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Cannabis Yarn in the Spanish and English Empires. Different Policies, but the Same Results?

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Since the 16th century, the maritime empires of Spain and England faced a major logistical problem to supply their merchant and military fleets with materials made of hemp. This difficulty increased as both empires were incorporating the new American territories into their possessions, because of the impact that this expansion had on the increase in the number of vessels needed to keep the parts of the empire connected. Since most of Europe's hemp came from the Russian Empire, what to do when trade with the Baltic was interrupted by the war, and, in addition, in the American biota, hemp did not exist? This article uses a comparative methodology to focus on and analyse the measures implemented to achieve the objective of sufficiency of a strategic commodity such as hemp.

KEYWORDS hemp, empires, globalisation, crops, strategic commodities

We can think of no better simile than to compare hemp in the Early Modern Age with oil today, as both enjoy the status of strategic products for national economies and, more specifically, each has determined the planning of specific policies by governments for their production, their industrial transformation and distribution. The main reason hemp became a strategic raw material was its close ties with shipbuilding; this plant was used to manufacture the ropes and sails of the ships that took part in and made possible the great overseas expansion of many nations at that

A first approach to this question: Manuel Díaz-Ordóñez, 'Radiografía de un fracaso angloespañol: el cáñamo, un producto que debería de haber llegado de América durante los siglos XVI–XIX', *Obradoiro de Historia Moderna*, 27 (2018), 263–89 <http://dx.doi.org/10.15304/ohm.27.5138>; Manuel Díaz-Ordóñez, 'Las nuevas periferias americanas en la circulación de cáñamo y jarcia para la construcción naval militar española en el siglo XVIII', *Magallánica. Revista de Historia moderna*, 11, 6 (2019), 181–202.

time. From 1500 onwards, control of the new American peripheries would result in some European countries becoming enormous maritime empires, dependent upon vast fleets of sailing ships laden with manufactured hemp in the form of sails, rigging, hammock, ropes, wicks and canvas. Therefore, thousands of tons of hemp were produced and distributed in an antagonistic race between empires that were advancing in their development as great powers. This generated new economic policies and measures to promote agriculture, technological and industrial innovation, and the development of new forms of trade on a global scale. The study of these factors soon provided a key idea that this complex competition could only take place with the collaboration of the state and individuals, and on an increasingly global scale. In essence, it seems interesting to insert this contribution into the fruitful discussion of current historiographical debates on the mobilisation of resources for war by the state, or the role of the contractor state as a consumer of arms and war materiel,¹ along the lines of the academic discussion on the formation of the modern state.

This article mainly focuses upon the decisions that the European empires of Spain and England, as transnational institutions in their global operations, had to take when they discovered that there was no hemp in the Americas. This presented both empires with the challenge of exploring two main strategies: either they would have to organise a system of supply of hemp and its derivatives to supply their colonies, initiating a purchasing system in the Russian Empire which would be the great supplier of strategic naval materials during the age of sail.² In addition, this system of acquiring hemp derivatives would have to be safe, extensive and economical. Alternatively, they would have to move cultivation to the new peripheries, which would involve an environmental clash between the different habitats of Eurasia and America and, subsequently, create and develop specialised hemp manufacture in America.³

¹ The discussion of the contractor state has produced a rich historiography of texts that have addressed this concept from different approaches. A sample in Roger Knight and Martin Wilcox, *Sustaining the fleet, 1793–1815: war, the British Navy and the contractor state*, (Woodbridge: Boydell Press, 2010); Rafael Torres-Sánchez, *Military entrepreneurs and the Spanish contractor state in the eighteenth century*, (Oxford: Oxford University Press, 2016); Richard Harding and Sergio Solbes-Ferri (eds.), *The contractor state and its implications, 1659–1815*, (Las Palmas de Gran Canaria: Universidad de Las Palmas de Gran Canaria, 2012).

² J. K Fedorowicz, *England's Baltic Trade in the Early Seventeenth Century: A Study in Anglo-Polish Commercial Diplomacy* (Cambridge: Cambridge University Press, 1980); Milton E. Miller, 'Naval Stores and Anglo-Russian Encounters in the Baltic: The English Expedition of 1715', in *Ships, Seafaring, and Society: Essays in Maritime History*, ed. Timothy J. Runyan and Great Lakes Historical Society (Detroit: Published for the Great Lakes Historical Society by Wayne State University Press, 1987), 167–82; Chris Evans and Göran Rydén, *Baltic Iron in the Atlantic World in the Eighteenth Century* (Leiden; Boston: Brill, 2007), <http://dx.doi.org/10.1163/ej.9789004161535.i-360>; Lennart Bes, Hanno Brand, and Edda Frankot, *Baltic Connections Archival Guide to the Maritime Relations of the Countries around the Baltic Sea (Including the Netherlands) 1450–1800* (Leiden; Boston: Brill, 2007); James Davey, 'Securing the Sinews of Sea Power: British Intervention in the Baltic 1780–1815', *International History Review* 33, no. 2 (2011): 161–84.

³ A. W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (Cambridge: Cambridge University Press, 1986).

The first option would connect the hemp produced in the distant Russian fields with England and Spain, where it was transformed into different articles for ships and, from there, sent by sea to America or the Philippines. The second option would necessitate the transfer of Russian seeds and experienced peasant harvesters to American territory. Both would thus involve complex political, human and economic processes that were building global connections integrating regions which were very far apart. Ultimately, the empires of the modern age had to mobilise strategic resources on a global scale, which we consider to be another element of the complex multidimensional phenomenon represented by early globalisation.⁴ With regard to this last process, we do not support the definition defended by authors such as Kevin O'Rourke and Jeffrey G. Williamson.⁵ They established the origin in the integration of markets and the convergence of prices that took place in the middle of the 19th century in Europe. On the contrary, our concept of globalisation is much more comfortable with the term 'early' in relation to this process, coinciding with Dennis O'Flynn and Arturo Giráldez.⁶ The term describes how, from the 16th century onwards, long-distance maritime connections increased, leading to the gradual connection, on an unprecedented planetary scale, of different cultures, economies, biologies, languages, religions and traditions. In other words, we are not interested so much in the impact of the volume of global economic implications, which were probably as marginal as Pieter Emmer has advocated,⁷ as in the construction of a system of relations between previously disconnected spaces. We therefore regard the analysis of hemp as a tool to better understand the phenomenon of early globalisation.⁸ This phenomenon was largely dominated by the European empires that became the main players in this global history of hemp, because they prompted its biological migration to the new peripheries.⁹ The

⁴ Bernd Hausberger, *Historia mínima de la globalización temprana* (México: El Colegio de México, 2018), 11.

