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

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Chapter 2: Victualing

Next to paying the salaries of the people on board, the *Carreira's* most crucial provisioning operation involving the fleets human resources was ensuring that the crews manning the Indiamen, the soldiers and administrative officials in transit to India (viceroys, governors, military officers, magistrates or clergymen) were nourished while on open sea.[213]

The recent scholarship on the 'contractor state' has devoted much attention to naval victualing because this logistic operation was beset, perhaps more than any other, by all the main problems of supplying the armed forces before the age of the steam engine and the refrigeration systems.[214] Although procuring certain foodstuffs in bulk could be something of a problem,[215] it was just as big a challenge to preserve produce and other food products once they were brought on board. It had to be ensured that foodstuffs and liquids remained fit for consumption when ships were completely cut off from supply lines ashore during the long months at high sea. Because re-supplying at high sea was out of the question, and ports of call were few and far between, there was little to no margin of error in terms of how rations were stored during the voyage.[216]

The food supplies of the *Carreira da Índia* were carefully picked according to their nutritional value and endurance to perishable elements, even though the two criteria were not always easily compatible.[217] The planning that went into this task required minutia, as even the slightest miscalculation could have serious consequences for the outcome of the voyages. When it came to accommodate these food-supplies on the ship, a balance had to be struck between the optimal use of the space available on board (i.e. how to find space for the victuals without sacrificing space for the navigation equipment and for the tradeable cargoes), safety (i.e. not overload the ship), and meeting the nourishment needs of the people on board.

I. A. A. Thompson has suggested that in the late 1500s and early 1600s Portugal served as a laboratory to try-out victualing contracts before the Monarchy decided if it was worth employing them in other Iberian territories. Until the seventeenth century, in Spain, the purveying of foodstuffs to the armed forces had been directly handled by the state bureaucracy without much outsourcing.[218] Thompson's statement is hard to assess due to the patchy and inconsistent primary sources on Portugal's victualing contracts. Although there is no shortage of mentions to the mustering of rations for the annual voyage, very few contracts detailing the irksome task of feeding crews and soldiers have survived in the archives. Moreover, the few ones that did, do not disclose the list of products to be bought

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213 Unger, *The Ship in the Medieval Economy, 600-1600*, 26.

214 Knight and Wilcox, *Sustaining the Fleet, 1793-1815*.

215 A fleet which spent months at a time at high sea could not be nourished as it moved along with locally amassed goods, as armies could as they marched from town to town. Cut off from productive hinterlands and only stopping at a port of call every so often, food provisions had to be loaded onto the ships in their entirety before the fleet's departure. John Brewer, *The Sinews of Power: War, Money and the English State 1688-1783* (Cambridge: Harvard University Press, 1989), 28–29.

216 Jan Glete, 'Warfare at Sea, 1415-1815', in *War in the Early Modern World*, ed. Jeremy Black, 2nd ed. (London-New York: Routledge, 2005), 32–33.

217 Liam Matthew Brockey, 'Jesuit Missionaries on the Carreira Da Índia in the Sixteenth and Seventeenth Centuries: A Selection of Contemporary Sources', *Itinerario* 31, no. 2 (2007): 111–132; Amândio Barros, 'Vida de Marinheiro. Aspectos Do Quotidiano Das Gentes de Mar Nos Séculos XV e XVI', in *Estudos Em Homenagem a Luís António de Oliveira Ramos*, ed. Francisco Ribeiro da Silva et al., vol. 1 (Oporto: Faculdade de Letras da Universidade do Porto, 2004), 249–64.

218 Thompson, *War and Government in Habsburg Spain, 1560-1620*; According to Knight and Wilcox, England's first ever victualling contract was underwritten in 1565. From that date until the creation of the victualling board in 1683, contracting was the prime mean through which the royal navy was supplied with foodstuffs. Knight and Wilcox, *Sustaining the Fleet, 1793-1815*, chapter 7.

or the costs of each item, but solely the costs incurred by each person on board.[219] One thing seems clear, though. The resort to contracts was consistent throughout the period under study, although the more piecemeal public-private partnerships, involving had hoc supplies of one or two specific commodities became the norm over time. As with other naval logistics, the contractual arrangements to deal with the procurement of foodstuffs ranged from all-encompassing obligations to more specific tasks.

A demonstrative example of the more comprehensive deals involving per capita supplying is the contract drawn up with Manuel Moreno de Chaves on November 6, 1619. Chaves was put in charge of providing for the Portuguese coastal fleet (the *Consulado* fleet) during 1620 and that year's *Carreira da Índia.*[220] The contract included both the seamen and military personnel. The agreed-upon price for each sailor was 12,400 *réis*, whereas the price for each military was estimated at 17,000 *réis*. The victualling contracts followed a standard administrative distinction between crews who manned the ships (*gente da navegação)* and men of arms (the *gente de armas)*. Technically speaking, each branch of personnel was endowed with its own distinctive contract catering to its specific needs, even though both contracts could perfectly end up, as was frequently the case, in the hands of the same contractor. It could also happen that the provisioning of one group was put out on contract while the other was performed through direct administration.

