. 15-16. Archivo General de Indias, AGI, Santo Domingo, leg. 1714.

<sup>26</sup> By Royal Order, communicated on 24 February, the Captain General of the island is asked about the state of the Havana nursery. This is affirmed in communications of May 16, 1813 and January 18, 1814. Because of this, I deduce you are not referring in this order to the garden that the Economic Society, directed by Don Alejandro Ramírez, put under my supervision, because this is another garden. If you wish to know about the nursery, you must refer to Don Mariano Espinosa, correspondent of the Botanical Garden of Madrid, who was charged to create it by the royal orders of 1813 and 1814. I can confirm that Don Mariano Espinosa sent a box of seeds to Madrid, and after that he sent no more. I also know he has been ill for some years, and that for this reason he has neglected the only garden of his that I have known, his own garden, where it is certain there are some interesting trees, but no seeds or plants because the several seeds, and living plants he sent, were the fruit of his trips in the field. AGI, Santo Domingo, leg. 1714.

<sup>27</sup> ANC, Intendencia de Hacienda, leg. 1124, no. 133; Archivo Histórico Nacional (AHN), Ultramar, Cuba, Fomento, leg. 63/14, no. 22.

Alejandro Ramírez to order the establishment of the chemistry class in February 1820 under the direction of the Italian doctor José Tasso, following José Estévez's resignation. Despite the importance of the chemistry laboratory to advances in the cultivation and production of sugar cane, it could not be begun without money, according to José Antonio de la Ossa's report in 1821<sup>28</sup>.

In spite of these obstacles, little by little the botanical garden grew thanks to the financing that Ramírez supplied from the Superintendency of Finance<sup>29</sup>. Ossa had the clear intention of collecting the whole flora of the island within it. With this in mind, in addition to the director's own trips, he requested the collaboration of local people through an advertisement in the *Diario de Gobierno de La Habana* in 1818. Ossa offered three *pesos* for every tree or bush sent to him and one *peso* for the '*matas e hierbas*'. But Ossa did not do what he said he would do and he began a relationship with the main European botanical centers. Ossa wrote in 1821 that he had received numerous seeds to enrich the garden and some living plants from Hamburg, sent by Matías Averoff, and from North America sent by the honorary official Luis Paine. We can assume that most of the received seeds were compensation for those that the director of the Botanical Garden of Havana sent, according to his own words, to the gardens of Vienna, Prussia, Palermo, and Geneva<sup>30</sup>. The Botanical Garden of Havana had been transformed into an entity autonomous of Madrid. It had been established as an entity on which to build the history of the island of Cuba and as a place in which to make experiments for the economic development of the island, independent of the interests of the metropolis. This had been made possible because the metropolis simply did not stop them. As we can see, the division between different liberal groups continued around the recently created Botanical Garden. One group was in favour of a nursery while the other thought the Garden should be transformed into an experimental place for the economic development of the island<sup>31</sup>. At this stage the second position, i.e., the liberal autonomist position, had won. However, things were to change in the following years.

### **The centralist group gets control of the Botanical Garden**

Since the *Trienio Consitucional* (1820-1823) (Constitutional Triennium) began, there was a greater interest on the part of the metropolis in what happened in the Botanical Garden of Havana. The new liberal central government approved the creation of a Commission of Agriculture in Madrid, in which Mariano Lagasca and Antonio Sandalio de Arias participated. Both men were immediately interested in the state of the Havana Garden, although always in relation to metropolitan interests, and took as a base the government orders for the creation a nursery in 1813 and 1814. The Havana

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<sup>28</sup> AGI, Santo Domingo, leg. 1714; ANC, Miscelánea de Libros, 12518, Letra N; Luis Felipe le Roy Gálvez, "Historia de la primera cátedra de química en Cuba", *Revista Bimestre Cubana*, vol. 66 (1950), pp. 65-93.

<sup>29</sup> ANC, Intendencia de Hacienda, leg. 318, no. 33. The first detailed information on the structure of the Botanical Garden is in the "Extracto de las tareas de la Real Sociedad en el año 1808" which the Secretary of the Economic Society read to the members of the Economic Society. *Memorias*, vol. 6, no. 25 (1819), p. 23.

<sup>30</sup> José Antonio de la Ossa, "Habana. Jardín Botánico", *Diario del Gobierno de La Habana*, 24 February 1818, no. 55, pp. 3-4; Puig-Samper Mulero, *Historia del Jardín Botánico*; González Ripoll, *Cuba, la isla de los ensayos*.