⁵ Kevin O'Rourke and Jeffrey Williamson, *Globalization and History: The Evolution of a Nineteenth-Century Atlantic Economy* (Cambridge, MA: MIT Press, 1999); Kevin O'Rourke and Jeffrey Williamson, 'When Did Globalisation Begin?', *European Review of Economic History* 6, no. 1 (2002): 23–50, <https://doi.org/10.3386/w7632>; Kevin O'Rourke and Jeffrey Williamson, 'Once More: When Did Globalisation Begin?', *European Review of Economic History* 8, no. 1 (2004): 109–17.

⁶ Dennis O. Flynn and Arturo Giráldez, 'Path Dependence, Time Lags and the Birth of Globalization: A Critique of O'Rourke and Williamson', *European Review of Economic History*, 8,1 (2004), 81–108; Dennis O. Flynn and Arturo Giráldez, 'Born Again: Globalization's Sixteenth Century Origins (Asian/Global versus European Dynamics)', *Pacific Economic Review*, 13, 3 (2008), 359–87; Dennis O. Flynn and Arturo Giráldez, *China and the Birth of Globalization in the 16th Century* (Surry: Ashgate Variorum, 2010); Dennis O. Flynn and Arturo Giráldez, 'Los Orígenes de la Globalización en el siglo XVI', in *Oro y Plata en los Inicios de la Economía Global: de las minas a la moneda*, ed. Bernd Hausberger and Antonio Ibarra (México, D.F.: El Colegio de México, 2014), 29–76.

⁷ Pieter Emmer, 'The myth of early globalization: the Atlantic economy, 1500–1800', *European Review* 11, no. 1 (2003): 37–47; Pieter Emmer, 'The Myth of Early Globalisation: The Atlantic Economy, 1500–1800', *Nuevo Mundo Mundos Nuevos*, 2008, 1–10, <https://doi.org/10.4000/nuevomundo.42173>.

⁸ Jerry H. Bentley, 'Globalizing History and Historicizing Globalization', *Globalizations*, 1 (2004), 69–81; Jerry H. Bentley, Sanjay Subrahmanyam, and Merry E. Wiesner-Hanks, *The Cambridge World History*, 6, (Cambridge: Cambridge University Press, 2015), <http://dx.doi.org/10.1017/CBO9781139194594>.

⁹ Díaz-Ordóñez, 'Las nuevas periferias americanas', 190–1.

transfer process involved global connections that affected the rest of the world, as Flynn and Giráldez have argued.

These measures, taken by the European empires, can only be understood in the context of the rivalry and conflict between them, on a secular battlefield for political and economic domination and hegemony at sea and on land, achieved by force of arms. Recent historiography has shown that imperial rivalry can be considered an important factor in early modern globalisation.¹⁰ The methodology of comparative history appears to be the best way of tackling these complex processes that, on occasions, occurred at the same time, but almost always in different regions (Europe and Asia). Moreover, these differences and similarities can only be understood from the perspective of connected histories and the comparison of empires.¹¹ Thus, whenever possible, we shall approach the case of hemp cultivation in the Americas comparing the Spanish and British empires, analysing the political and economic measures implemented in order to supply this strategic product to their respective homelands and colonies.

This work focuses on the strategies developed by imperial states to foster hemp production during the 16th and 17th centuries, first in Europe, and later in the American continent. It is based on recent international historiography, and first-hand Spanish and English archival sources. It further develops several topics we have addressed in our recent publications, namely, the different measures adopted by the Spanish monarchy to promote hemp cultivation in the Iberian Peninsula, its dependence on Baltic imports, and its attempts to promote production in its American possessions.

Hemp between 1500 and 1800: a starting point

At the start of the 19th century, the new nations that emerged on the American continent continued to be heavily dependent on European – mainly Russian – hemp. This situation, studied some time ago by Alfred W. Crosby for the case of the USA, reinforces the argument that England had succeeded in creating a market of exchange of colonial products obtained in North America, especially tobacco, for strategic products for shipbuilding.¹² This market development eventually led to a relationship of mutual dependence in which the Tsar obtained income from the sale of US tobacco in his empire, whilst the new republic fitted its ships to the extent that ‘America was, for most purposes, completely dependent on Russia for this rope fiber’.¹³

¹⁰ Hausberger, 18; Manuel Díaz-Ordóñez, ‘El “triumfo” de la administración directa en el abastecimiento estratégico de jarcia y lona a la Real Armada española en el arsenal de Cartagena en 1751’, *Obradoiro de Historia Moderna*, 26 (2017), 149–77.

¹¹ Sanja Subrahmanyam, ‘A Tale of Three Empires: Mughals, Ottomans, and Habsburgs in a Comparative Context’, *Common Knowledge*, 12, 1 (2006), 66–92; J. H. Elliott, *Empires of the Atlantic World: Britain and Spain in America 1492–1830* (New Haven: Yale University Press, 2008); Jane Burbank and Frederick Cooper, *Empires in World History Power and the Politics of Difference* (Princeton: Princeton University Press, 2010).

¹² A. W. Crosby, *America, Russia, Hemp, and Napoleon: American Trade with Russia and the Baltic, 1783–1812* (Columbus: Ohio State University Press, 1965), 6; Nadra O. Hashim, *Hemp and the Global Economy: The Rise of Labor, Innovation, and Trade* (Lanham: Lexington Books, 2017), 27–8.

¹³ Crosby, *America, Russia, Hemp, and Napoleon*, 17.

Since Crosby's study, subsequent works have been more related to specific aspects of the hemp economy. The most recent book to deal with this question by Nadra O. Hashim analyses how hemp was integrated within the economic activities of large areas of the USA, provoking significant changes in labour relations.¹⁴ An important part of this work is a reconstruction of the history of hemp in North America, which permits comparison with work on the development of the hemp economy in Spanish America.¹⁵

This historiography offers a fairly clear picture, in which the empires of Spain and England seem to have depended, until the 19th century, on hemp imports from the Russian empire.¹⁶ This option, however, did not convince the imperial thinkers and leaders of the age, deeply concerned by the excessive dependence on a single supply market for a strategic product. In fact, in this context, it comes as no surprise that many contemporary authors, traders, politicians and some civil servants and soldiers in both empires began to think of the potential benefits of using natural American resources. They thought that metropolitan agricultural production could be increased by cultivating strategic inputs or colonial products on the large American arable land areas, creating a new supply of productive land which Kenneth Pomeranz defined as 'ghost acreages'.¹⁷

The Europeans reach America and find no hemp

Both the Spanish, early in the 16th century, and the English, from the last quarter of the century onwards, realised that, in the territories they were exploring in America, there was no hemp among the indigenous plants of the continent. The absence of this fibre from the American territories that came under Spanish control made it necessary to use alternative fibres that they found there, including vines, lianas, agave and damahagua, depending on their accessibility.¹⁸ In North America,

¹⁴ Hashim, *passim*.

