A contractor empire : public-private partnerships and overseas expansion in Habsburg Portugal (1580-1640)

Cravo Bertrand Pereira, E.F.

Chapter 3: Supplies of Armament and Firearms under contract

The rivalry against the English India Company (EIC) and especially the Dutch East India Company (VOC) for the mastery of the Cape Route trade and the riches of the intra-Asian commerce drove Portugal's military expenditure upwards.[284]

In the last quarter of the sixteenth century, the fleets of *Carreira da Índia* became a coveted prize for the enemies of the Hispanic Monarchy, such as the Barbary Coast corsairs, English privateers and, not long after, the Dutch East India Company. While attacks were at first carried out in Atlantic waters against the fleets that returned from Asia laden with luxurious cargoes, in the first decades of the seventeenth century Portuguese vessels and their coastal positions across the India Ocean rim started being targeted too.[285] Although the threat posed by the English and Dutch East India companies was unprecedented, these formidable foes were by no means introducing violence and coercion to the Portuguese enterprise in the Indian Ocean. Although it can be argued that plunder was a novelty along the Cape Route, where the Portuguese fully rigged ships had sailed unopposed until the late 1500s, the same cannot be said East of the Cape of Good Hope. Shortly after their arrival at the Asian seaboard, the Portuguese realized they depended on naval warfare and amphibious campaigns to attain their commercial goals. Violence was employed to exclude competing merchant networks from certain trading circuits and charge traders for sea passes (*cartazes*) in the sea-lanes that the *Estado da Índia* vied to control.[286] The threat of force against certain

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[284] Although this chapter, like the previous one, focuses on the military conflict opposing Habsburg Portugal to the English and especially the Dutch East India companies, it must not be noted that the Northern European trading corporations were not the only powers to contribute to the downward spiral of the *Estado da Índia* in the turn of the seventeenth century. The companies were not even the sole antagonists to launch seaborne attacks against the Portuguese holdings. The Ya'rubi dynasty of Oman, for one, snatched a series of toeholds in the Persian Gulf from the *Estado da Índia* in the first half of the century, in the lead up to the wresting of Muscat in 1650. Among other the Asian states which pushed back against the Portuguese, albeit with varying degrees of success, was Safavid Persia, which seized Hurmuz with the help of the English in 1622, the sultanate of Aceh, and the rulers of Burma, who by conquering Syriam in 1612 seriously hurting Portuguese trade in the Bay of Bengal. The loss of Syriam was compounded in 1632 when the troops of the Mughal governor of Bengal, Qasim Khan, stormed over Hughli reduced Portugal's stake in the commerce of the Eastern coast of India. Last but not least among the autochthonous rivals of the *Estado da Índia* was the Sinhalese kingdom of Kandy, against which the Portuguese declared war in the late 1620s to prevent Kandy's putative allies, the Dutch, from establishing a base in Eastern Ceylon. Tonio Andrade, 'Beyond Guns, Germs, and Steel: European Expansion and Maritime Asia, 1400-1750', *Journal of Early Modern History* 14, no. 1–2 (1 January 2010): 165–86; Subrahmanyam, *The Portuguese Empire in Asia, 1500-1700*, 141–45, 153–86; Francisco Bethencourt, 'Configurações Do Império. O Estado Da Índia', in *História Da Expansão Portuguesa. Do Índico Ao Atlântico (1570-1697)*, ed. Kirti Chaudhuri and Francisco Bethencourt, vol. 2 (Lisbon: Temas e Debates, 1998), 289–94.

[285] Murteira, 'A Navegação Portuguesa Na Ásia e Na Rota Do Cabo e o Corso Neerlandês, 1595-1625'; Peter Borschberg, *Journal, Memorials and Letters of Cornelis Matelieff de Jonge: Security, Diplomacy and Commerce in 17th-Century Southeast Asia* (Singapore: NUS Press, 2015), 23–44.

[286] According to some authors, all early modern European enterprises in the Indian Ocean relied on the use force to further their commercial ambitions and to defend their positions against encroachment by other Europeans and against Asian military powers and traders. Although neither the Estado da Índia nor the chartered companies were in the position to subdue Asian states across the board before the late eighteenth century, it is not entirely appropriate to label the period from Vasco da Gama's arrival in Calicut (1498) to the Battle of Plassey (1757) as primarily an "Age of Partnership" between European apparatuses and most South and Southeast Asian states and commercial networks. These accent on a peaceful commercial coexistence was placed in works such as Holden Furber, 'Asia and the West as Partners, Before "Empire" and After', *Journal of Asian Studies* 28, no. 4 (1 August 1969); Blair B. Kling and Michael N. Pearson, eds., *The Age of Partnership: Europeans in Asia before Dominion* (Honolulu: University Press of Hawaii, 1979); By contrast, the acknowledgement of frequent but non-hegemonic European violence led Sanjay Subrahmanyam to coin the expression "Age of Contained Conflict" to describe the period; Sanjay Subrahmanyam, *The Political Economy of*

coastal states, traders and skippers was used by the Crown to further its monopsonistic goals regarding the outlets of Southwest Indian pepper and other luxuries goods in demand in Europe. The artillery mounted into the Portuguese warmen and the mobility of these ships, which allowed the *Estado's* navy to draw heavy fire at enemy ships from a distance, played a significant role.[287] There is, therefore, no doubt, that the Portuguese commercial ambitions had always been underpinned by coercion, plunder and at times all-out war across maritime Asia. Not only the political survival of the *Estado da Índia* on times of turmoil, but also its feasibility as a commercial project, rested on warfare to a large degree.

The English and Dutch encroachment on Portuguese holdings in the Persian Gulf and South and Southeast Asia, combined with the increasing threats of violence against the Indiamen sailing the Cape Route, occurred against a backdrop of broader transformations in European warfare. These quantitative and qualitative changes in the armed forces of European states were so impactful that historians saw them as part of a veritable 'military revolution'.

The 'military revolution' concept and its main tenets were first put forward by Michael Roberts in the 1950s,[288] and were subsequently expanded and revised by scholars like Geoffrey Parker, Clifford Rogers, Jeremy Black and many others. Although scholars disagree on when exactly the 'revolution' was initiated, the most widely accepted view is that between the mid-sixteenth and the turn of the seventeenth centuries a process was set in motion that enabled western European states to attain an unprecedented degree of proficiency on the battlefield and on naval war-theatres.[289] The new-found preponderance of the European armed forces was based on technological, tactical and institutional developments resulting from nearly a century of sustained interstate conflicts.[290] This string of international disputes put the continent's military powers on the path towards the creation of the first long-standing professional armies, exponentially expanded the number of men who were mobilized, and brought an unprecedented degree of administrative and technical proficiency to the way war was waged. These organizational and institutional changes, which for some historians showcased the growing presence of the central state in the armed forces and society at large, was accompanied by important tactical and technological novelties.[291]

The transformative impact of the use of heavy bronze artillery in siege warfare can also be gauged from another key innovation it spawned, this time in defensive architecture: the adoption, in the late fifteenth century, of a new fortress design, the *trace italiene*.[292] Then, towards the end of the sixteenth century, a new breakthrough in military tactics was reached. Building on the proliferation of firearms among infantry soldiers of the mid to late 1400s, volley-fire was adopted by Dutch and German musketeers, a tactical development that would

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Commerce Southern India, 1500-1650 (Cambridge: Cambridge University Press, 1990) chapter 5; For a brief summary of the different stances and nuances on the balance between trade and violence; Markus Vink, *Encounters on the Opposite Coast: The Dutch East India Company and the Nayaka State of Madurai in the Seventeenth Century* (Leiden-Boston: Brill, 2015), 41–42.