<sup>31</sup> Puig-Samper Mulero, *Historia del Jardín Botánico*.



Superintendency of Finance received an order in 1821, through which the Commission of Agriculture requested a report on the state of the nursery in Havana. His answer was the report edited by José Antonio de la Ossa, to which I have already made reference, in which the confusion between Mariano Espinosa's nursery, and the new Botanical Garden supported by the Economic Society was indicated. Two days later, this same institution sent another petition which showed the metropolitan interest in the development of agricultural botany and the possible acclimatization of the 'useful plants' existing in the 'overseas domains'<sup>32</sup>:

*Entre las providencias que tengan por objeto el favorecer la agricultura, pueden considerarse como fundamentales las que por principios fijos y científicos traten de establecer su enseñanza en cátedras suficientemente dotadas. El rey está persuadido de que, si al establecimiento de esta enseñanza se agregase el de los jardines botánicos, destinados a la aclimatación de vegetales, podría esperarse con la mayor certeza que la agricultura de Ultramar, no sólo duplicaría dentro de pocos años sus productos, sino que ofrecería al comercio otros nuevos, que en el estado actual nos vienen de las colonias extranjeras o de los países de oriente*<sup>33</sup>.

This order arrived during the first stay of professor Ramón de la Sagra. The naturalist Sagra took Ossa's place in the direction of the Botanical Garden and turned the studies of Cuban botany towards agricultural research, as had been 'suggested' from the metropolis. The appointment of Sagra as Professor of Natural History in Havana was the result of Tomás Gener's support of his candidacy. Gener became Sagra's permanent protector, alongside two other Cuban deputies to the metropolitan parliament, Leonardo Santos Suárez and Félix Varela<sup>34</sup>. His appointment, however, given what his backers wished, put the natural history class and, later, the Botanical Garden, at the service of the economic needs of the peninsula and not of the farmers of the island. The natural history class, which substituted the botany class, was created, as stated in the disposition of the General Direction of Studies in June 1822, 'To spread in the nation the study of the natural sciences, to acquire new articles of utility for agriculture, the arts, trade and the illustration; and to establish honourable competition with foreigners, who become rich and increase their knowledge with the products of our own territory, at the expense of our negligence or ignorance'<sup>35</sup>. Sagra recognized in the preface to his physical observations made in the Atlantic Ocean, the connections between his appointment and the plans of the General Direction of Studies. On June 23, 1823, the Galician naturalist left for Cuba, arriving on the island on August 4, where he put the new class of agricultural botany into operation<sup>36</sup>.

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<sup>32</sup> ANC, Intendencia de Hacienda, leg. 318, no. 33.

<sup>33</sup> Teaching gifted individuals is one of the fundamental elements in the development of agriculture. The King is persuaded the teaching of botanical gardens, dedicated to the acclimatization of plants, should be added to this teaching. The result will be a doubling of production in overseas agriculture, and the introduction of new plants that now come to us from the foreign colonies and the countries of the East. I have taken this text from Ramón Meza, "Nuestro antiguo Jardín Botánico. *Revista Cubana de Ciencias, Filosofía, Literatura y Bellas Artes*, vol. 14 (1891), pp. 235-239.

<sup>34</sup> José López Sánchez, "Dos etapas en la vida de la Sagra", *Revista de la Biblioteca Nacional José Martí*, vol. 13 (1971), pp. 117-170 and 123.

<sup>35</sup> Archivo del Museo Nacional de Ciencias Naturales (AMNCN), leg. 13, carp. 2.

<sup>36</sup> 'Observaciones físicas hechas por Ramón Sagra en el Océano Atlántico, durante su viaje de La Coruña-La Habana, 1823', *Memorias*, no. 46 (1823), pp. 211-213; "Carta de Sagra a los Sres. De la Junta directiva del Gabinete de Historia Natural, Madrid, 28 de noviembre de 1822", in AMNCM, "Museo", leg. 13, carp. 2; "Carta de Ramón de la Sagra a los Sres. De la Junta Directiva del Jardín Botánico, Madrid, 28 de noviembre de 1822", in Archivo del Real Jardín Botánico (ARJB), I, 32, 5, 4; "Expediente