Shortly after the signing of Manuel Moreno de Chaves' contract and its final approval by the king, the contractor received from the purveyor of the Crown's stores a list of the supplies he was to deliver by late January, in just two months' time.[221] The brief time-span between the moment when the list of foodstuffs was presented and the actual delivery was common in naval forces across Europe during the early modern period. For instance, in eighteenth century Britain this was possible because by the time the victualing contracts were negotiated both parties had a good idea about the inventory of goods and the amounts to be delivered. Furthermore, since information about the prices of the main foodstuffs was available to both parties, due to the relatively transparent nature of the English food markets of that period, it was not hard to make an accurate estimation of the aggregate costs of the whole operation.[222] By the same token, in eighteenth century Spain the contractors in charge of victualing naval squadrons were also given between two and three months to deliver their contracts' basket of goods.[223] In Habsburg Portugal contractors were able to fulfil their obligations to the state on such short notice because here too there was predictability about what and how much they would be asked to procure for the Crown. Making such a calculated guess was possible because the merchant-bankers who normally secured the India Run's provisioning contracts witnessed the preparations for the voyages undergoing in the Lisbon shipyards and in the royal stores, and were hence well informed about the size of those armadas. As soon as it was established how large the next armada would be, prospective contractors could make a calculated guess on the amounts they would be asked to procure based on the requirements of past fitting-out contracts for fleets of a similar size. In practice this meant that while the final touches on the government concession were still being put, a merchant banker could already make the necessary arrangements with his suppliers, ensuring

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[219] It must be said that some spreadsheets of the *Carreira da Índia*'s food baskets have survived in the Portuguese and Spanish archives, a few of which are included in this chapter. However, these sources rarely elaborate on how the Crown went about to obtain the goods in question, either by underwriting a comprehensive contract with one sole partnership or entrepreneur, by turning to a multitude of suppliers, each ensuring the provisioning of one or at best a few goods, or through direct administration.

[220] AGS, SSP, lib. 1474, fl. 8-11; AHU_CU_058 (Índia), cx. 15, doc. 186.

[221] For the provisioning of the coastal fleet he was also put in charge of, the Crown's shopping list would be given to him by January the first, just as Moreno de Chaves reached the busiest weeks of the India Run-related deliveries.

[222] Bannerman, *Merchants and the Military in Eighteenth-Century Britain*, 12.

[223] Torres Sánchez, *Military Entrepreneurs*, 49.

that the products would be ready for acquisition and deployment soon after. Whilst I do not claim that late the sixteenth and early seventeenth century Portuguese contractor state was as effective as some of its European counterparts in the following century, the victualing of the *Carreira da Índia*, when it functioned appropriately at least, shows the flexibility and agility of the royal contractors in mobilizing a wide range of foodstuffs to the interoceanic naval forces.

There were several reasons why these supplying operations were not easily brought to fruition. Each was beset by its own particular risks, but also offered distinct profit-making opportunities. Although the public-private partnerships that lasted for several years required contractors to tie-down capital for longer periods of time, they were potentially more beneficial and allowed for costs to be saved. Unlike single year concessions, they allowed the contractor to phase out purchases throughout the year, waiting for periods when the conditions were more favourable, without the urgency (and the cost increases) of one time deals, especially when negotiations were concluded so close to the delivery date. In view of the fact that everyone in the country knew when the India-bound fleets normally departed, the suppliers from whom the contractors provisioned themselves would logically increase prices in the months leading to the start of the voyage. Since multi-year concessions allowed the recipients to acquire slowly perishable goods, such as wine, salted-fish and meat, throughout the year, the purchase costs were reduced. On the other hand, as far as fresh goods were concerned, any contractor, be it a multi-year concessionaire or one-time supplier, was exposed to the price fluctuations that affected them in the months leading up to the start of the outward-bound voyage. Sudden upsurges in prices could occur due to bad crops or to the supplying chains being compromised because of war or due to bad weather's effects on maritime shipping. All these factors and more could seriously undermine his ability to meet contractual obligations and eat away the rates of return of his contracts.