287 Vitor Luís Gaspar Rodrigues, 'A Guerra Na Índia', in *Nova História Militar de Portugal*, ed. António Manuel Hespanha, vol. 2 (Lisbon: Círculo de Leitores, 2004), 198–223.

288 Michael Roberts, 'The Military Revolution, 1560-1660', in *The Military Revolution Debate: Readings on the Military Transformation of Early Modern Europe*, ed. Clifford J. Rogers (Boulder, CO: Westview Press, 1995), 13–35.

289 Geoffrey Parker, *The Military Revolution: Military Innovation and the Rise of the West, 1500-1800*, 2nd ed. (Cambridge: Cambridge University Press, 1996).

290 Frank Tallett, *War and Society in Early-Modern Europe: 1495-1715* (London: Routledge, 1992), 13.

291 As discussed in the introduction, the most compelling criticism to the idea that there was an inextricable relation between stateness and an expanding military capacity has come from David Parrott. Parrott, *The Business of War*.

292 Parker, *The Military Revolution*; Christopher Duffy, *Siege Warfare: The Fortress in the Early Modern World 1494-1660* (London-New York: Routledge, 2013), 8–22; Thomas F. Arnold, 'War in Sixteenth-Century Europe: Revolution and Renaissance', in *European Warfare, 1453-1815*, ed. Jeremy Black (New York: Palgrave Macmillan, 1999), 23–44.

be taken to new heights during the great international conflict of the age, the Thirty Years' War.[293]

All the novelties listed above refer to landed-armies, but the naval forces also took major forward leaps, namely with the creation of the fully-rigged ship and the setting-up of artillery on the broadside of ocean-going crafts.[294] As discussed in the previous chapters, the high-seas navies enabled the European states, starting with Portugal, to project some degree of military power far away from the European theatres where their armies traditionally clashed. The creation of inter-oceanic squadrons, enabling the coalition of European states and merchant interests to engage in the lucrative overseas trades and entertain some territorial ambitions, were, therefore, another tenet of the 'Military revolution'.[295]

One of the most hotly debated topics in military history over the past decades concerns the extent of Europe's alleged superiority in the global arena before the nineteenth century. While some scholars are of the opinion that the *Estado da Índia* and the chartered companies already superseded Asia's gunpowder empires in military technology and organization from the moment they rounded the Cape of Good Hope, for others the 'revolutionary' innovations of the sixteenth century did not tilt the balance of power in favour of the Europeans. According to this new strand of scholarship, the military branch of the European overseas ventures only gained a clear upper hand over the various Asian armies well into the eighteenth century, thanks to a series of incremental changes in technology, training and strategy that occurred after 1660.[296] In-between these extreme positions a third group of authors has more recently proposed a middle-ground stance. They have labelled the period between the 1500 and the 1800s an "age of parity" and posited that, while the Europeans made only minor territorial strides in Asia and failed to subdue any first rank-powers, they were able to carve a lucrative niche in the Asian maritime scene on the back of their superior fire-power at sea, the manoeuvrability of their ships,[297] as well as on their Italian Renaissance style fortifications.[298]

Although the military capabilities of the Portuguese did not give them much of an edge over Asia's leading political entities, as shown by Portugal's defeats in the Persian Gulf, Ceylon and Bengal, in the first half of the seventeenth century, the biggest threat to the survival of the *Estado da Índia* came from the English and Dutch companies. Despite the *Estado da Índia*'s ability to recruit troops in Asia, its functioning shipyards and its exchequer raising revenue locally to sustain the costs with its defence, in the period under study, the government of the Portuguese East Indies was not self-sufficient in man-power and financial and material resources.[299] It was therefore necessary for troops, armament and funds to be sent from Lisbon on the annual voyages with increasing regularity in order to consolidate territorial gains and, especially in this period, to protect markets and commercial routes.[300]

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[293] Geoffrey Parker, 'The Limits to Revolutions in Military Affairs: Maurice of Nassau, the Battle of Nieuwpoort (1600), and the Legacy', *The Journal of Military History* 71, no. 2 (2007): 331–72.

[294] Guilmartin Jr, *Galleons and Galleys*, 161–63; Glete, *Warfare at Sea, 1500-1650*.

[295] This argument had already been made before the 'military revolution' debate gained traction, for instance by Carlo Cipolla. Cipolla, *Guns, Sails and Empires*; Parker, *The Military Revolution*, 115–45.

[296] One of the biggest critics of the 'revolutionary' impact of the sixteenth century warfare innovations is Jeremy Black. Jeremy Black, *Beyond the Military Revolution: War in the Seventeenth-Century World* (New York: Palgrave Macmillan, 2011).

[297] Tonio Andrade, 'Was the European Sailing Ship a Key Technology of European Expansion? Evidence from East Asia', *International Journal of Maritime History* 23, no. 2 (December 2011): 17–40.

[298] Tonio Andrade, *The Gunpowder Age: China, Military Innovation, and the Rise of the West in World History* (Princeton and Oxford: Princeton University Press, 2016), 211–34; Geoffrey Parker, 'The Artillery Fortress as an Engine of European Overseas Expansion, 1480-1750', in *City Walls: The Urban Enceinte in Global Perspective*, ed. James D. Tracy (Cambridge: Cambridge University Press, 2000), 386–416.

[299] Miranda, 'Fiscal System and Private Interests in Portuguese Asia under the Habsburgs, 1580-1640'.

[300] Murteira, 'A Navegação Portuguesa Na Ásia e Na Rota Do Cabo e o Corso Neerlandês, 1595-1625', 83–84, 114–19, 163–72.