At the same time, Sagra began a campaign to put the Botanical Garden of Havana under his control in the place of its old director, José Antonio de la Ossa. With this objective, he intervened actively in the writing of the new regulations for the Garden. In this it was stated that the director would be, at the same time, the director of the Economic Society, with two inspectors as assistants and before long Sagra got the position of director. The new regulations also stated that the director of the Garden should have named correspondents of the institution in all the main cities of the island, who would send him samples of all the plants in the territory. At the same time, the new director must maintain direct and continuous correspondence with the Royal Botanical Garden of Madrid. With all this information the director should develop catalogues, herbaria and reports of the plants of the island and of the garden and should make sowing and acclimatization tests. To disseminate all these ideas he had a propaganda paper paid for by the Superintendent, the *Anales de ciencia, economía y comercio*. The character of the nursery, which served the needs of the metropolis, and not the interests of the island, was reflected in the regulation of its governance, and Sagra developed this regulation point by point<sup>37</sup>.

In his speeches, the Galician naturalist attacked the sugar monoculture, the old-fashioned forms of its cultivation and the industrial processes turning cane to sugar. Although Sagra believed that the basis for the development of the island was agriculture, he thought that this was still in its infancy. With this in mind he began to teach several courses of agricultural botany and he published *Principios Fundamentales* to serve as an introduction to the Botanical-Agricultural School. Between 1832 and 1833, he was able to establish a School of Agriculture, and he published 'Cartilla para el cultivo del cacao' and 'Memorias sobre el añil de Guatemala' in the *Anales*<sup>38</sup>. In the School of Agriculture, Sagra centred the greater part of his efforts on the experimentation and acclimatization of products of great value on the international market and on others that could be useful for the development of peninsular and European industry, such as wheat, corn, rice, palms, sarsaparilla, China-root, vanilla, etc., which demonstrates this naturalist's special interest in giving a practical character to the Botanical Garden. He began experiments in the garden and achieved the successful germination of twenty-six exotic species and sixteen natives, such as the india-rubber plant, Campeachy wood, the Benzoin tree, the locust tree, etc. As a result of these experiments, the Galician regularly sent plants to the Botanical Garden of Madrid and, in one of these shippings, on June 3, 1826, he supplied a list of plants that could be introduced into the peninsula: Guinea grass, diverse species of Muse, Marantha, pineapple, yucca, cotton, guava, pink pome, balm of Peru, mango, Campeachy wood, indigo, etc.. The cultivation of Guinea grass in the metropolis was

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sobre el nombramiento de D. Ramón de la Sagra para catedrático de historia natural, 1823-1824", in ANC, Gobierno Superior Civil, leg. 883, no. 29771; ANC, Junta de Fomento, leg. 203, no. 8987; ANC, Junta de Fomento, leg. 203, no. 8987.

<sup>37</sup> *Memorias*, vol. 8 (1824), pp. 597-598.

<sup>38</sup> "Discurso leído en la apertura de la cátedra de botánica agrícola, por su profesor D. Ramón de la Sagra, 10 de octubre de 1824"; "Carta de Ramón de la Sara al Excmo. Sr. Presidente y Señores de la Junta Económica y de Gobierno del Real Consulado, La Habana, 1 de diciembre de 1824", ANC, Junta de Fomento, leg. 203, no. 8987; "Carta de Ramón de la Sagra al Excmo. Sr. Presidente y Sres. De la Junta Económica y de Gobierno del Real Consulado. Jardín Botánico de La Habana, 3 de febrero de 1825", in ANC, Junta de Fomento, leg. 203, no. 8987; *Anales de economía, comercio e industria*, vol. 2 (1828).

especially interesting for Sagra, since artificial grasslands could be created out of this plant and so avoid the loss of livestock due to food shortages<sup>39</sup>.

In relation to an understanding of the territory, Sagra indicated in his first reports that he had been unable to go out into the field because of his numerous tasks. For this reason, he proposed to the *junta de inspección* of the Garden the appointment of correspondents of the Botanical Garden of Havana in different towns of the island. He also succeeded in getting the main authority on the island, the Captain General, to send a general letter to the authorities of the different cities ordering them to collect the botanical and agronomic data of each respective region. With all this information that, little by little, arrived Sagra made herbaria and reports on the characteristics of the flora, fauna and territories of the island<sup>40</sup>. Another important aspect for the development of the Havana Garden was the establishment of relationships with other scientific, and especially peninsular, institutions. In this sense, the Galician indicated in his report of 1827 that he maintained correspondence with the gardens of Madrid, Cádiz, Barcelona, Paris, Montpellier, Nancy, Geneva, Turin, Berlin, Copenhagen, Bologna, Padua, Florence, Rome, London, Oxford, etc. and other societies like that of agriculture in Lyon and Caen, of horticulture in London, and the Linneans of Paris, London and Boston, and the School of Natural History of New York, etc. He also explained the relationship established, through shippings of plants and seeds, with some celebrated European professors such as Desfontaines or Candolle<sup>41</sup>. During the same period, the Galician naturalist participated in the attempt to create an Academy of Medical Sciences in Havana<sup>42</sup>.