Good record-keeping and good communication between the concessionaire and the authorities was also crucial to a successful implementation of these contracts. To make sure that deployments of provisions did not go unregistered, when a contractor delivered his victuals to the Crown's stores, the official in charge of purchases and deliveries (*Almoxarife dos mantimentos*) issued an invoice attesting that the delivery was made and the value of the goods deposited. The *almoxarife* forwarded a copy of the receipt to the treasurer of the royal warehouses, so that the Exchequer could register the transaction. By the end of the contractual tenure, Crown and contractor revised their respective accounts, crosschecking whether all requirements had been met and, if needed, some final adjustments were made. As far as the financial settlement of these contracts were concerned, in the case of Manuel Moreno de Chaves, the supplies he provided for two fleets were partially paid from the output of tariffs levied on the privately owned cargoes brought from Asia in 1619. The nature of the revenues *ex ante* assigned to the recipient demonstrates once again how the returns of the *Carreira da Índia* were funding the costs of the next yearly fleets. All payments to the contractor were signed off by the general-treasurer of the House of India and remained registered in receipts.[224]

As it was showed in the previous chapter, in section 1.2., victualing taks were often combined in the same contract with other naval supplying operations. For example, it was not infrequent to see food-supplies being contracted along with the deployment of munitions and weaponry, as was the case with the contract negotiated with Jorge Lopes de Negreiros involving the *Santo António* and the *Nossa Senhora do Rosário*, both destined to leave with the 1639 fleet.[225] In contrast to the multi-tasking and bulk-victualing contracts described above, other supplying operations simply required that a specific foodstuff, be it biscuit, meat and

[224] AGS, SSP, lib. 1474, fl. 8-11. For the coastal armada, the contractor would be paid from the yields of the *consulado* collection, in accordance to the purpose for which that indirect tax had originally been created in 1595.
[225] AHU_CU_058 (Índia), cx. 22, doc. 116.

fish, or a particular type of beverage be delivered to the fleet. For example, in 1635, Abraham Volterns, a Flemish merchant, bid for the supplying of biscuit, offering to procure 200 *moios* of grain which would be subsequently baked.[226] Similarly, in 1627, the merchant banker Fernão Lopes Lopes[227] became the recipient of the contract to supply the House of India with wine and olive oil, for which he received 14,500 *réis* for each *tonel* of wine and 10,500 *réis* for each *quarto* of 13 *almudes*.[228]

Table 8. Victualing 1,000 soldiers en route to the Indian Ocean in 1587

Commodity	Amounts	Price per unit (*réis*)	Total cost (*réis*)
Biscuit (*quintais*)	2.625	1.450	3.806.250
Wine (pipes and carradas)	288 pipes + 840 *carradas*	12.000(pipe)+250 (*carrada*)	1.948.000
Olive oil (*quartilhos, toneis or cantaros*)	40 *quartilhos* + 4 *toneis* + 42 cantaros + 10 barrels (in these were also store vegetables)	40.000/*tonel*+500 (for 40 *quartilhos*) + 300 (*barrels*)	194.610
Vinegar (pipes)	19 + 6 *almudes*	4.000	76.930
Beef (*arrobas*)	4.000	400	1.600.000
Dried cod or white-fish (dozen)	832 dozens of "*pescado*"	500	416.000
Water (pipes)	674 pipes (7 months) + some extras	1.000	1.184
Hoops (bundles)	3.020	-	271.800
Pipe hoops (bundles)	150	6.000	900.000
Osiers (*vimes*)	40	1.600	64.000
Chick peas (*alqueires*)	40	180	7.200
Lentils (*alqueires*)	34	280	9.520
Almonds (*alqueire*)	34	260	8.800
Prunes (*alqueires*)	34	200	8.160
Mustard (*alqueires*)	10	300	3.000
Honey (*arrobas*)	25	800	20.000
Sugar (*arrobas*)	25	2.200	55.000
Onions (bundles)	2.000	20	40.000
Garlic (bundles)	2.000	15	30.000
Medicine and drugs (per ship)	5	30.000	150.000
Total			**9.460.454**

Source: BA, 51-VI-54, 'Papeis varios pertencentes as conquistas da America e India', fl. 26-27.

[226] AHU_CU_058 (Índia), cx. 19, doc. 212; AHU, CU, cod. 504, fl. 164.

[227] Lopes Lopes had a several decades-long run as tax-farmer and contractor. He was, amongst other things, recipient of the royal farms of the *Sete Casas de Lisboa,* the *consulado* and the Brazil Wood monopoly (which he was managing by 1627). The price of the contract was deducted from the concession fee of Lopes Lopes' brazil-wood monopoly farm

[228] BA, 51-VI-28, fl. 79, 79v.