Table 12. Arms and munitions for the 1605 India fleet

	Galleon *Nossa Senhora das Mercês*	Galleon *São Nicolau*	Galleon *São Simão*	Galleon *São Salvador*	Carrack *Nossa Senhora da Palma*	Total no. of individuals
Men of Arms	**230**	**200**	**220**	**250**	**330**	**1.230**
Seamen	**110**	**117**	**106**	**111**	**131**	**575**
Artillery (n. of pieces)	22	22	21	21	22	**108**
Gunpowder (*quintais*)	160	120	120	29	38	**467**
Muskets	200	100	200	80	100	**680**
Arquebus	100	100	100	60	80	**540**
Pikes	100	100	50	30	40	**320**
Half-pikes	50	50	50	50	60	**260**
Match (*quintais*)	4	4	4	3	4	**19**
Lead (*quintais*)	30	29	20	6	8	**93**
Pelouros	1.170	1.083	1.050	640	660	**4.603**

Source: BA, 51-VI-54, Papeis varios pertencentes as conquistas da America e India, fl. 1, "Follha da gente de mar e de navegação artilheria Polvora moniçois e mantim(entos) q vao embarcados nos tres galiois de malaca e nas naos da india q partiram deste porto de Lisboa em 13 de março de 1605"

Dispatching reinforcements, arms and ammunitions from Portugal to Asia was a challenging task, consuming every year a great deal of time and energy from the Crown, not to mention significant financial resources. Artillery, portable firearms and munitions were, similarly to foodstuffs, especially thorny to arrange because they had to be commandeered anew for every single voyage.[301] Table 12 gives an idea of the man and firepower employed in a five vessel armada, such as the one dispatched to India in 1605. The almost 1,230 soldiers en route to Asian brought along with them 680 muskets, 540 harquebuses and almost 600 pikes and half-pikes.

In the absence of consistent series on the yearly supply of military wares for the India voyages, the armament of the 1608 fleet, which is summarized on tables 13 and 14 illustrates how the Crown successfully added firepower to its India-bound ships of the line. According to a budget from March of the previous year, the India-bound expedition would be comprised of five Indiamen with four decks each, the type stacked-up floating castle for which the Portuguese ocean-going ships were renowned. Each ship would be mounted with 26 artillery pieces, for a total of 130 pieces for the whole fleet.

[301] Phillips, *Six Galleons for the King of Spain*, 70.

Table 13. Costs with raw materials for the making of ammunitions in 1607

Raw Material	Amount (*quintais*)	Price per unit (*réis*)	Total cost (*réis*)
Copper	3.173	14.000	44.422.000
Tin	209	10.000	2.090.000
Total	**3.382**		**46.512.000**

Source: AGS, SSP, lib. 1466, fl. 157: "folha da artª e monicoens q são necess(arias) comforme o regim(ento) de S(ua) M(agestade) pera se armarem as Sinquo naos d 4 cubertas da armada da India do a(no) q vem de 608"

Table 14. Costs with the provisioning of metal wares and weaponry in 1608

Item/Service	Amount	Weight (*quintais*)	Price per unit (*réis*)	Total cost (*réis*)
Repair	130		10.000	1.300.000
Loading onto the ships	130		500	65.000
Cleaning up	130		240	31.200
Small metallic piece used to reload firearms	4.400	400	2.000	800.000
Crowbars	50		800	40.000
"Sacatrapos"	15		240	3.600
Cleaning and repairing of muskets	1.000			150.000
"*Correas com suas cargas*"	1.000		240/dozen	240.000
Tin		50	1.600	80.000
Pikes and Demi-pikes	600		160/pike, 120/demi-pike	84.000
Darts	500		40	20.000
Special cloths to clean up firearm shell	500		120/vara	60.000
Knitting material				5.000
"*Alcanzia de barro*"	500		4	2.000
"*Peles de carneiro e espeques pera as pecas de artilharia*"				40.000
"*Polles e bargueiros*"				120.000
Gunpowder for light firearms		250	10.000	2.500.000
Barrels	500		300	150.000
Small metallic piece used to reload firearms	500		320	160.000
Total				**5.850.800**

Source: AGS, SSP, lib. 1466, fl. 157: "folha da artª e monicoens q são necess(arias) comforme o regim(ento) de S(ua) M(agestade) pera se armarem as Sinquo naos d 4 cubertas da armada da India do a(no) q vem de 608".

To meet the ballistic requirements of the 1608 squadron, 3,382 *quintais* of copper had to be acquired. The costs of this delivery fell just short of 50,000,000 *réis*. The Crown planned to service this contract through the proceeds from the sale of 2,000 *quintais* of pepper held in the House of India. The royal treasury expected to sell it for around 60,000,000 *réis*, which fell short of the revenues needed to cover the costs with the artillery, munitions and timber for the reading of the fleet.[302]

Gunpowder weapons had been used on board sailing ships going back to the fourteenth century. Smaller semi-fixed guns and portable harm-handling fire-weapons fired from the castles for and aft and from the side of the hull, coexisted with broadside gunports. The transformative character of these below deck guns stemmed from their ability to destroy the hull of enemy ships, whilst the preceding guns allowed at best to stop men from storming into a ship. This old type of firepower was very much in accordance to a medieval paradigm of naval warfare centred around boarding and capturing the adversary's craft instead of destroying it.[303]

As with most naval wares, Portugal did not produce the bulk of the weapons that were set up in the gunports of its ships of the line, although these could in theory be manufactured in a handful of ill-equipped and for the most part technically obsolete foundries operating across the kingdom, such as the royal factory of Barcarena in the outskirts of Lisbon. Established at the turn of the fifteenth century by the Crown, one of the few institutions in the kingdom that was able to sustain fixed capital investments of that magnitude and hire the human capital with the skill to operate such a plant, it was the first infrastructure of its kind to make use of hydraulic power in the country.[304] Despite the Crown's efforts, one century after its foundation the factory's output was not enough to satisfy the demands of the military contingents and the navy, and cannons were recurrently procured in the main international arms dealings hubs in Northern Europe.[305]

By setting up the Barcarena factory, the Portuguese were following the example of England, who resorted to state-sponsored gun-casting facilities to oversee and stimulate cannon-making production. The facility in question was the Weald of Kent and Sussex, whose output was then directed to the kingdom's central Ordnance Office located in the Tower of London.[306] The difference between the two countries was that, while England could draw on a thriving domestic metallurgic sector, one of Europe's finest, Portugal lacked the ideal conditions for the industry to take hold. Raw materials had to be imported, since the Portuguese soil was nearly devoid of metals, as well as equipment and know-how. It is known that the Barcarena factory was run by contractors but little information has transpired on the private management of the plant during the period under study.[307] The available evidence suggests that during the Union of the Crowns neither the private nor royal management of this metallurgic complex was enough to ramp-up production to levels needed for the defence of the overseas empire. Cognizant of these shortcomings the Monarchy considered alternatives, as a contract underwritten in 1627 with Martin Descalsa,

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302 AGS, SSP, lib. 1466, fl. 149-151v.

303 Sicking, 'Naval Warfare in Europe, c. 1330-c. 1680', 248–50; Cipolla, *Guns, Sails and Empires*, 82.

304 António C. Quintela, João Luís Cardoso, and José Manuel de Mascarenhas, 'The Barcarena Gunpowder Factory: Its History and Technological Evolution between the Seventeenth and Twentieth Centuries', in *Gunpowder, Explosives and the State: A Technological History*, ed. Brenda J. Buchanan (New York: Routledge, 2016), 123–41; Pedreira, *Estrutura Industrial e Mercado Colonial. Portugal e Brasil (1780-1830)*, 26.