Although Sagra had obtained control of the Botanical Garden, transforming it into a nursery, against the group of liberal autonomists, this latter group created a parallel system of research that was under their control. After the Liberal Triennium,

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<sup>39</sup> "Informe sobre el estado actual del Jardín y de la cátedra de botánica aplicada a la agricultura, presentado por el profesor D. Ramón de la Sagra en las juntas generales de la Real Sociedad Patriótica de La Habana, a fines del año 1825", *Diario de La Habana*, 10 January 1826, pp. 1-2; Ramón de la Sagra, "Informe sobre el estado del Jardín Botánico en septiembre de 1828", in ANC, Instrucción pública, leg. 706, no. 44607.

<sup>40</sup> Sagra included a questionnaire in the letter that asked locals about Cuba's different geographical-physical aspects: the quality of the land, mountains, rivers, dry seasons and rainy, winds.; also geographical-economic elements: the quantity of production of sugar, coffee, tobacco, bananas, yucca, etc. He also asked for the names of trees, the land on which they grew, the uses they were put to, types of grasses and which were used for feeding livestock and could be of interest for the nursery. ANC, Junta de Fomento, leg. 179, no. 8226.

<sup>41</sup> Sagra maintained an intense correspondence with the following men: José Pavón, director and author of Peruvian and Chilean flora, in Madrid; Francisco Javier Lasso, secretary of the Economic Society of Cádiz; M. Bosc, director of cultivation of the King's Garden in Paris; M. Thiebaril de Bernard, from the Linnean Society of Paris; M. Rober, director of the Royal Marina Botanical Garden in Toulon; M. A.P. de Candolle, director of the Museum and Garden of Geneva; Carlos Martius, director of the Munich garden; M. Schoeffer, director of the Imperial Society of Sciences of Moscow; M. Zigna, director of the botanical garden of Riga; M. Otto, director of the garden of the King of Prussia in Berlin; and Mr. Samuel Mitchell, professor of natural sciences. He also maintained an intense correspondence with R. Desfontaines who had explored north África as Commissioner of the Academy of Sciences of France and who was professor of the Garden of Plants from 1786, and with André Thouin who was the person responsible for the Garden of Plants and the learning of Botany in France. *Anales*, vol. 1 (1827).

<sup>42</sup> He created this Academy of Medical Sciences in Havana in association with the doctors Francisco Alonso, Nicolás J. Gutiérrez, Tomás Romay, José Estévez, Agustín Encinoso, José de la Luz, etc. ANC, Junta de Fomento, leg. 179, no. 8226; Pedro M. Pruna, "¿Cómo se percibía la necesidad de una Academia de Ciencias en la Cuba colonial?", in *Conferencia científica por el CXXV aniversario de la fundación de la Academia de Ciencias Médicas, Físicas y Naturales de La Habana* (Havana, 1986), pp. 7-18.

Arango continued to lead them, but the generation of ideologists represented by José Antonio Saco and Domingo del Monte came to push forward the ideas of the next generation. Del Monte was able to create a Commission of Literature inside the Section of Education and with it several publications, including the most important, the *Revista Bimestre Cubana*. In this publication José Antonio Saco explained that they believed it was necessary to understand and to account for the raw materials of Cuban territory, not with a colonialist end, but to help in the development of the internal economy of the island. For this reason, the *bayamés* defended the necessity of carrying out thorough transformations in the techniques of cultivation of sugar cane and other products. He explained that it was necessary to carry out an inspection trip to Jamaica, to copy machines and technical ideas, and, most important, to create a chemistry class that, next to that of botany, would have the mission to research in order to improve the yields of the cultivation and production of sugar cane. His criticisms were also directed towards the maintenance of slavery on the sugar plantations, because the increasing cost of slaves would finish by getting farmers into debt to the level that would make the plantations unprofitable. He also insisted on the need to look for new sources of wealth in other sectors like mining, the development of cattle raising that was compatible with sugar agriculture and the development of manual occupations. He did, of course, insist on the need to improve the infrastructure of the island<sup>43</sup>.