Table 9. Supplies for the 1605 outward-bound 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
Soldiers	**230**	**200**	**220**	**250**	**330**	**1.230**
Seamen	**110**	**117**	**106**	**111**	**131**	**575**
Biscuit (*quintais*)	985	894	960	1.036	1.386	**5.262**
Wine (casks)	104	95	102	110	148	**557**
Olive oils (*quartilhos*)	19	16	18	19	26	**97**
Vinegar (cask)	7	7	7	7	10	**36**
Pork meat (*arrobas*)	660	592	640	700	952	**3.542**
Water (casks)	284	256	276	301	489	**1.522**
Flour (*moios*)	24	19	14	2	2	**61**
Salt (*moios*)	2	2	2	2	2	**10**
Peas (*alqueires*)	16	16	16	16	20	**84**
Lentils (*alqueires)*	12	12	12	12	16	**64**
Plums (*alqueires*)	12	12	12	12	16	**64**
Almond (*alqueires*)	12	12	12	12	16	**64**
Mustard (*alqueires*)	4	4	4	4	4	**20**
Honey (*arrobas*)	8	8	8	8	8	**40**
Sugar (*arrobas*)	8	8	8	8	8	**40**
Onions (bundles)	660	592	640	700	950	**3.542**
Garlic (bundles)	660	592	640	700	950	**3.542**

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".

With one noteworthy exception, the food rations of the India Run voyages (of which two examples can be found in tables 8 and 9) were obtained either in the Portuguese domestic market or in neighbouring Spain. This exception was grain, the basic ingredient in the making of the staple ration for the India Run's crews and passengers, biscuit. Flour was used to make bread, which was then transformed into biscuit in Lisbon's royal ovens and in the Tagus valley. One of those ovens was located at *Vale do Zebro*,[229] in the Southern bank of the river, and it was there that Manuel Moreno de Chaves was required by contract to prepare his biscuit.[230] As the most essential of all naval foodstuffs, the quality of the biscuit was obviously a matter of great concern to the Crown, especially when the procurement was entrusted to an external party.[231] Tight regulations were included in the contracts, among which the

[229] Isabel M. R. Mendes Drumond Braga, 'A Produção Artesanal', in *Nova História de Portugal. Do Renascimento à Crise Dinástica*, ed. João José Alves Dias, vol. V (Lisbon: Editorial Presença, 1999), 183.
[230] AHU, CU, cod. 34, fl. 129v; ibid., cod. 35, fl.1v.
[231] The provisioning of biscuit and bread to the armed forces, naval and land-bound, was a matter of great concern for governments everywhere in Europe and beyond, thus why central apparatus insisted in maintaining

assignment to a particular facility where all stages of manufacturing would take place under the watchful eye of the royal officials. According to this regulation, the contractor was explicitly forbidden from baking biscuit anywhere else but here. If the recipient baked his biscuit outside the ovens designated by the Crown in his contract, he would not only forfeit financial compensation for his delivery but might actually be taken to court.[232]

Due to the country's chronic inability to grow enough wheat, barley, millet or rye to meet the consumption demands of Lisbon and the kingdom's other urban centres,[233] grain needed for the *Carreira*'s armadas had to be imported on a regular basis. In Lisbon in particular, the authorities were under significant pressure to ensure a steady stream of supply given that it not only was, by far, the country's biggest city and the centre of the royal administration, but also the headquarters of a vital naval branch of the Hispanic Monarchy, the *armada del mar oceano,* as well as of the convoys and reliefs for the Portuguese empire.[234]

In a country where the climate and the soil were for the most part ill-suited to grow wheat, the cereal preferred by consumers, the main production areas were the food plains of the Tagus valley and the fields surrounding the city of Beja, in the region of Lower Alentejo.[235] Although locally grown produce was usually enough to meet the demands of rural communities and small and medium-sized towns in the interior of Portugal, imports of flour and grain were instrumental to ensure the provisioning of the larger urban centres on the coast.[236] The reliance on international supplying networks did not mean that an internal market for cereals catered to the needs of the largest towns did not exist in Portugal during the period under study. In Lisbon throughout the 1500s and the first decades of 1600s, grain from the Tagus Valley and Estremadura was regularly dispatched downstream by boat to the capital.[237] These and other remittances of cereals where normally stored at the *Terreiro do Trigo,*

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processing food facilities. Portugal's case was in this regard not exceptional. Torres Sánchez, *Military Entrepreneurs*, 46; Bannerman, *Merchants and the Military in Eighteenth-Century Britain*, 11.

232 In the case of Moreno de Chave's contract, a share of the grain was actually handed to him by the Crown. All the grain that was to be found in several of the Crown's granaries across the country, namely from the royal estate *reguengo* in Benavente and Paul da Seca, as well as the royal ovens of Ribatejo were placed at the contractors' discretion. This grain and the rest that the contractor would procure would then be baked by him. The preferential access to raw materials was a usual caveat of the royal *assentos* but this case was even more significant considering the recipient was required to offer any financial compensation to the Crown for resorting to its stocks.