305 Costa, Lains, and Miranda, *An Economic History of Portugal, 1143-2010*, 73.

306 Stephen Bull, *'The Furie of the Ordnance': Artillery in the English Civil Wars* (Woodbridge: The Boydell Press, 2008), 38–53; Steven J. Gunn, David Grummitt, and Hans Cools, *War, State, and Society in England and the Netherlands 1477-1559* (Oxford: Oxford University Press, 2007), 23–24.

307 It is known that Jorge Lopes de Negreiros, an *assentista* who was highly engaged in the provisioning of weaponry and munition in the 1630s, was contractor of the Barcarena factory. He referred back to this government concession to justify an exemption from military service in the militia contingents. BA, 51-VI-21, fl. 229.

a private entrepreneur from Bilbao, reveals. Through that contract the Portuguese Crown hired Descalsa to install a new iron foundry in the town of Tomar.[308] The Crown hoped that a new factory would, in conjunction with its Barcarena predecessor, increase manufacturing output and implement new production techniques in the kingdom. Despite the Crown's best intentions, the attempts to set up new manufacturing sites did not amount to much and during the Union of the Crowns the Portuguese foundries still lagged behind when compared to their Spanish and Northern European counterparts.

Table 15. Artillery for the 1608 voyage

Pieces	Amount of "*pelouro*" (small metallic piece used to reload firearms) (*arrateis*)	Weight per piece (*quintais*)	Number per ship	Total weight per type of piece
Half canons	16	30	4	120
Culverin	14	30	6	180
Demi-culverins (type 1)	10	22	6	132
Demi-culverins (type 2)	8	18	6	108
Pedreiros	9	13	4	52

Source: AGS, SSP, lib. 1466, fl. 157: "folha da artª e monicoens q são necess(arias) comforme o regim(ento) de S(ua) M(agestade) pera se armarem as Sinquo naos d 4 cubertas da armada da India do a(no) q vem de 608".

After 1580 Portugal took advantage of the leading iron smelting sites in Spain to stock up its ocean-going ships with cannons and ammunitions.[309] On July 26, 1634, Diogo Soares, secretary of the Council of Portugal, contracted with Jorge de Bande the acquisition of one hundred iron cast guns for different *armadas* stationed in Lisbon and other Portuguese ports from the foundries of Liergánes-La Cavada. The Luxembourg-born De Bande was the head of the Flemish consortium that held *asiento* for the Cantabrian iron foundries between 1629 and 1649.[310]

The general terms of the contract with De Bande stipulated the delivery of several artillery pieces to a Portuguese official dispatched to San Sebastian.[311] The official should receive forty iron-cast cannons of ten pounds each for a price 82 r*eales* in copper coins and sixty artillery pieces of sixteen pounds each, and make the necessary arrangements for the weapons to be shipped to Lisbon. The agreement exempted De Bande and company from ensuring transportation to Portugal. The clauses of the contract were very strict regarding delays and problems with the delivery, holding the contractors responsible and financially accountable for any added costs caused by the manufacturer not meeting the deadline. Payments to the foundry were to be made in *vellon* (copper coins), although Portugal, unlike Castile, lacked a copper currency. In this case the choice of currency was responsible for

[308] BA, 51-VI-28, fl. 78v; AHU, CU, cod. 38, fl.92-92v.

[309] On the arms-making industry in neighboring Spain, and the provisioning of the state through contracts, Agustín González Enciso, 'Asentistas y fabricantes: el abastecimiento de armas y municiones al Estado en los siglos XVII y XVIII', *Studia Historica: Historia Moderna* 35, no. 0 (20 December 2013): 279–92; Agustín González Enciso, 'Buying Cannons Outside: When, Why, How Many?: The Supplying of Foreign Iron Cannons for the Spanish Navy in the Eighteenth Century', in *The Contractor State and Its Implications, 1659-1815*, ed. Richard Harding and Sergio Solbes Ferri (Las Palmas de Gran Canaria: Universidad de las Palmas de Gran Canaria. Servicio de Publicaciones, 2012), 130–52.

[310] José N. Alcalá-Zamora, *Altos hornos y poder naval en la España de la edad moderna* (Madrid: Real Academia de la Historia, 1999).

[311] A certain captain Domingo Gilde was hired to assist in the transportation of the pieces to Lisbon, only to be accused of planning to steal and sell them abroad AGS, SSP, lib. 1469, fl. 253-259.

aggravating the price, since the a premium for the exchange of copper into silver was added (*trueque de vellon*). To pay for the contract, the Portuguese authorities agreed to allocate part of the proceeds of the *consulado* duty[312] levied in Lisbon to the holders of the foundry concession.[313]

Firearms and ammunition were also bought from foreign communities of traders operating in Lisbon. In 1638, João Miles, a prominent English merchant in Lisbon, chartered a ship to import naval artillery and muskets from Vizcaya and Guipuzkoa into Portugal. The freighting contract was negotiated with Tomás Guilherme, to whom Miles paid 690,400 *réis*; an amount he pleaded the authorities to pay him with interest accrued.[314] The reliance on English bottoms to import weaponry from the Basque country at this particular juncture should not come as a surprise in light of the broader changes the trade in Northeastern Iberia underwent during the period.[315] Due to the re-orientation of the traditional Spanish wool trade towards the British Isles and the sector's integration into a triangular circuit encompassing New England and the Newfoundland fisheries and the consumption markets of England, by the late 1620s Englishmen were making headways in the trade with Northern Spanish ports.[316] It was against this changing backdrop that a prominent figure of Lisbon's English Nation hired one of his countrymen, someone likely to operate in the transatlantic circuits linking the Cantabric Sea to England and its nascent American colonies, to ensure transportation of Basque made weaponry into the Portuguese capital.

As this example shows, the main advantage that contractors had over royal officials in the import of weaponry was that they possessed a network of contacts that encompassed the key nodal points of the international arms trade and production. They were also acquainted with the ways of doing business in these nodes, including knowledge on the technical requirements of purchase and transport across long distances. Moreover, in addition to being able to purchase raw materials and finished products at better rates,[317] they could keep an appearance of political neutrality when handling the sensitive trade in arms, a neutrality that royal officials or diplomats evidently lacked.[318]

England and English business actors were not only important as far as the transportation of weaponry was concerned, they were, as I discussed above, at the forefront

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312 The *consulado* was a 3 % *ad valorem* tariff on cargoes coming through or leaving Portugal's littoral customs houses. The proceeds (one of the main fiscal innovations introduced under the Habsburgs) were used to equip a squadron that would patrol the Portuguese coast and defend it against pirates and attacks from enemy states. Hespanha, *As vésperas do leviathan*, 120.