¹⁵ Ramón María Serrera Contreras, *Cultivo y manufactura de lino y cáñamo en Nueva España, 1777–1800* (Sevilla: Escuela de Estudios Hispano-Americanos de Sevilla, 1974); José Patricio Merino Navarro, 'Cultivos Industriales: El Cáñamo En España (1750–1800)', *Hispania: Revista Española de Historia*, 35, 131 (1975), 567–84; Manuel Díaz-Ordóñez, 'La Burguesía Barcelonesa, El Asiento de Jarca y El Comercio Con América', in John R. Fisher (ed), *Actas Del XI Congreso Internacional de AHILA* (Liverpool: Inst. de Estudios Latinoamericanos, 1998), 156–83; Manuel Díaz-Ordóñez, 'El Cáñamo y La Corona Española En Ultramar: América y Filipinas (Siglos XVI–XVIII)', *Revista de Historia Naval*, 90 (2005), 45–60; M. Díaz-Ordóñez, *Amarrados al negocio: reformismo borbónico y suministro de Jarca para la Armada Real (1675–1751)* (Madrid: Ministerio de Defensa, Secretaría General Técnica, 2009); Manuel Díaz-Ordóñez and José Antonio Rodríguez-Hernández, 'Cannabis sativa y Chile (1577–1700): un insumo al servicio del imperio', *TEMPUS Revista en Historia General*, 6 (2017), 1–21.

¹⁶ Hashim, 66.

¹⁷ Kenneth Pomeranz, *The Great Divergence: China, Europe, and the Making of the Modern World Economy* (Princeton: Princeton University Press, 2000), 275.

¹⁸ Joaquín García Icazbalceta, *Colección de documentos para la historia de México*, vol. 1 (México: Librería de J. M. Andrade, 1858), 244; Antonio Sánchez Valverde, *Idea del valor de la isla española de Santo Domingo*, (Santo Domingo: Imprenta nacional, 1862), 50; Juan López de Velasco, *Geografía y descripción universal de las Indias: desde el año 1571 al de 1574* (Madrid: Establecimiento Tipográfico de Fortanet, 1894), 95; Alonzo de Zorita, *Historia de la Nueva España*, vol. 1 (Madrid: Librería General de Victoriano Suárez, 1909), 128.

the French and English reached the same negative conclusion regarding the presence of this plant in their travels, along the coast from Virginia to the Gulf of St. Lawrence in Canada.¹⁹ Like the Spaniards before them, the English who settled in America also had to resort to local plant fibres that could partially substitute for European hemp.²⁰

The absence of hemp in the Americas confronted the authorities of both empires with the problem of how to supply their respective machines of continental dominance. The need was acute because the groups of Spanish and English explorers, soldiers, sailors, traders and even farmers participating in the penetration of the continent demanded vast quantities of ropes, harnesses, tackle for cattle, sacks, canvasses, wicks, rigging and sails. Soon, recourse to alternative American plants in order to cover these needs proved insufficient. Technical reports or mentions provided in contemporary bibliography reflect the technical inferiority of the fibres obtained from these plants, in comparison with the characteristics of hemp.²¹

Realising that the American plants could not replace the European fibre on a permanent basis, the imperial governments began to deploy measures to transfer the cultivation of hemp to the new continent. To this end, the Spaniards began to send Russian and Spanish seeds from at least 1513 onwards in order to establish permanent harvests in America.²² A fundamental strategy of the monarchy itself was to load the ships destined for the new territories with the materials required by the conquest.²³ Years later, around 1530, sources refer to the existence of some small hemp harvests in Mexico (Coyoacán and Mexcaltepec).²⁴ After 1545, the monarchy decided to expand the arable areas, taking advantage of the pacification of some zones in Chile. In 1545, the emperor ordered that hemp seeds be planted in those regions and that, if fibres were obtained, the local natives should be put to work to produce derivatives. Despite this royal command, the introduction seems to have failed. Although we are unsure as to the precise timing of the introduction

¹⁹ Jonas Howe, *Early Attempts to Introduce the Cultivation of Hemp in Eastern British America* (Saint John: New Brunswick Historical Society, 1892), 1; William Douglass, *A Summary, Historical and Political, of the First Planting, Progressive Improvements, and Present State of the British Settlements in North-America* (London: R. and J. Dodsley, 1740), 161.

²⁰ Francis Higginson, *New-England's Plantation: Or, a Short and True Description of the Commodities and Discommodities of That Country* (London: T. C. and R. C. for Michael Sparks, 1630), 7; J. Leander Bishop, *A History of American Manufactures from 1608 to 1860*, vol. I, (Philadelphia: E. Young & Co., 1861), 16 and 27; Richard Hakluyt, *A Discourse Concerning Western Planting*, written 1584, (Cambridge: Press of J. Wilson, 1877), 155.

²¹ Archivo General de Indias (henceforth AGI), Indiferente, 100. Andrés Gómez to José de Gálvez; Madrid, 6 May 1778. J. Juan and A. de Ulloa, *Noticias secretas de América*. (London: Printed by R. Taylor, 1826), 62; Lee J Alston, Shannon. Mattiace, and Tomas Nonnenmacher, 'Coercion, Culture, and Contracts: Labor and Debt on Henequen Haciendas in Yucatán, Mexico, 1870–1915', *The Journal of Economic History*, 69, 1 (2009), 104–5.

²² AGI, Contratación 4675A, L. 2, Libro de cargo y data, F. 258

²³ AGI, México, 1068, L. 2, Real Cédula; Medina del Campo, 20 March 1532.