233 Recently, the topic of Portugal's multi-secular grain shortage and external dependency has been revisited. The new studies have concluded that the country's structural food problem was blown out proportion by both the observers at the time and by most twentieth century historians. Rather than a dormant and subsistence-driven agriculture, new evidence shows entire sub-sectors responding and adapting to the demands of the market, not only at a national level but internationally too, becoming more specialized and export-oriented as a result. The reliance on the grain imports should be seen less as proof of the structural weakness of the Portuguese agriculture, and more as a testament to its market-orientation and of the integration of the kingdom's agricultural hinterlands in international commodity chains. The exports of certain crops were balanced out with the imports of bread-making grains for the coastal urban centres Moreover, these studies also demonstrated how some centuries, for instance in the eighteenth, experienced long periods of positive external food balances. However, the *long-durée* perspective confirmed that the period between the last quarter of the sixteenth century and the first half of the seventeenth was defined by external food deficits, albeit not alarming ones. Leonor Freire Costa and Jaime Reis, 'The Chronic Food Deficit of Early Modern Portugal: Curse or Myth?', *Análise Social* 223, no. LII (2nd) (2017): 416–29.

234 Joaquim Romero Magalhães, 'A Estrutura Das Trocas', in *História de Portugal. No Alvorecer Da Modernidade (1480-1620)*, ed. Joaquim Romero Magalhães (Lisbon: Editorial Estampa, 1997), 297–301.

235 Costa, Lains, and Miranda, *An Economic History of Portugal, 1143-2010*, 64; Joaquim Romero Magalhães, 'As Estruturas Da Produção Agrícola e Pastoril', in *História de Portugal. No Alvorecer Da Modernidade (1480-1620)*, ed. Joaquim Romero Magalhães, vol. 3 (Lisbon: Editorial Estampa, 1997), 230–31.

236 Margarida Sobral Neto, 'Conflict and Decline, 1620-1703', in *An Agrarian History of Portugal, 1000-2000. Economic Development on the European Frontier*, ed. Dulce Freire and Pedro Lains (Leiden-Boston: Brill, 2017), 109–10; Godinho, *Os Descobrimentos e a Economia Mundial*, 3:217–23.

237 Miranda, 'Coping with Europe and the Empire, 1500-1620', 92; Magalhães, 'A Estrutura Das Trocas', 291, 297–98.

the capital's central granary and the only certified place for the wholesale of grain in Lisbon. This municipal facility was conveniently located by the Tagus, so to allow bulk cargoes of grain brought by the sea to be immediately stored as soon as they had been offloaded.[238]

The dispatching of the annual overseas armadas put significant pressure on Lisbon's grain stocks and drained wheat away from the other cities at specific times of the year, especially from February to April when the *Carreira da Índia* departed.[239] The potential effects were naturally temporary shortages and inflation. Whether it was the Crown requisitioning some of the cereals kept at the *Terreiro do Trigo*, or contractors acquiring significant amounts to meet their provisioning duties, the supply of the yearly India voyages inevitably meant that grain that could be consumed by the urban population was syphoned from the market.[240]

One of the main reasons behind the establishment of a royal factory in Andalusia in the fifteenth century[241] was the procurement of cereals that were either grown in Southern Spain or were brought there from abroad to be redistributed across the Iberian Peninsula. This grain made its way to Portugal through the *portos secos* (dry-ports), the overland customs at the border with Castile, and benefitted from the tax-exemptions on the import of wheat and other cereals introduced during the Union of the Crowns.[242] When a factor was not dispatched by the government in Lisbon, merchants bid for the opportunity to provision the Crown stores in Lisbon with cereals acquired in Southern Castile. For example, in 1635, Antonio Garfião was hired to purchase wheat in Seville for two carracks that would depart for India the following year. After securing a royal license from the local authorities for the grain to be extracted from Castile (*licencia de saca)*, he was instructed to oversee its transportation to the Crown-run ovens in Vale do Zebro, where the transformation into biscuit would be carried out. With the Portuguese government seriously strapped for cash, this purchase was made possible thanks to a line of credit of 6,000,000 *réis* extended by the Lisbon-based merchant-banker Jorge Fernandes de Oliveira.[243] This loan was reportedly made against the king's remaining batches of pepper.[244] Garfião's purchase and delivery of Andalusian wheat shows how foodstuffs for the naval forces were also obtained through the input of financial intermediaries who backed the designated contractor. On the back of a solvent and well informed network of correspondents, and against royal revenue streams or, in this case, a marketable commodity, businessmen made sure that upfront cash was available for purchases in different locations and timings. As long as the Crown was able to earmark receipts to those private credit channels, the provision of food rations to the India voyages could be ensured and private investors could reap a profit.

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238 Francisco Duarte Ferreira Mangas, 'Segurar a Fome. O Terreiro Do Trigo de Lisboa No Século XVI' (Unpublished MA Dissertation, Lisbon, Universidade Nova de Lisboa-Faculdade de Ciências Sociais e Humanas, 2016).