313 BA, 51-VI-28, 'Miscellanea de noticias para a história civil da marinha e do exército de Portugal', fl. 88, 89v.

314 BA, 51-VI-21, fl. 135. The case of João Miles shares many resemblances with that of the Englishman Guilherme Bostoque, son of a metal hardware merchant from Bristol who in the late 1600s and early 1700s, imported firearms and bullets on contract from Sweden into Portugal. The nature of the public-private partnerships which were many decades apart is altogether identical, revealing a consistent pattern for early modern Portugal. Miguel Dantas da Cruz, *Um Império de Conflictos. O Conselho Ultramarino e a Defesa Do Brasil* (Lisbon: Imprensa de Ciências Sociais, 2015), 207–10.

315 Two years earlier, ordnance and several hand-held firearms were purchased on behalf of the Portuguese Crown by the businessmen Domingos Gil da Fonseca in Lierganes and other weapons-making sites in Vizcaya and Cantabria. These weapons were also shipped to Portugal on English sea-crafts. AHU, CU, cod. 504, fl. 194-197.

316 Regina Grafe, 'The Globalisation of Codfish and Wool: Spanish-English-North American Triangular Trade in the Early Modern Period', Economic History Working Paper (London School of Economics and Political Science, Department of Economic History, February 2003).

317 Thompson, *War and Government in Habsburg Spain, 1560-1620*, 224–26.

318 Knight and Wilcox, *Sustaining the Fleet, 1793-1815*, 10ff; Private entrepreneurs were also important in favourable diplomatic conjunctures. The post-1640 period, when Portugal was no longer (at least in Europe) at war with the Dutch Republic, shows that the most efficient way for the Crown's diplomatic agents to acquire military and naval resources on the international market was through the brokerage of seasoned import-exporters. For examples of the role played by these brokers in the economic diplomacy of Braganza Portugal; Virgínia Rau, 'A Embaixada de Tristão de Mendonça Furtado e Os Arquivos Notariais Holandes', *Separata Dos 'Anais'*, 2, 8 (1958); Virgínia Rau, 'O Padre António Vieira e a Fragata Fortuna', *Separata de 'Studia'*, no. 2 (1958).

of production too. Having pioneered the process of iron-cast smelting in the 1500s, England became the undisputed iron-gun founders of Europe during the second-half of the sixteenth century, and remained prominent makers of this type of heavy artillery in the following century, in spite of the Southern Netherlands (in particular Liège) and Sweden's highly successful forays into iron-guns manufacturing.[319] In 1617, the provisioning contract negotiated with António Fernandes Pais and Francisco Duarte de Elvas for the acquisition of iron cast artillery of English design, gunpowder (as much as over the course of three years, at 10,000 *réis* per quintal), portable firearms and rigging encompassed significant imports from Vizcaya and from England. To ensure the transportation of this miscellaneous consignment of military equipment, the contractors requested and obtained permission to freight ships in France.[320] Four years later António Fernandes Pais was asked again to supply the *Ribeira das Naus* with iron cast artillery of English making, worth about 12,000,000 *réis*.[321] In order to help Fernandes Pais navigate through the complicated bureaucratic maze of bringing weaponry from abroad, a special import license was granted so that the delivery of the artillery in Lisbon could be speeded up.[322] Interestingly enough, the acquisition of heavy artillery in England coincided with the mounting pressure of the English East India Company in the Persian Gulf that led to the loss of Ormuz at the hands of an Anglo-Persian coalition in 1622.[323] On this occasion at least, the armed conflicts between the *Estado da Índia* and the commercial company chartered by the English Crown were not an impediment to arms dealings between the two countries, even if there was the distinct possibility that the weaponry in question could be used by the buyer against the overseas enterprises of the seller.

Despite the prominence attained by iron-cast artillery on account of being comparatively cheaper,[324] its bronze counterpart continued to be used by Europe's naval forces after 1650.[325] Given that Portugal lacked the raw materials needed to manufacture both iron and bronze cannons (made from copper and tin), the Crown had no alternative but to reach out to the kingdom's merchant-bankers and their Northern-European connections to ensure their import. After a contractor delivered metals, these would be melted in Barcarena or Tomar to make the cannons for the India-bound and for the coast-patrolling armadas.

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319 Chris Evans and Göran Rydén, *Baltic Iron in the Atlantic World in the Eighteenth Century* (Leiden-Boston: Brill, 2007), 31–33, 49; Glete, *Warfare at Sea, 1500-1650*, 22.

320 AHU, CU, cod. 31, fl. 63v, 64; ibid. cod. 32, fl. 3-5; AHU_CU_058 (Índia), cx. 5, doc. 174. Aside from the iron-cast artillery, the two portfolio-capitalists also procured one 1,000 *quintais* of gunpowder, one 1,000 *quintais* of rigging, 2,000 muskets, 1,000 harquebuses to be provided in different instalment over the course of two years. The price for each musket was set at 2,900 *réis* and at 1,700 *réis* for each harquebuses. On the other hand, the price per each *quintal* of rigging was 3,300 *réis*.

321 The contract stipulated that each *quintal* was worth 2,000 *réis,* and Fernandes Pais was commissioned 6,000 *quintais* in iron artillery.

322 Already in the 1617 *assento*, the ambassador of the Spanish monarchy in England was notified by the Portuguese viceroy to make the necessary arrangements and provide all possible assistance for the contractors to acquire the artillery. AHU_CU_058 (Índia) cx. 5, doc. 174.

323 Graça Almeida Borges, 'The Iberian Union and the Portuguese Overseas Empire, 1600-1625: Ormuz and the Persian Gulf in the Global Politics of the Hispanic Monarchy', *E-Journal of Portuguese History* 12, no. 2 (December 2014): 1–26; Dejanirah Couto and Rui Loureiro, *Ormuz 1507 e 1622: Conquista e Perda* (Lisbon: Tribuna da História, 2007); Niels Steensgaard, *The Asian Trade Revolution: The East India Companies and the Decline of the Caravan Trade* (Chicago: University of Chicago Press, 1974).

324 By the turn of the sixteenth century, iron ordnance cost about a quarter or third less than bronze-cast cannons with the same weight of ball. Sicking, 'Naval Warfare in Europe, c. 1330-c. 1680', 252.

325 Although iron-cast guns were cheaper than their copper counterparts, they suffered from the problem of overheating, which could lead to explosions in the course of prolonged fire-exchanges, resulting in the damaging of ship and injuring and killing of crew members. The risks of overheating were only contained mid-seventeenth century, allowing iron-cast artillery to trump over copper-made heavy guns. Guilmartin Jr, *Galleons and Galleys*, 149–50; Glete, *Warfare at Sea, 1500-1650*, 23–24.