²⁴ Andrés Cavo, *Los tres siglos de Méjico durante el gobierno español, hasta la entrada del ejército trigante*. (México: Imprenta de J. R. Navarro, 1852), 34; Laura Maria Iglesias Gómez, *La Transferencia de Tecnología Agronómica de España a América de 1492 a 1598* (Madrid: Ministerio de Industria, Turismo y Comercio. Oficina Española de Patentes y Marcas, 2008), 268, 300.

of hemp, it appears that the transfer of this crop to Chilean soil only took place during the last quarter of the 17th century.²⁵

From the early 17th century onwards, the English, who were settling on the North American Atlantic coast, also required considerable quantities of hemp, to the extent that the Crown had to accept that the migration of hemp was the only solution. As had occurred in the Spanish case, the physical transfer of hemp to the new world thus became a goal of early expeditions.²⁶ The first crops were obtained in 1606 in Acadia, Canada,²⁷ where the explorers thought that the climate and environment were very similar to those of the Baltic.²⁸ Sources suggest, however, that these first crops did not really flourish, with similarly poor results to those obtained in subsequent harvests in fields near Jamestown.²⁹ As an initial explanation for this, some authors comment that the pre-existence of tobacco in the agricultural rotations of Virginia as a high-yield product acted as an obstacle to the development of hemp.³⁰ According to this argument, the colonial farmers preferred to devote their resources to the cultivation of tobacco because they knew that it was much more in demand as an export to Europe. Paradoxically, tobacco was also one of the main barter items with which the English acquired Russian hemp in the Baltic ports.³¹

Cannabis in the Americas in the 17th century

By the mid-17th century, the Spanish managed to stabilise hemp harvests in Chile, having abandoned those previously attempted in Mexico on account of their poor yields. These lands produced about 100 tons a year, manufactured by the natives working there, providing various products such as rope, harnesses, rigging and wicks.³² These products were subsequently exported to Peru where there was

²⁵ Luis Correa Vergara, *Agricultura chilena.*, vol. 2 (Santiago de Chile: Imprenta Nascimento, 1938), 310.

²⁶ Bishop, I, 310; Paolo Ronchetti, 'The Barriers to the Mainstreaming of Lime-Hemp: A Systemic Approach', M.Sc. thesis, (Dublin: Dublin Institute of Technology, School of Spatial Planning, 2007), 16.

²⁷ Ernest Small and David Marcus, 'Hemp: A New Crop with New Uses for North America', in *Trends in New Crops and New Uses*, ed. Jules Janick and Anna Whipkey (Alexandria: ASHS Press, 2002), 284–326.

²⁸ Ronchetti, 15.

²⁹ Alexander Brown, *The Genesis of the United States; a Narrative of the Movement in England, 1605–1616, Which Resulted in the Plantation of North America by Englishmen, Disclosing the Contest between England and Spain for the Possession of the Soil Now Occupied by the United States of America* (Boston and New York: Houghton, Mifflin and Company, 1890), 492; Lewis Cecil Gray and Esther Katherine Thompson, *History of Agriculture in the Southern United States to 1860* (Washington, D.C.: Carnegie Institution, 1933), 25; Randall M. Miller and John David Smith, eds, *Dictionary of Afro-American Slavery* (Westport: Praeger, 1997), 319.

³⁰ Anonymous, *American Husbandry. Containing an Account of the Soil, Climate, Production and Agriculture, of the British Colonies in North-America and the West-Indies; ... By an American. In Two Volumes*, vol. 1 (London: J. Bew, 1775), 143, 151, 162; *A History of American Manufactures*, I, 27–8.

³¹ Crosby, *America, Russia, Hemp, and Napoleon*, 6.

³² Manuel Díaz-Ordóñez, 'European Imperialism, War, Strategic Commodities, and Ecological Limits. The Diffusion of Hemp in South America and its Ghost Fibers', in *American Globalization. On the introduction of Old World's goods in the Americas (c. 1492–1898)*, ed. By Bartolomé Yun Casalilla, Ilaria Berti and Pedro Omar Sriz Wucherer (In press, Routledge).

considerable demand resulting from the urban growth of the viceregal cities of Cuzco and Ciudad de los Reyes (Lima). There was also demand from the increase in mining activities in Potosí and Huancavelica, and shipbuilding in the Pacific yards of Guayaquil and El Callao.³³ Indeed, shipbuilding and maintenance also explained the English interest in increasing hemp harvests in their American colonies.³⁴ This required the articulation of a stable dynamic of integration between the production of valuable raw materials like hemp and the increased construction of ships destined for trading and fishing in North America from the 1650s onwards.

For both countries, the strategic need for large quantities of hemp was at the centre of the ideological debate of certain theoretical representatives of commercial policy. In England, Thomas Mun voiced strong criticism in 1669 of the constant drain on precious metals employed by the English to purchase strategic products in Russia.³⁵ In parallel, he presented a mercantilist theoretical framework in the debate on the exploitation of American natural resources in the country's intellectual and political circles. In fact, the ideas of Mun and other authors of a similar mind established the principle of introducing new forms of agricultural development, which should transcend the traditional royal orders to nurture and care for these kinds of crops. Among these new ways of understanding hemp production, in England the subsidising of harvests was being introduced as a new and original formula. The first subsidies for hemp harvests were established in Maryland in 1671, 1682, 1688 and 1695, and, generally speaking, were offered by the boards and other governing bodies of the privileged companies that had interests in the area. This explains why American settlers, like Thomas Budd, argued that crops would be increased provided that the English population of the colonies appreciated their importance. To this end, he proposed raising public awareness based on an ambitious programme of hemp cultivation with other subjects taught in schools in English North America.³⁶ This British mercantilism was not very different from that which, in the same period, was expressed by Francisco Martínez de Mata, who requested that the monarchy introduce an appropriate system of colonial exploitation to halt the drain on precious metals that was bankrupting the nation.³⁷

³³ Juan and de Ulloa, 62; A. de Ramón, 'La Encomienda de Juan de Cuevas a La Luz de Nuevos Documentos 1574-1583', *Boletín de La Academia Chilena de La Historia*, 62 (1960), 90; *Agricultura chilena*, 2, 310; 'Cannabis sativa y Chile (1577-1700)', 8.

³⁴ Bishop, I, 49; A. S. Dewing, *A History of the National Cordage Company with a Supplement Containing Copies of Important Documents* (Cambridge: Harvard University Press, 1913), 5.

³⁵ Thomas Mun, *La riqueza de Inglaterra por el comercio exterior: Discurso acerca del comercio de Inglaterra con las Indias Occidentales* (México: Fondo de Cultura Económica, 1954), 59.

³⁶ Thomas Budd, *Good Order Established in Pennsylvania and New-Jersey in America: Being a True Account of the Country; with Its Produce and Commodities There Made. And the Great Improvements That May Be Made by Means of Publick Store-Houses for Hemp, Flax and Linnen-Cloth; Also, the Advantages of a Publick School, the Profits of a Publick-Bank, and the Probability of Its Arising, If Those Directions Here Laid down Are Followed. With the Advantages of Publick Granaries*. (S.l: William Bradford, 1685), 13.

³⁷ Francisco Martínez de Mata, *Los ocho discursos de Francisco Martínez de Mata, con uno de nuevo sobre el comercio nacional, en que se presentan las observaciones, que parecen adaptables al estado presente* (Madrid: Antonio de Sancha, 1777), 97.