239 The problem of syphoning substantial amounts of grain from the market because of the need to supply the armed forces and depriving the rest of the population of affordable food in the process was a problem that every state in Europe and elsewhere faced; Goodman, *Spanish Naval Power, 1589-1665*, 154–55.

240 Magalhães, 'A Estrutura Das Trocas', 299–300.

241 Virgínia Rau, 'Notas Sobre Feitores Portugueses Na Andaluzia', in *Estudos de História Medieval* (Lisbon: Editorial Presença, 1986), 132–37; Godinho, *Os Descobrimentos e a Economia Mundial*, 3:269–80.

242 Although supressed after Phillip II was sworn king of Portugal, the dry-ports customs were later reintroduced. Some tax-exemptions were, however, maintained for the grain imports from Castile, and the proceeds of the landed customs were allocated to the sustenance of several public granaries across the kingdom. Eduardo F. de Oliveira, *Elementos para a História do Município de Lisboa,* vol. 2, (Lisbon: Typographia Universal, 1888), 100-101.

243 It is no secret that Jorge Fernandes de Oliveira maintained sustained contacts with Seville's mercantile community. It is not unlikely he reached out to his brother living in Seville, Jorge Rodrigues Boino, a leading figure in the city's Portuguese community to represent him in this business. Boyajian, *Portuguese Bankers at the Court of Spain, 1626-1650*.

244 AHU_CU_058 (Índia), cx. 19, doc. 200; AHU, CU, cod. 504, fl. 161v-163v.

Table 10. Victualing vessels for the 1600 and 1603 India Run voyage

1600				**1603**		
Name unknown (550 Tons)				***São Salvador* (? Tons)**		
Total	**Soldiers**	**Seamen**	**Number of men on board**	**Total**	**Soldiers**	**Seamen**
362	250	112		330	220	110
Amounts of victuals on board			**Commodity**	**Amounts of victuals on board**		
1.074	615	459	Biscuit (*quintais*)	1.000	550	450
115	72	43	Wines (pipes) Wines (pipes-p, *alqueires*-a)	105p+20a	63p+12a	42p+12a
1.086	750	336	Unspecified Meat (*arrobas*) Beef meat (*alqueires*) Porc meat (*alqueires*)	1.320 660	880 440	440 220
150	104	46	Dried cod or White-fish (dozen)	274*	183*	91*
130	80	50	Sardines (*arrobas*)			
31,5	19,5	12	Olive-oil (*quartilhos*) Olive-oil (*quartilhos*-q, *cantaros*-c)	6q+11c	4q+3c	2q+8c
13	9	4	Vinegar (pipes) Vinegar (pipes-p, *cantaros*-c)	7p+6c	4p+6c	3p
244 (half of them iron-bound)	168	76	Water (pipes)	286 (224 with hoops for 7 months and 62 for 2 months)	192 (150 with hoops for 7 months and 42 for 2 months)	94 (74 with hoops for 7 months and 20 for 2 months)
69	48	21	Reserve (pipes) Flour (*moio-m*, *alqueires-a*)	1m+40a	1m	40a
2,5	1,5	1	Salt (*moio*)	2	1	1
8	4	4	Hoops (bundles)	8	4	4
24	12	12	Osiers (vimes)	20	10	10
14	8	6	Peas (*alqueires*)	14	8	6
10	6	4	Almonds (*alqueires*)	10	6	4
10	6	4	Prunes (*alqueires*)	10	6	4
10	6	4	Lentils (*alqueires*)	10	6	4
2	1	1	Mustad (*alqueires*)	4	2	2
724	500	224	Garlic (ropes)	660	440	220
724	500	224	Onions (ropes)	660	440	220
8	4	4	Sugar (*arrobas*)	8	4	4
8	4	4	Honey (*arrobas*)	8	4	4

* White-fish or twice as much in dried cod

Source: Bernardo Gomes de Brito and Charles R. Boxer, *The Tragic History of the Sea, 1589-1622: Narratives of the Shipwrecks of the Portuguese East Indiamen São Thomé (1589), Santo Alberto (1593), São João Baptista (1622) and the Journeys of the Survivors in South East Africa, Works Issued by the Hakluyt Society* (Cambridge: Hakluyt Society, 1959), 276. Appendix (B). 'Provisions of an Outward-bound Portuguese East Indiaman, c. 1600'; BA, 51-VI-54, 'Papeis varios pertencentes as conquistas da America e India', fl. 13-14, "Roll dos mantim(entos) q os Contratadores hao de embarcar este anno de 1603 na nao salvador as 220 pessoas darmas e 110 de navegação".