During the period under study, the connections to Antwerp, Amsterdam and Hamburg were inescapable due to these cities deep rooted links to Liège, the Hartz region, Bohemia and Hungary, as well as Scandinavia and the Baltic regions, the main production outlets of raw materials for weapons production in Central and Northern Europe.[326] Portugal's reliance on the international copper and iron trade is laid bare by a bill of landing presented before an Amsterdam notary by Johan Schroeder from Hamburg, skipper of the ship *St. Jan Battista* on December 3, 1621. The bill stated that Schroeder loaded his ship with 597 plates of copper with a weight of 101 ship pounds, from Lucas Bekeman, resident in Amsterdam, for a journey from Hamburg to San Sebastian. The cargo was consigned to Manuel Rodrigues de Elvas' agent in San Sebastian, for the account of Diogo Francês d'Abrantes in Calais.[327] The shipments of copper arranged for the convenience of royal contractor Manuel Rodrigues de Elvas continued in 1622. On that year, he acquired a consignment of copper on the Crown's behalf from Arnald Roelants and Pedro Bensis, traders based in Hamburg. The order was placed in the Elbe entrepôt by Manuel Nunes de Évora of Antwerp, Rodrigues de Elvas' agent.[328]

Portugal's exposure to the evolution of stocks in the international outlets was considerable, and that became painfully clear in 1617. As part of a larger contract to acquire arms and ammunitions to the Crown stores in Lisbon, Francisco Duarte de Elvas was commissioned to deliver 3,000 *quintais* of copper between 1616 and 1617, but ran into difficulties in the second year. He was unable to meet the import quotas of his contract due to the depletion of copper stocks in the Low Countries caused by political and military instability in Poland, a leading supplier of the Flemish and Dutch markets. Aside for a shipment of 600 *quintais* that was due to arrive in Portugal in October, the contractor reported to the authorities in Lisbon and Madrid that he struggled to acquire copper in Northern Europe. Moreover, since the small amounts of copper to be found in Lisbon were in the hands of private merchants, who were only willing to sell it at an exorbitant price, Duarte de Elvas suggested that a permission should be requested for copper surpluses in Spain to be handed over the Portuguese Crown. As soon as the transaction was agreed by the Portuguese and Castillian authorities, he would guarantee the delivery of the copper batches in Lisbon.[329]

In addition to the heavier artillery placed in the Indiamen's gunports, the troops en route to Asian were also fitted with light portable firearms. The Biscayan-Guipúzcoan connection proved once again to be instrumental to accommodate Portugal's firepower needs. In the later years of Phillip II's reign this Northern Spanish region became a force to be reckoned with in the making of these firearms and contractors of the Portuguese Crown often supplied themselves there. This was the case with the delivery of 1,900 muskets and 200 harquebuses commissioned to Francisco Dias Mendes de Brito in 1620. For a sum of 2,800 *réis* per musket and 1,600 *réis* per harquebus, which amounted to a total price of 5,640,000 *réis,* Mendes de Brito agreed to procure these hand-held firearms in the royal gun-making sites of Vizcaya and Guipuzkoa and ensure its transportation to the Lisbon arsenal within four months.[330] The crafting of hand-held personal guns in Northeastern Spain had been organized in guilds since the sixteenth century. The Crown endowed these corporate bodies of manufacturers with special privileges and granted them organizational autonomy, but retained the right to oversee how the works were conducted (a financial superintendent

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326 Poettering, *Migrating Merchants*, 15; Karel Davids, *The Rise and Decline of Dutch Technological Leadership (2 Vols): Technology, Economy and Culture in the Netherlands, 1350-1800 (2 Vols.)* (Leiden-Boston: Brill, 2008), 146–50; H. Ph. Vogel, 'Arms Production and Exports in the Dutch Republic', in *Exercise of Arms: Warfare in the Netherlands, 1568-1648*, ed. Marco van der Hoeven (Leiden-Boston: Brill, 1997), 197–210.

327 Koen, "Notarial Records," *Studia Rosenthaliana*, vol. XX, no. 1, July 1986, nr. 2536.

328 Felix Archief (FA), Notariaat (Antwerpen, 1480-1810),N#3615, fl. 565.

329 AHU, CU, cod. 31, fl. 52, 61-62v, 64v.

330 AGS, SSP, lib. 1474, fl. 187.

was appointed to the effect) and imposed preferential rights over the output. Only after the needs of the Crown had been met, could the guilds sell light firearms to the private sector. These measures were taken a step further in the early decades of the seventeenth century, when a ban on the sale of weapons to private persons was imposed, making the armed forces the sole customer of the arms-making guilds.

Despite the inputs of the present-day Basque Country in the supply of the *Carreira da Índia* with warfare material, contractors still looked to the Northern European markets for imports of these guns and the respective ammunition. Notwithstanding Antwerp's decline as an international commercial hub, the city remained important when it came to channel Northern European military wares into the Portuguese market. In 1613, Felipe Jorge, a member of the Portuguese Nation, bought 1,000 muskets and 500 harquebuses on behalf of the contractor Francisco Duarte de Elvas for the Lisbon arsenal.[331] A few years later, Francisco Godines, consul of the Portuguese Nation of Antwerp on several occasions, procured hand-handle firearms to the Portuguese market.[332] His name appears in the will of Antonio Fernandes Pais as a preferential partner and correspondent in Antwerp for the sale of German firearms to the Portuguese state.[333] Like Antwerp, Hamburg was an outlet for Lisbon's imports of weaponry and munitions, as shown by the partnership between the Nuremberg born entrepreneur Jácome Fixer and his Amsterdam associates Claes Staes and Gaspar Pels, who fulfilled their turn of the century and early 1600s royal contracts through a series of purchases in Hamburg.[334]

Gunpowder was another military resource that required the Portuguese authorities to tap into international trade networks. Along with sulphur, the key ingredient to make gunpowder was saltpetre, a product that was conspicuously absent in Portugal. Although saltpetre could be acquired within Iberia[335] and procured in markets across Northern and Central Europe,[336] the best quality saltpeter available in Portugal and many European states came from Asia.[337] Tried and tested contractors like Manuel Moreno de Chaves were well aware of the advantageous quality-cost relation of making gunpowder from Indian

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331 The following year, Gilles van den Bosche, the Antwerp notary who specialized in the affairs of the Iberian communities, was presented with a statement from a royal clerk at the royal arsenal in Lisbon confirming the delivery, Felix Archief (FA), Notariaat (Antwerpen, 1480-1810), N#3606, fl. 43-44.

332 Florbela Frade, 'As Relações Económicas e Sociais Das Comunidades Sefarditas Portuguesas. O Trato e a Família' (Unpublished PhD Dissertation, Lisbon, Universidade de Lisboa, Faculdade de Letras, 2006), 237.

333 Felix Archief (FA), Notariaat (Antwerpen, 1480-1810), N#3622, fl. 399, 399v

334 Hermann Kellenbenz, 'Vicissitutes de Jácome Fixer, Mercador Alemão de Lisboa', in *Separata Do V Colóquio International de Estudos Luso-Brasileiros*, vol. II (Coimbra: Imprensa da Universidade de Coimbra, 1965), 12–15.