Cannabis in the Americas in the 18th century

At the start of the 18th century, the hemp sector received a blow on a global scale, as a result of a phenomenon similar to the first oil crisis of 1973, triggered by the Yom Kippur war. The hemp crisis of the first decade of the 1700s was prompted by the conflict between the Russian-Danish alliance and Sweden during the Great Northern War (1700–21). One of the immediate effects of the conflict was the almost total interruption of the transport of strategic naval products between the Baltic ports of the Russian empire and Western Europe, because of the blockade enforced by the Danish fleet of the Sound. The Swedes retained control of Riga and Narva, important ports for the export of hemp and other strategic products, in their power from the last decade of the 17th century, while Russia was obliged to concentrate all its hemp shipping to Western Europe in the city of St. Petersburg. This meant that, although the ships that took on board hemp in this city flew neutral flags, Swedish inspections in the central and western Baltic complicated the flow of goods on the route from St. Petersburg to the Sound and other Danish straits. This led to limited supply and, consequently, an increase in hemp prices in the rest of Europe.³⁸

The biggest drop in Russian hemp exports occurred between 1701 and 1709, coinciding with the highpoint of Swedish naval and military control of the Baltic. The traumatic effects of the reduced supply upon the English, French and Spanish markets were decisive and encouraged opinions favouring exploitation of the alternative resources of America to reduce the strategic dependence of the European empires. The Council of the Indies began to discuss proposals along these lines in 1705, notable amongst which was that of Vicente Caralipio. The latter advocated taking Russian seeds himself, planting them in Nueva España and overseeing the harvest. In return, he requested that he be granted an exclusive contract to supply sailcloth, rigging and canvas for the Armada de Barlovento.³⁹ Caralipio's offer prompted debate in the Council and Philip V asked the Duke of Albuquerque for advice, pointing out that it was vitally important for the Spanish empire to put a brake on the flow of silver into Dutch and English hands and succeed in finding alternative hemp supplies to those that came from the Baltic.⁴⁰ This kind of offer made by entrepreneurs to the authorities, volunteering to develop cultivation in America, was also an option for the British Parliament, and proposals of this nature were issued from 1702 onwards.⁴¹

³⁸ L. R. Lewitter, 'Russia, Poland and the Baltic, 1697–1721', *The Historical Journal* 11, 1 (1968), 25; Roger P. Bartlett and Gabriela Lehmann-Carli, eds., *Eighteenth-century Russia: society, culture, economy: papers from the VII International Conference of the Study Group on Eighteenth-Century Russia* (Berlin; London: Lit, 2008); David Denis Aldridge, *Admiral Sir John Norris and the British Naval Expeditions to the Baltic Sea 1715–1727* (Lund: Nordic Academic Press, 2009).

³⁹ Archivo Histórico Nacional. Diccionario de gobierno y legislación de Indias. Codices, leg. 729 Tom. I (CAB-CER).

⁴⁰ Patronato Nacional. Real Biblioteca del Palacio Real de Madrid, Manuscritos, II/622, f. 74v–82v.

⁴¹ 'America and West Indies: December 1702, 21–31', in *Calendar of State Papers Colonial, America and West Indies: Volume 21, 1702–1703*, ed. Cecil Headlam (London: His Majesty's Stationery Office, 1913), 57–80. *British History Online* <<http://www.british-history.ac.uk/cal-state-papers/colonial/america-west-indies/vol21/>>, [accessed 23 May 2018], 57–80.

If Spain suffered from the Russian supply bottleneck resulting from the Russian-Swedish War, in England the consequences were far more serious. While the former succeeded in producing a certain amount of hemp on the Iberian Peninsula (Catalonia, Valencia, Castellón, La Rioja and Granada), albeit with considerable difficulty, in the 17th century, the English were almost entirely dependent upon what they obtained from Russia.⁴² Before it reached Parliament, the question of the cultivation of American hemp was the responsibility of the Board of Trade and Plantation, an institution that had been created in the wake of the first English settlements in America, but which by the early 18th century was already controlling colonial legislation. From 1702 onwards, the Board of Trade gathered information about the development of hemp plantations on American soil, enquiring about the major difficulties involved in their harvest and delivery to England. These reports usually reflected two difficulties vis-à-vis colonial trade in raw materials to England. First, hemp had not established itself as a competitive product among colonial agricultural products due to competition with other products, such as tobacco, which offered a higher profit margin.⁴³ Secondly, the texts highlight the fact that, even if it were possible to stimulate cultivation with local measures in America, the main problem would be to lower the operating costs resulting from having to ship an extremely bulky product (hemp plants) to England.⁴⁴ This last question became a fundamental one because some reports argued that these operating costs could be reduced if, instead of exporting the hemp plants from the colonies to the motherland, the finished products were exported in the form of sails, rigging or wicks, which were considerably less bulky.⁴⁵ Obviously, this solution required development of the hemp sector beyond agriculture, in other words, the establishment of a genuine colonial agro-industry that included planting, harvesting, preparation and industrial processing. In fact, the Spanish empire had been applying these kinds of measures of agricultural and manufacturing development of American hemp virtually since Columbus first set foot on the continent. Since the 16th century, Reales Cédulas had ordered the cultivation of hemp in the Spanish colonies and the use of natives in its transformation to improve the local, regional and imperial economy. In the British case, however, this option was being contemplated at a time when mercantilist theory was in full swing, and it was argued that English manufacturing sectors would oppose any initiative that might threaten their industrial interests. This was indeed precisely the case, since if Parliament supported the creation of manufacturing facilities in the colonies, these would soon be competing with native English producers. Furthermore, transportation and insurance costs could put production in England at a disadvantage in relation to American production. The opposition of these industrial lobbies finally convinced the Board of Trade to propose an intermediate measure, which would

⁴² David Goodman, *Spanish naval power, 1589–1665: reconstruction and defeat* (Cambridge: Cambridge University Press, 2002).

⁴³ Bishop, I, 27–8.

⁴⁴ *Ibid.* 328.

⁴⁵ Joseph Gee, *Considerations on the Expediency of a Bounty upon Hemp and Flax of Home Growth* (London: s. n., 1767).

promote development of the crop, but not damage the interest of manufacturers at home. Thus, in 1704, the British Parliament passed a law establishing a £6 subsidy for every ton of hemp produced in the colonies and exported to England, so that this sum might help the manufacturer to cover freight and insurance costs.⁴⁶ The Russian victory over the Swedish army in Poltava in 1709 partially restored the flow of hemp from the Baltic to Europe, a phenomenon that would be reinforced by the Russian occupation in 1710 of the city of Riga, which had been under Swedish control since 1621. Nevertheless, the geographical axis of the trading problem with regard to Russian hemp shifted momentarily to the North Atlantic, due to the naval battles during the War of the Spanish Succession (1701–13). The lack of maritime safety for English and Dutch traders, resulting from the actions of French and Spanish ships, had a negative impact upon the hemp trade.