As far as grain making its way into Portugal was concerned, the majority came by sea from supplying markets beyond the Pyrenees. There had been a steady inflow of English, French and Baltic grain into Portugal going back to the Middle Ages, coming out of maritime trade centres like Bristol, Saint Malo, La Rochelle and Bordeaux,[245] and equally from Burgundian ports,[246] and Hanseatic and Baltic towns. Among the later stood out Dazing, the terminus of a network that through the Vistula channelled the produce of the fertile grain fields of Poland into the Baltic Sea. During the Union of the Crowns, grain purchases for the Portuguese market were arranged via the main international trade hubs and contractors were often directly involved.

Despite losing much of its former centrality in the articulation of the commercial flows between Iberia and the Baltic, at the turn of the sixteenth century and first decades of the seventeenth century, merchants under contract to the Portuguese Crown still procured German and Baltic wheat, rye and barley via Antwerp.[247] For instance, in April 1606, Nicolas de Lacatoire, a Flemish merchant residing in Lisbon and a royal contractor on several occasions,[248] received power of attorney from Nicolas van Meerstraten, merchant in Dunkirk, to collect from João Soeiro,[249] a wholesaler and tax-farmer, what he was owed for a batch of wheat and other merchandises shipped to Portugal in the vessel *São Pedro*, of Blaes Jansen.[250]. Through his contacts in the Scheldt emporium, Soeiro had commissioned a consignment of cereals but failed to go through with the payment, forcing van Meerstraten to rely on a correspondent in Lisbon to collect the unpaid sums.

Among the Hanseatic entrepôts involved in Portugal's grain imports, Hamburg was arguably the most important. From the merchant republic by the Elbe, merchantmen were freighted to transport bread-making cereals from Baltic ports and the surpluss of German producing areas, such as Brandenburg and Magdeburg, to Lisbon, Porto and other coastal towns.[251] Despite the restrictions imposed by the local authorities on the export of foodstuffs since the Middle Ages, grain was still (re)exported to Portugal, Spain and the Mediterranean via Hamburg in the seventeenth century. In accordance to the staple rights conferred upon the merchant-citizens of Hamburg, the city's government required the members of the

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245 Godinho, *Os Descobrimentos e a Economia Mundial*, 3:223–27. There is little information regarding the imports of French grain during of the Union of the Crowns, although, according to Godinho, they had been recurrent prior to the last quarter of the 16th century.

246 Jacques Paviot, *Portugal et Bourgogne Au Xve Siècle (1384-1482). Recueil de Documents Extraits Des Archives Bourguignonnes* (Lisbon-Paris: Centre Culturel Calouste Gulbenkian, 1995), 55–65.

247 On the re-exports of German grain to Portuguese towns via Antwerp during the sixteenth centuries see; Donald J. Harreld, *High Germans in the Low Countries: German Merchants and Commerce in Golden Age Antwerp* (Leiden-Boston: Brill, 2004), 34.

248 For most of the 1620s, the state's card-games monopoly (*estanco das cartas de jogar e solimão*) was farmed out to him. AGS, SSP, lib. 1473, fl. 199-213; Eddy Stols, 'A «nação» Flamenga Em Lisboa', in *Flandres e Portugal. Na Confluência de Duas Culturas*, ed. John Everaert and Eddy Stols (Antwerp: Edições Inapa, Fonds Mercator, 1991), 119–41.

249 Soeiro is best known in the secondary literature for his royal farm of Cape Verde and the Upper Guinea coast, which was in effect between 1609 and 1614. The Cape Verde contract, which encompassed both the Archipelago and the adjacent mainland, included the licensing of the slave trade on that Western African district and the collection of duties on the coming and going slaving vessels. This contract was terminated prematurely due to accumulated arrears to the royal treasury and in the midst of accusations that Soeiro used his position as tax-farmer to encourage Northern European interlopers to trade in the region in violation to the Portuguese king's monopolies. Soeiro was accused of collusion with his Southern-Netherlands-based brother, Diogo Lopes Soeiro, to foster the Northern European illegal (from the stand-point of the Portuguese Crown) encroachment. See Silva, *Dutch and Portuguese in Western Africa*, 277–78; Mark and Horta, *The Forgotten Diaspora*, 165–72; Torrão, 'Rotas Comerciais, Agentes Económicos, Meios de Pagamento', 29, 36–38, 40–45, 74.

250 Felix Archief (FA), Notariaat (Antwerpen, 1480-1810),N#3585, fl. 110-110v.

251 In the 1630s, the first decade for which consistent custom records exist, grain was Hamburg's number one export into the Portuguese market by leaps and bounds. Grain made for 70% of all exports, far ahead of textiles, metalwares and weaponry with 7% and 3 to 4 % respectively. Jorun Poettering, *Migrating Merchants: Trade, Nation, and Religion in Seventeenth-Century Hamburg and Portugal* (Berlin-Boston: de Gruyter, 2018), 15–17.