335 For example, in Southern Spain. A case in point are the purchases commissioned to António Garfião, who was the Crown's go-to agent for purchases of grain, weaponry and naval stores in the Seville and in the regions surronding Grenada and Murcia in the 1630s. For instance, in 1636 he acquired 1,000 *quintais* of gunpowder in Seville (a purchase worth 7 to 8,000,000 *réis*) and saw that the explosives were brought to Lisbon. As with a previous contract involving grain in Andaluzia, Garfião's purchases were bankrolled by the merchant-banker Jorge Fernandes de Oliveira, who was granted in return preferential rights over the royal pepper batches in a future sale. AHU, CU, cod. 504, fl. 206-206v, 221-223, 226-226v. It is well likely that Garfião was actually Antonio Graffior, a Genoese *asentista* who, in the 1630s, contracted with the Castilian authorities the provisioning of saltpetre the arsenals of several Southern Spanish towns, including Murcia. José Javier Ruiz Ibáñez, *Las dos caras de Jano: monarquía, ciudad e individuo. Murcia, 1588-1648* (Murcia: Editum, 1995), 216–17; Thompson, *War and Government in Habsburg Spain, 1560-1620*.

336 Bogucka, Maria, 'Saltpeter Production and Saltpetre Trade between Gdansk and Amsterdam in the First Half of the Seventeenth Century', in *From Dunkirk to Danzig: Shipping and Trade in the North Sea and the Baltic, 1350-1850 : Essays in Honour of J.A. Faber on the Occasion of His Retirement as Professor of Economic and Social History at the University of Amsterdam*, ed. W. G. Heers, L. M. B. J. Hesp, and Leo Noordegraaf (Amsterdam: Verloren Publishers, 1988).

337 On the imports of South Asian saltpetre by various European interoceanic enterprises, Brenda J. Buchanan, 'Saltpetre: A Commodity of Empire', in *Gunpowder, Explosives and the State: A Technological History*, ed. Brenda J. Buchanan (New York: Routledge, 2016), 67–90; James W. Frey, 'The Indian Saltpeter Trade, the Military Revolution, and the Rise of Britain as a Global Superpower', *Historian* 71, no. 3 (2009): 507–54.

saltpetre.[338] In 1625 he asked permission to bring on the *Carreira's* inward-bound voyage a shipment of 2,000 *quintais* of saltpetre, from which he would produce the gunpowder he was commissioned by contract. To increase the chances of his requested being accepted, he promised to make use of the newly established milling plant at Barcarena to transform the saltpetre into the final product. Although the documentation of the Council of the Exchequer does not reveal the final price, the contract underwritten with Moreno de Chaves represented a 1,000 *réis* decrease on the cost of each *quintal* of finished gunpowder from previous tenders, a price reduction that made the Crown eager to accept the deal. The shipment of the saltpeter would be spread in four different return-leg voyages, the last of which would be at the Crown's expense. In exchange for these shipments, Moreno de Chaves requested to import merchandises worth 2,586,900 *réis* free of duties and freights payable at the House of India, deducting this sum from the final price of the contract. The monarchy accepted the contractor's request and the shipment license was issued and sent to India, instructing the viceroy in Goa to allocate space for the saltpetre in the hull of the ships bound for Lisbon. Another reason why the Crown was receptive to the requests of the contractor is because the tax break equalled an outstanding debt of the Crown to Chaves.[339] This example shows how the arrears of the royal treasury could be turned from a financial liability into new investment opportunities. The arrears could be used as leverage during the auctioning for a royal contract, allowing the creditor to come out the winner over other bidders, even if they offered more financially advantageous terms. The debt was therefore cancelled out by virtue of the contract, which included these lucrative fringe benefits, being entrusted to him.[340] This is one the reasons why, despite the Crown sometimes keeping merchant-bankers waiting to be paid for their provisioning concessions, they continued to take part in public-private partnerships and provide credit, goods and logistics.

Table 16. Costs with some raw materials needed for the making of ammunitions in 1607

Raw Material	Amount (*quintais*)	Price per unit (*réis*)	Total cost (*réis*)
Copper	3.173	14.000	44.422.000
Tin (*estanho*)	209	10.000	2.090.000
Total	**3.382**		**46.512.000**

Source: AGS, SSP, lib. 1466, fl. 157: "folha da artª e monicoens q são necess(arias) comforme o regim(ento) de S(ua) M(agestade) pera se armarem as Sinquo naos d 4 cubertas da armada da India do a(no) q vem de 608"

[338] For a glance on the saltpetre flows from the *Estado da Índia* to Portugal in the sixteenth and seventeenth centuries and the intra-Asian circuits that Goa had to tap into in order to acquire the commodity, René. J. Barendse, *The Arabian Seas. The Indian Ocean World of the Seventeenth Century* (Armonk, NY-London: M.E. Sharpe, 2002), 7–8, 141–42, 201, 317; Subrahmanyam, *The Political Economy of Commerce Southern India, 1500-1650*, 33, 55, 306. AHU, CU, cod. 35, fl. 8, 8v.

[339] AHU_CU_058 (Índia) cx. 15, doc. 186.

[340] After being contractor of Mazagan, Henrique Gomes da Costa was awarded the Angola contract (1624-1627), not because he was the highest bidder in the public tender organized by the Council of the Exchequer, but because the Crown had scores to settle with him regarding his previous concession. AHU_ CU_001 (Angola), cx. 2, doc. 153. For a succinct explanation of the contract for the slaving offshoot of Angola, in Western Central Africa, see footnote 661.

Following Portugal's secession from the Hispanic Monarchy in 1640 and the truce signed (in Europe) with the United Provinces, the Braganza administration went on to rely on Dutch imports of saltpeter and other warfare materials. Cátia Antunes drew attention to the fact that saltpeter was one of the few colonial commodities that the Netherlands placed in the Portuguese markets, when the opposite was the norm in the commercial exchanges between the two countries.[341] There is also evidence of ammunition components made in the British Isles being imported into the Lisbon market. In November 1625, brothers Manuel and Diogo Francês purchased one hundred pieces of gunpowder and six barrels of tin from Lionel Wake and João Covam, English merchants in Antwerp.[342] These products were shipped from England to Hamburg and placed in the care of the brothers agent, who would then arranged for their transportation to Lisbon.[343]