The end of conflict in 1713 did not completely restore transport of the product via the Baltic, as navigation continued to be unsafe because of the actions of Russian and Swedish ships, military operations that persisted with varying intensity until 1721. Between these dates, the London Chamber of Commerce continued to receive petitions for the implementation of measures encouraging the agricultural development of hemp in America,⁴⁷ amongst which one might highlight the anonymous text of 1720, *Reasons for encouraging the manufacture of British sail-duck, and the growth of hemp and flax in Great-Britain*.⁴⁸ Acceptance of this kind of proposal was preparing the ground in such a way that, upon conclusion of the great conflict in the north in 1721, the settler Joshua Gee decided to present the Board of Trade and Plantation with a request that all colonial legislation be reviewed, so as to eliminate all obstacles to American cultivation and subsequent export to England.⁴⁹ Gee's main goal was to end the traditional English dependence on this strategic product in a practically monopolistic market like the Russian one which, moreover, was seriously affected by high-intensity conflicts like those of the previous two decades. This explains why, in 1722, the British colonial administration approved the extension of the payment of subsidies to hemp grown in Boston, Newport and Rhode Island and, in parallel fashion, authorisation was granted for the manufacture of rigging and sails in New York, alongside the River Hudson.⁵⁰

Similarly, in 1724 prominent trader, Luis Jerónimo de Uztáriz, declared that the Spanish empire should produce all strategic naval materials in its own

⁴⁶ Bishop, I, 328.

⁴⁷ Joshua Gee, *Consideraciones sobre el Comercio, y la Navegación de la Gran Bretaña* (Madrid: J. de San Martín, 1753), 101. Joshua Gee (1667–1730) is not to be confused with Joseph Gee from Lincolnshire who wrote *Considerations on the Expediency of a Bounty upon Hemp and Flax of Home Growth in 1767* and others works at late 1760s.

⁴⁸ Anonymous, *Reasons for encouraging the manufacture of British sail-duck, and the growth of hemp and flax in Great-Britain* (n.p., 1720), in L. W. Hanson, *Contemporary Printed Sources for British and Irish Economic History 1701–1750*, (Cambridge: Cambridge University Press, 1963), 277.

⁴⁹ Charles McLean Andrews, *British Committees, Commissions, and Councils of Trade and Plantations, 1622–1675* (Baltimore: Johns Hopkins Press, 1908).

⁵⁰ Bishop, I, 334; Dewing, 5; Robert Deitch, *Hemp: American History Revisited: The Plant with a Divided History* (New York: Algora Pub., 2003), 181; Robert A. Nelson, 'A History of Hemp', *Rex Research Civilization Kit*, <<http://rexresearch.com/hhist/hhist2.htm>> [accessed 10 July 2016].

territory,⁵¹ and thereby avoid excessive foreign dependence on trading in Anglo-Dutch hemp, escape the consequences of wars in the Baltic and North Atlantic and, finally, arrest the constant flow of silver required to pay for these articles.⁵² Unlike England, the geographical interest of the Spanish empire at the time was focussed on the Mediterranean, as a result of which plans for American hemp development were somewhat relegated. Chilean hemp production continued to provide large quantities and maintain the traditional regional circuit connecting Chilean agro-industry with the demand for hemp products in the Viceroyalty of Peru. According to mariners Jorge Juan and Antonio de Ulloa, members of La Condamine's scientific expedition to the region, these exchanges had gone beyond the Peruvian ports, with Chilean hemp then supplying the shipyards of Guayaquil and El Callao.⁵³

The influence of the Seven Years' War on the promotion of American hemp

The Seven Years' War brought further interruption of trade in Russian hemp, a phenomenon that caused English traders to reactivate emergency practices to ensure the supply of Baltic hemp. Thus, English traders were decisively involved in smuggling and in the use of neutral crews and ships from the United States, Holy Empire, Denmark or Portugal to reduce the control of the waters by their enemies.⁵⁴ Despite this, the shortage of this strategic material in British stockpiles in Europe and the Americas ended up stimulating development measures and, above all, enabling many settlers to request an increase in support measures for cultivation in America.⁵⁵ In 1761, John Rutherford, a landowner in North Carolina, wrote an important text, in which he defended the role of the colonies for the British Empire and in which he highlighted the situation of English dependence on Russian hemp, which was a strategic problem of vital importance.⁵⁶ Rutherford's ideas suggest that the American colonists of the 1760s were beginning to distrust England's excessive dependence on products so essential to its economy and

⁵¹ Luis Jerónimo de Uztáriz, *Theorica y practica de comercio, y de marina: en diferentes discursos, y calificados exemplares, que con especificas providencias, se procuran adaptar a la monarchia española, para su prompta restauracion ...* (Madrid: Imprenta de A. Sanz, 1742), 216.

⁵² *Ibid.*, 221.

⁵³ Juan and de Ulloa, 62, 84.

⁵⁴ Silvia Marzagalli, *Les Boulevards de la Fraude: le négoce maritime et le Blocus continental, 1806–1813: Bordeaux, Hambourg, Livourne* (Villeneuve d'Ascq: Presses Universitaires du Septentrion, 1999); Silvia Marzagalli, James R Sofka and John J. McCusker, eds., *Rough Waters: American Involvement with the Mediterranean in the Eighteenth and Nineteenth Centuries* (St. John's, Newfoundland: International Maritime Economic History Association, 2019), <https://doi.org/10.5949/liverpool/9780986497346.001.0001>.

⁵⁵ Patrick O'Brien, 'Was the First Industrial Revolution a Conjuncture in the History of the World Economy?', *Economic History Working Papers* (London: London School of Economics and Political Science, 2017), 22, https://nls.lids.org.uk/welcome.html?ark:/81055/vdc_100047993521.0x000001, [accessed 15 August 2018].