In 1827, Arango produced a report with Juan Montalvo and Joaquín Pérez Urría, about the need for, a '*suitable*' person to go to '*Jamaica to examine the state of advance of the cultivation and development of the colonial fruits in the island of Cuba*', in imitation of the journey at the end of the previous century. Disregarding the petition, Arango insisted on the same thing in 1828 and 1829. The government approved his plan that year. At the same time the '*suitable*' person Arango required arrived in Havana: Alejandro Oliván y Borrue, a liberal Aragonese belonging to the Arango circle in Madrid. He had made connections with the sugar elites during his first stay in Cuba in 1828, and was related to Arango by marriage. Oliván's trip was over two years long and it took him to Jamaica and other English possessions in the Caribbean, as well as to England, France, Belgium and Holland, where he visited the main factories and made contact with specialists in agriculture, chemistry and engineering, such as Alexander von Humboldt and Gay-Lussac. The result of the trip was published in 1831 with the title *Informe a la Junta de Gobierno del Consulado de Agricultura y Comercio*. In it Oliván reached the conclusion that the creation of a chemistry school was an urgent matter<sup>44</sup>.

Meanwhile, Francisco Arango was designated to develop the *Plan de estudios superior de Cuba* (Plan of Higher Education of Cuba) and, among the items he proposed, he considered the creation of a chemistry class an urgent necessity in order to perfect and increase the productivity of sugar cane. He was concerned about the gigantic increase in the cultivation of cane in Brazil, the ease and cheapness with which shipping went to the Philippines and India, the astonishing increase of beet sugar manufacture in France and the alarming growth in the number of sugar plantations in the states of the south of the United States. As a result of all these pressures, the government approved the establishment of a chemistry class in March. At the moment of its creation a new dispute took place between Arango and Pinillos about the best person to direct it:

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<sup>43</sup> Saco, *Papeles*, vol. 2.

<sup>44</sup> AHN, Ultramar, leg. 126, no. 13, 14, 16 and 17; AHN, Ultramar, leg. 29, no. 21 and Ultramar, leg. 126, no. 1, 14 and 15.

Manuel Pérez del Castillo or Alejandro Oliván. After several years of confrontation, the class and the chemistry laboratory were directed by Alejandro Oliván, for the first few years, and later on by José Luis Casaseca, both members of the group around Arango and del Monte. The gentlemen of the sugar oligarchy had been able to create a parallel system of research put to the service of their needs and not to those of the metropolis<sup>45</sup>.

During these last years of struggle between different power groups, cholera arrived in Havana and on the island. Ramón de la Sagra argued that the epidemic arose out of the characteristics of the weather and the tropical territory, which were both favourable to the development of the disease. He did not admit to the possible contagious character of the disease, and, for that reason, felt that these inferior territories should be under the protection of the metropolis. Opposing this, Saco explained that cholera spread over the island as a consequence of infection and not as a result of the characteristics of its land and weather. The following year, the new Captain General of the island, Miguel Tacón, ordered the expulsion of José Antonio Saco from Cuba, for his *'too exalted'* ideas and, in 1835, Ramón de la Sagra moved to the peninsula with a great quantity of material which he used to write his monumental *Historia física, política y natural de la isla de Cuba* (1837-1861), the biggest inventory ever written about the natural resources of Cuba, for which he had the government's financial support<sup>46</sup>.

After Sagra left the island in 1835, the scientist Pedro Alejandro Auber, Sagra's candidate, was appointed director of the Botanical Garden and the class of botany to continue Sagra's task in Havana. However, the new orientation of the botany class and the possible improvement of the Botanical Garden was in crisis in 1838, as a result of the outcome of a conflict between the Captain General, Miguel Tacón, and the Superintendent of Finance, Claudio Martínez de Pinillos, the two major authorities of the island. Pinillos wanted to build a railroad station where the Botanical Garden was located. Tacón opposed this plan, but the powerful Superintendent, after replacing Tacón with Joaquín de Ezpeleta in 1838, built the station and put an end to the first Botanical Garden of Havana<sup>47</sup>.