Similarly to what happened with arms manufacturing, the Portuguese kingdom lacked appropriate infrastructures to produce gunpowder. The authorities recognized this problem and tried to solve the country's external dependency, at least in the manufacturing process, since it would always be dependent on the imports of the key raw materials. Among the solutions put forward by the Portuguese authorities and by the Council of Portugal in 1617, was the hiring of Spanish specialists to install a gunpowder factory in the kingdom, oversee its works during its first years in operation and train the work-force. One of the specialists considered was Francisco de Lara, master-engineer of the royal armoury of the kingdom of Navarre. The monarchy also entertained the suggestion made by Leonardo Torriano, the Italian-born chief engineer of the Portuguese Crown, who put forward a plan to build a similar facility for less money. In this case, the Portuguese authorities considered the tenders made, not by private business, but by two officials, albeit serving different kingdoms of the Monarchy, eventually settling for the offer by Torriano, probably because it was the cheapest endeavour of the two.[344] This decision lead to the addition of a gunpowder milling facility to the Barcarena arms producing complex, which relied on hydraulic power for the manufacturing of explosives.[345] Although supplies of saltpetre and other gunpowder-making components were ensured by suppliers under contract with the royal exchequer, it is not clear how the production work was overseen. It is known that no royal monopoly on the making of explosives was in place prior to 1681, when exclusive rights to make gunpowder in the Portuguese kingdom were granted to Carlos de Sousa Azevedo, leading to the closure of a series of other privately run sites operating throughout the kingdom, a dozen of them in the Lisbon region, both *intramuros* and in the outskirts.[346]

As the case of the Barcarena factory shows, Portugal adopted a monopolistic framework to regulate and exploit the gunpowder-making sector later than other Western European monarchies, namely neighboring Castile. Towards the end of the sixteenth century and the start of the seventeenth several European states restricted private ownership of manufacturing sites for explosives and projectiles and subordinated their countries' domestic output to the needs of the central apparatus. For instance, in Castile, Portugal's closest import market, saltpeter became a royal monopoly during the 1580s and gunpowder making facilities were set up by the state in Malaga, Cartagena and Pamplona. Although the Crown ran these

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341 Antunes, *Lisboa e Amsterdão. 1640-1705*, 123.

342 These merchants operated regularly in Antwerp and ensure the transit of goods between the Southern Low Countries, Northern France and Portugal. They were especially active in the transhipment of goods that were remitted overland from Antwerp to Calais to Dover and from there to Iberia. The Spanish commanders in Flanders placed orders for uniforms from these merchants. Besides procuring military equipment, they were involved in the import of Flemish textiles and grain to Portuguese and Spanish ports.

343 Felix Archief (FA), Notariaat (Antwerpen, 1480-1810),N#3627, fl. 251, 251v.

344 AHU, CU, cod. 31, fl.62.

345 Quintela, Cardoso, and Mascarenhas, 'The Barcarena Gunpowder Factory: Its History and Technological Evolution between the Seventeenth and Twentieth Centuries', 126–27.

346 Quintela, Cardoso, and Mascarenhas, 125–26.

sites in the first decades following their creation, during the administration of the Count-Duke of Olivares, they were farmed out to private consortia, who were entitled "to all the saltpeter available and to make and sell all the powder they wanted" in the district of their lease, as soon the needs of the Crown had been accounted for. For the Crown, these monopolistic farms were advantageous as the Exchequer received not only stable income from the contractor several times a year, but remittances of gunpowder manufactured as part of their concession payments as well.[347]

3.1 Concluding remarks

Contracts for the acquisition of warfare materials, similar to those involving shipbuilding and the provisioning and victualing of fleets for the *Carreira da Índia* delayed the unavoidable: Portugal's decline as a commercial and territorial power along the Asian seaboard. The military resources mobilized through merchants and financiers under contract with the government allowed for the maintenance of positions in Asia for longer than the Crown could have managed on its own, that is, if the task was left purely to its salaried administrative personnel. Public-private partnerships were in practice the default approach to muster the arms and munitions required by the state's colonial demands. From reading the royal documentation, it is difficult to imagine how the Crown would have done without its contractors, given the state of financial stringency, the underfunded and under-staffed administrative machine and the gargantuan task that the Portuguese faced in Asia and the South Atlantic against better financed and better armed enemies.

At the start of the seventeenth century, Portugal's arms-making sector stood at a disadvantage when compared to its rivals. For a start, it lacked the mining resources needed for cannon smelting and the sulphur for the production of gunpowder. The chronic shortage of raw materials proved to be a serious shortcoming to the country's military ambitions, at least as soon as competition for colonization and overseas trade became fiercer. Although it was not the only reason, it was partially responsible for holding back the country from developing an arms making industry. In an attempt to solve this problem, the Crown reached out to the private sector, relying on contracts for the procurement of these politically sensitive raw materials and manufactures. Even when it took the initiative to set-up arms, ammunitions and explosives factories, the Monarchy entrusted the day to day management and financing of these sites to private businessmen, while expert-technicians recruited abroad oversaw the works at the factory. Since the output of these proto-industrial complexes never came close to meet the needs of the *Carreira da Índia* and of the imperial defense in general, especially in a period of fierce competition overseas, contracts were underwritten with import-export merchants. They made use of their superior information about the production centres or at least the international outlets, while the fact they were private businessmen and not holders of public office made it easier for them to acquire arms and ammunitions abroad.

Despite the various public private partnerships underwritten throughout the years, the Portuguese were unable to keep up with the sheer number of ships and men sent by their rivals, and the squadrons of Indiamen became a pale shadow of the armadas of the previous century. With minor fluctuations, the number of ships dispatched to Asia declined steadily throughout the period under study, reaching a historical low in 1630. By then the Portuguese empire was under attack in the South Atlantic, and the loss of the Northeast captaincies of Brazil to the Dutch increased the demand for permanent war fleets and convoys. For a

[347] Thompson, *War and Government in Habsburg Spain, 1560-1620*, 250, 254–55.

country with few human means meagre natural resources, and an incipient manufacturing capacity, its too thinly spread-out empire became extremely costly to defend.

The support provided by other territories of the Hispanic Monarchy, namely in terms of production outlets where the Portuguese Crown could supply itself, although important, could only go so far. Castile, a stronger military power and better endowed with human and natural resources, was not in the position to continuously aid Portugal due to its own conflicts in Northern Europe and the Caribbean. Still, the most successful reprisals Portuguese fleets achieved against Dutch forces worldwide were heavily supported by Castilian resources and manpower.[348]

This and the previous two chapters have made it clear that the logistics of state-sponsored shipping were extensively outsourced to profit-seeking and business oriented individuals. Direct administration was incidental. The exception rather than the rule. Only on very few occasions did the Council of the Exchequer or the royal officials who oversaw the naval stores and shipyards recommended direct control over production, the provisioning and transportation processes. These partnerships, although compelling for both parties, did not save the official Portuguese enterprise in Asia from political and commercial decline when it was faced with significant financial and geopolitical challenges. The ability of the Crown to outsource military logistics was constrained by the treasury's capacity to earmark the income streams that serviced the government contracts. For most of the period under study, it was not so much the case that the commercial elite of the kingdom was unwilling or unable to partner up with the Crown in tasks of public utility, such as mobilizing funds and resources to the India Run, but rather that the monarchy struggled to squeeze the funds to pay contractors.

[348] As will be shown in chapters 7 and 8.