⁵⁶ John Rutherford, *The Importance of the Colonies to Great Britain with Some Hints towards Making Improvements to Their Mutual Advantage: And upon Trade in General* (London: Printed by J. Millan, 1761), 5.

defence.⁵⁷ Some authors even note that the English settlers' ships began to evade British control and trade directly with the Russian empire, sailing to the Russian ports to acquire strategic products.⁵⁸ In 1764, colonist George Austin presented an original formula to the *Society for the Encouragement of Arts, Manufactures, and Commerce* in which he proposed to employ Russian peasants, experts in hemp farming, transport them to North America and distribute them between several zones. Two would be established in the San Lorenzo River valley, two in Fundy Bay (Atlantic coast of Canada), two more to the north of New York State and the rest in any part of the British colonial territories where the terrain and climate might be similar to those in Russia.⁵⁹ In addition, in 1765 a pamphlet written by Edmund Quincy was published in which he protested that transport costs between America and England might be similar to those facing the Tsar when shipping the hemp harvest of the Ukraine or Belarus to the Baltic ports. He therefore believed that the English colonies in America should supply the Empire's hemp needs.⁶⁰ In the following year, 1766, Joseph Gee recommended the restoration of subsidies for hemp production in America, as an ideal means for the colonies to supply English demand and end dependence upon Russia.⁶¹ The political mood in the colonies, however, had become increasingly tense since the 1760s, largely due to the constant raising of existing taxes, or the creation of new ones like the Sugar Act and the Currency Act of 1764, or the Stamp Act of 1765. Despite this, the British Parliament resumed the policy of subsidising harvests from 1764 onwards, approving a subsidy of £8 per ton of hemp or flax, which was in force from 24 June 1764 until 24 June 1771. During this initial period, the English government promoted new, original measures, such as the awarding of prizes, via competitions organised by economic societies, operating from 1765 and 1766.⁶² The aim of these competitions was to find the landowner who could produce the largest quantity of fibre in one year of sufficient quality to be transformed into cordage. Candidates had to prove that the land had not previously been used for cultivation, and the colonial territory was divided into four districts: the first included Nova Scotia, Canada, New Hampshire, Massachusetts Bay, Connecticut and Rhode Island; the second, New America, New-Jersey and Pennsylvania; the third, the territories of Pennsylvania around Delaware and the provinces of Maryland and of Virginia;

⁵⁷ Anonymous, 'Journal of a French Traveller in the Colonies, 1765, II', *The American Historical Review* 27, 1 (1921): 743; Anonymous, 'Journal of a French Traveller in the Colonies, 1765, I', *The American Historical Review* 26, 4 (1921), 726.

⁵⁸ Norman E. Saul, 'The Beginnings of American-Russian Trade, 1763–1766', *The William and Mary Quarterly* 26, 4 (1969), 597.

⁵⁹ Society for the Encouragement of Arts, Manufactures, and Commerce, *Museum Rusticum et Commerciale, Or, Select Papers on Agriculture, Commerce, Arts, and Manufactures*, vol. IV (London: R. Davis, 1764), 109.

⁶⁰ Edmund Quincy, *A Treatise of Hemp Husbandry; ... with Some Introductory Observations, upon the Necessity Which the American British Colonies Are under, Generally to Engage in the Said Production, etc.* (Boston: Green & Ruffell, 1765), 32.

⁶¹ Joseph Gee, *Considerations on the Expediency of a Bounty upon Hemp, passim*; ; J. Bradley Borougerdi, *Commodifying Cannabis: A Cultural History of a Complex Plant in the Atlantic World*. (Lanham: Lexington Books, 2020), 45.

⁶² Society for the Encouragement of Arts, Manufactures, and Commerce, 416–18.

and, finally, North Carolina, South Carolina and Georgia. The prize, in turn, was split into three categories: £100 (for production of over 20 tons); £50 (production over 10 tons) and £5 (production over 5 tons). The increase in political tension in the thirteen colonies probably explains why the British Parliament extended the production subsidies, due to expire in June 1771, passing a new £6 per ton subsidy between 24 June 1771 and 24 June 1778. In the latter year, as a consequence of the American Revolution, the bonuses were paid to the territories that remained loyal to the English Crown.⁶³

The English approach was not very different from that advocated by Spanish authors of the time. In 1769, Antonio Muñoz argued, in his main work *Discurso sobre economía política*, that if the Crown needed hemp for the ships defending the empire, if there was insufficient production of this crop on the Peninsula and it had to be purchased overseas, it was best for that money to be destined for Spain's American territories.⁶⁴ From 1770 onwards, however, increased international conflict once again began to affect hemp distribution in Europe. Both the Spanish and the English were quick to react. While the former accelerated the functioning of the hemp commissions which they had been establishing since 1750 at the different production points on the Peninsula (Granada, Aragon-Navarre, Catalonia, Valencia-Castellón),⁶⁵ the English faced a different problem. The American colonies had been in revolt and at war since 1775 and, at the same time, French (1778) and Spanish (1779) support for the American colonies made it even more difficult for English ships to stock up with hemp in the Russian markets. In other words, the traditional solution of the Old Russian peripheries had become complicated, but the alternative option of the new American peripheries had become a near impossibility for the British Empire.

The difficulties facing the English gave the Spanish the initiative in developing the cultivation of hemp in America, giving rise to the most significant programme of hemp farming since the beginning of the occupation. Spanish Bourbon rulers followed a similar path. The Indies Minister, José de Gálvez, led a plan focused on the recruitment of expert peasant hemp farmers in Granada and the surrounding area, their transfer to American territories (Nueva España, Louisiana and Venezuela) financed by the Royal Treasury, the cession of arable land belonging to the Crown, the financing of different experiments to plant hemp and the introduction of diverse fiscal liberalisation measures for the shipping of the plant or products thereof to Spain.⁶⁶ These were years spent striving to establish stable and profitable harvests. The programme included a manufacturing element which led to the creation of the Royal Factory in Mexico, which employed a significant number of workers

⁶³ Deitsch, 180.

⁶⁴ Antonio Muñoz, *Discurso sobre economía política* (Madrid: Ibarra, 1769), 257.

⁶⁵ Manuel Díaz-Ordóñez, 'Pedro de Mora y Salazar: Marino, Espía y Administrador de La Comisión de Cáñamo de La Real Armada En Granada', in *La Economía Marítima En España y Las Indias: 16 Estudios*, ed. José González Quintero, Carlos Martínez Shaw, and Marina Alfonso Mola (San Fernando: Ayuntamiento de San Fernando, 2015), 233–54; Manuel Díaz-Ordóñez, 'La comisión del cáñamo en Granada. Sustituir la dependencia báltica como estrategia defensiva del Imperio español en el siglo XVIII', *Vegüeta: Anuario de la Facultad de Geografía e Historia*, 16 (2016), 93–123.

⁶⁶ Serrera Contreras, 61.

recruited from the indigenous population. R.M. Serrera,⁶⁷ who made a detailed study of this project, concluded that it failed completely for human, technical, administrative and economic reasons.⁶⁸

During these final years of the 18th and early years of the 19th century, the Spanish and English explored new American territories, obliged to do so by the political and military situation in Europe and the Americas. The Spanish Empire, in disintegration at the turn of the century, accelerated the agricultural development measures beyond the 32nd parallel north, starting to experiment with hemp plantations in California, around Los Angeles, San Francisco and San Diego from 1792 onwards.⁶⁹ Finally, in addition to the hemp produced in Chile, the Spaniards succeeded in cultivating it in a profitable quantity and quality in this part of the new world. This success was very late, however, and Spain began to relinquish its American territories in the first decade of the 1800s. The new century thus presented a Spanish American geography with stable production in Chile, some harvests in Mexico,⁷⁰ and the relatively prosperous plantations of California.⁷¹ In Chile, production in Quillota had risen to around 138 tons per year by the end of the 18th century,⁷² while in California it reached approximately 100 tons per year in 1810.