The very same gentlemen sugar planters, who had backed the introduction of new scientific knowledge in Cuba from the second half of the eighteenth century, hoping that science would contribute to the improvement of sugar production and the

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<sup>45</sup> In 1838, the Superior Governmental Meeting of Pharmacy created another chemistry class, but applied this time to pharmacy. It was also directed by Casaseca who, with the government's permission, went to the peninsula in 1842 and then to France, Belgium and England to study the methods and techniques there used for the best developments of sugar. He translated the work of Berossus and Cail. AHN, Ultramar, leg. 29, no. 21; ANC, Gobierno Superior, leg. 653, no. 20449; Luis F. Leroy Gálvez, "Breve reseña histórica sobre la primera cátedra de química en Cuba y el primer químico cubano", *Revista de la Biblioteca Nacional José Martí*, vol. 2, no. 2 (1951), pp. 71-80 and "Documento que establece la fecha de inauguración de la primera cátedra de química en Cuba", *Revista de la Biblioteca Nacional José Martí*, vol. 4, no. 4 (1953), pp. 107-110.

<sup>46</sup> Adrián López Denis, *Saco, Sagra y el cólera morbo* (Pinar del Río, 2000); Adrián López Denis, "Higiene pública contra higiene privada: cólera, limpieza y poder en La Habana colonial", *Estudios Interdisciplinarios de América Latina y el Caribe*, no. 14 (2003), pp. 103-125; A. Briggs, "Cholera and society in the nineteenth century", *Past and Present*, no. 19 (1969), pp. 76-96; Erwin Ackerknecht, "Anticontagionism between 1821 and 1867", *Bulletin of the History of the Medicine*, no. 22 (1948), pp. 562-593; Alain Corbin, *Del perfume o el miasma. El olfato y lo imaginario social. Siglo XVIII y XIX* (México City, 1987).

<sup>47</sup> AHN, Ultramar, Cuba, Fomento, leg. 3, no. 7; Emilio Auber, "Recuerdos", *Revista de Canarias*, vol. 2, no. 36 (1880), pp. 145-149.

economic growth of the island, put an end to the Garden. In this fact there was no an apparent contradiction, since the 'cientifista' ideology of the sugar elite had evolved over time towards new and different scientific-technological objectives, although the main one was, without a doubt, the steam revolution. The basic sciences with possible applications and the initial hope of finding some solution to sugar production with agricultural botany, that had in fact improved the varieties of sugar cane, had succumbed to the development of the new chemistry, which seemed to offer more answers to the demands of production. It was surely not by chance that, when the Botanical Garden died in the 1840's, the chemist Casaseca was able to establish a chemistry class at the University of Havana and, in 1848, the Institute of Chemical Research of Havana, whose most important publication was the book *Ensayo sobre el cultivo de la caña de azúcar* in 1862<sup>48</sup>.

## Conclusions

The Spanish Crown, more through circumstance than by conviction, was forced to convert peninsular territory into a national state composed of citizens during the first half of the nineteenth century. At the same time that these transformations were being made in the metropolis, the different governments had to think about what part the American domains played in the Spanish nascent state. Most peninsular liberals, and a part of the Havana elite, were not in favour of inserting the overseas territories into the process of formation of the liberal state, and instead wanted to give them a politically inferior category through legislation, thus maintaining the status quo. However, a group of intellectuals from the island, supported by some of the most powerful families of the Havana sugar oligarchy, did not feel comfortable with the position of colony to which their territories were relegated in the new liberal state<sup>49</sup>. Their answer was to try to get a more favourable situation for their own interests and those of the island inside the new state under construction. For that reason, they supported and actively participated in the construction of a concept of Cuban autonomous identity as distinct from that of the peninsular. José Antonio Saco and Ramón de la Sagra, and the circle of intellectuals around them, were responsible for giving form to these projects. The confrontation around the purpose of the Botanical Garden of Havana and the origins of the cholera epidemic that took place at its heart, are two of the most important examples demonstrating the division of the liberals of the island. Finally, Cuba was reduced to the category of colony, governed through the *Leyes de Indias* (Laws of Indies), a code of the Ancien Régime, appropriate perhaps for despotic government, but not adapted to the needs of the island at that time.

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<sup>48</sup> ANC, Intendencia General de Hacienda, leg. 318, no. 33 and Intendencia de Hacienda, leg. 15, no. 797.

<sup>49</sup> Joan Martínez Alier, *Cuba, economía y sociedad: esclavitud y racismo* (París, 1972); Louis A. Pérez, *Cuba: Between Reform and Revolution* (New York, 2006); Louis A. Pérez, *On becoming Cuban: identity, nationality and culture* (Chapel Hill, 1999); Joan Casanova, *Urban labor and Spanish Colonialism in Cuba, 1850-1898* (Pittsburg, 1998).