Napoleon's military campaigns in Europe created renewed uncertainty for the British in the trade between the Baltic and the North Atlantic, especially after 1812 with the start of the French invasion of the Russian Empire. Authors such as Margrit S. Beerbühl have examined the real impact of the obstruction of Baltic trade with England during the Napoleonic campaigns, highlighting the importance of clandestine trade, the use of flags of convenience and smuggling as alternatives to legal trade.⁷³ It is no less true that the limits of these temporary and emergency measures became clear in the Embargo Act of 1807 but, especially, in the Embargo Act of 1812, because these laws prevented US seafarers from continuing to act as middlemen for Britain in the Baltic cannabis trade. These problems forced the British Parliament to resume hemp cultivation in the territories still under control in the New World. Canada became the focus of the policies of experimentation and cultivation although Nova Scotia had been an area of interest for the British Empire since the early 18th century.⁷⁴ Since 1752, the Governor of Halifax had subsidised hemp farming in the area and, from 1780 onwards, the colonial authorities were increasingly interested in taking hemp to Quebec and Montreal, offering the purchase of all the hemp produced by the English government at pre-established prices. Following a criterion of efficiency, the British authorities stipulated that the

⁶⁷ Serrera Contreras, 267–84.

⁶⁸ Díaz-Ordóñez, 'Radiografía de un fracaso angloespañol', 281.

⁶⁹ S.A. Mosk, 'Subsidized Hemp Production in Spanish California', *Agricultural History* 13, 4 (1939), 175.

⁷⁰ J. M. de Aurrecochea, *Memoria geográfico-económico-política del Departamento de Venezuela* (Cádiz: Imp. Hércules, 1814), 35–36.

⁷¹ Mosk, 175.

⁷² D. Barros Arana, *Historia general de Chile*, vol. 8 (Santiago de Chile: Jover, 1890), 374.

⁷³ Margrit Schulte Beerbühl, 'Trading with the Enemy: Clandestine Networks during the Napoleonic Wars', *Quaderni Storici* 48, no. 143 (2) (2013): 541–65, www.jstor.org/stable/43780113.

⁷⁴ Howe, 1.

experiments should be conducted by the Montreal Agricultural Society, which was sent some shipments of hemp seed from the Baltic. A year later, on 26 July 1791, John McKindlay, secretary of the Agricultural Society, reported that he had received a large amount of hemp seed sent by the governor to begin cultivation of the plant. The hemp seeds would be distributed at no cost to all the peasants in the zone for them to begin cultivation.⁷⁵ The following years produced quite poor results in these experiments in Canada. In 1806, Charles Taylor, secretary of the London Society for the Encouragement of Arts, reasoned that the cultivation of the fibre was not flourishing because they had not respected the minimum distance between plants. His impressions reveal that science was slowly beginning to enter agriculture. What were previously only experiences and impressions acquired over time became, during this age, scientific analysis and criticism.⁷⁶

Conclusions

From 1500 to 1800, the Spanish and English empires faced a complex problem arising from their strategic dependence upon the supply of hemp, a resource in huge demand in order to produce the sails and rigging that permitted European overseas expansion. Much as occurs today with oil, in the Early Modern Age there were centres of production that monopolised hemp harvesting. Among others, the Russian empire stands out. The harvests in the Ukraine, Belarus or Russia itself were sold in the principal Baltic ports to English and Dutch traders who distributed it throughout Western Europe.

When the Spanish arrived in the American continent, the dimension of the problem of strategic dependence on hemp became a global problem. On the one hand, the task of exploring and controlling the new American territories created demand for thousands of tons of hemp. On the other hand, the conquistadors noticed that this plant was not to be found in the continent that they were beginning to discover. This was a global problem that would also face England at the beginning of the 17th century, when English colonists began to settle in North America. The difficulty resulting from the absence of hemp in the new world, however, became a possible solution to the dependence on Russian hemp, when the Spanish and English authorities began to consider the possibilities of globalising cultivation of the fibre. Planting and harvesting in America appeared to be the best option because they had to meet the demands of the colonies, and at the same time satisfy the global needs of the empire.

At the end of the Early Modern Age, the Spanish Empire had achieved stable harvests in Chile, starting from the late 16th century, and in Mexico and California, in the last quarter of the 18th century. To this end, an agro-industrial project was established in Chile, assigning land and labour for the cultivation of hemp and its transformation into articles that were then sold in a dynamic regional market in the

⁷⁵ Bibliothèque et Archives nationales du Québec, Microfilm, CIHM_54860.

⁷⁶ Charles Taylor, *Remarks on the Culture and Preparation of Hemp in Canada: Communicated at the Desire of the Lords of His Majesty's Privy Council for Trade and Plantations* (Quebec: Printed by John Neilson, 1806), 4.

neighbouring Viceroyalty of Peru. In the case of Mexico and California, development came via the transfer of Spanish peasants, experts in hemp farming, to Nueva España, Louisiana and Venezuela. Export tariffs on the fibre and its by-products were eliminated to encourage the Spanish peasants in Mexico to dedicate their lands to this crop. The result, however, was that Spanish America could not supply the Peninsula at any time.

England succeeded in extending hemp cultivation to Virginia, Massachusetts and New York and, in these last two regions, was able to integrate them with the establishment of rigging and sail industries, which were in great demand in colonial English shipbuilding. The main problem in this case was competition with tobacco, a highly profitable product for export to England which hindered the growth of American cultivation. The high operating costs of shipping American harvests to England were addressed via the concession of subsidies for harvesting, which began in 1704 and were maintained, with interruptions, throughout the century. US independence obliged England to concentrate on cultivation in Canada, again with limited success.

Neither England nor Spain managed to free themselves of their need for Russian hemp during the early modern age. Their navies and merchant fleets continued to be supplied mainly with hemp produced in the Russian Empire. This global experience though was not without its positive side. The American territories, under Spanish or English control, were supplied with some difficulty with these highly strategic products and, consequently, their respective homelands could devote their efforts to better satisfying their own European needs. There remains, then, a new question in the light of the development of this complex process of globalised hemp production: were competition in the form of tobacco, the high costs of exporting to Europe and the technical limitations of the European peasants reasons enough to explain the mediocre results of hemp farming in the Americas between 1500 and 1800? It seems prudent to explore new possibilities involving multidisciplinary approaches and scientific knowledge to reach a more accurate conclusion.

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