Portuguese Nation to supply themselves from a local burgher and arrange for the grain to be shipped through him, and no longer from wholesalers that did not possess that status.[252]

But more than any other Northern European entrepôt, it was Amsterdam that took centre stage in the provisioning of the Portuguese market with Baltic grain during the period under study, albeit at times indirectly. The thousands of merchantmen operating from Holland during the first half of the seventeenth century ensured that goods hailing from different European markets circulated in every direction at very competitive rates, and the trade of Baltic grains against Portuguese salt was one that made the most of their cargo carrying capacity.[253] Although recent studies revealed the existence of a noteworthy direct trade between the Baltic and Portuguese ports in the first half of the seventeenth century, there is no doubt that it was often in the Dutch staple market that the voyages were planned out, financed and insured, even when the ships deploying the grain at the consumption markets were not actually coming from Dutch ports.[254] Amsterdam thus worked as the coordination centre for a carrying trade involving numerous ports and products, which ultimately enabled the Portuguese coastal cities to receive the bread-making grain.[255] Despite the embargos that officially prohibited the imports of grain brought in Dutch bottoms, the trade resumed either through contraband,[256] by means of special licenses issued by the government,[257] or simply by hiring Germanic or Scandinavian crews and hoisting the flags of these jurisdictions.

There are some disagreements about the profile of the Amsterdam investors who ensured the provisioning of the Portuguese coastal towns and the Crown stores with grain. Some scholars have argued that, as opposed to the trade in salt and colonial wares like sugar and brazilwood, entrepreneurs of the Portuguese Nation of Amsterdam played a minor role in the acquisition of Scandinavian and Baltic staples, such as grain, but equally timber and iron.[258] According to them, these trades were left in the hands of Dutch and German-speaking merchants who had visited those ports for decades, had representatives in place at these locations and were knowledgeable of the vagaries of the trade in those outlets. As a result, the expatriate Portuguese merchants who settled in the Dutch Republic at the turn of the sixteenth century and in the early decades of the 1600s allegedly preferred to focus on the trade of Iberian colonial products. More recently, however, Jessica Roitman revealed how several prominent figures of the Portuguese Nation of Amsterdam invested heavily in the

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252 Jorun Poettering, 'The Economic Activities of Hamburg's Portuguese Jews in the Early Seventeenth Century', *Transversal. Zeitschrift Für Jüdische Studien* 14, no. 2 (2014): 17.

253 Jan de Vries, Ad van der Woude, and Ad Van Der Woude, *The First Modern Economy: Success, Failure, and Perseverance of the Dutch Economy, 1500-1815* (Cambridge: Cambridge University Press, 1997), 357–62.

254 Ana Sofia Ribeiro et al., 'Portugal and the Baltic Trade. An Overview, 1634-1800', in *Seaports in the First Global Age. Portuguese Agents, Networks and Interactions (1500-1800)*, ed. Amélia Polónia and Cátia Antunes (Oporto: U. Porto Edições, 2016), 118–20; Cátia Antunes, *Lisboa e Amsterdão. 1640-1705. Um Caso de Globalização Na História Moderna* (Lisbon: Livros Horizonte, 2009), 101–2, 120.

255 Antunes, *Lisboa e Amsterdão. 1640-1705*, 74–79, 100–103, 119–20.

256 For the contraband at Portuguese ports and the response mustered by the Habsburg authorities, Ángel Alloza Aparicio, 'Portuguese Contraband and the Closure of the Iberian Markets, 1621-1640. The Economic Roots of an Anti-Habsburg Feeling', *E-Journal of Portuguese History* 7, no. 2 (2009): 1–18.

257 There are references to these permits all throughout the period under study. For example, due to the near breakdown of Lisbon's grain stocks in 1633, one such extraordinary permit was discussed between the presidente of Lisbon's Municipal Council, Jorge de Mascarenhas, Madrid and the Portuguese viceroy, the count of Basto. Eduardo F. de Oliveira, *Elementos para a História do Município de Lisboa,* vol. 4, (Lisbon: Typographia Universal, 1888),8.

258 Daniel M. Swetschinski, 'The Portuguese Jewish Merchants of Seventeenth-Century Amsterdam: A Social Profile' (Unpublished PhD Dissertation, Waltham, Brandeis University, 1980), 174; Ernst van Veen, *Decay or Defeat?: An Inquiry into the Portuguese Decline in Asia, 1580-1645* (Leiden: Research School of Asian, African and Amerindian Studies, Universiteit Leiden, 2000). Chapter 6. Van Veen's view is the result of him focusing on the turn of the sixteenth century and not looking much beyond that period. By the start of the Twelve Years' Truce, Portuguese merchants in Amsterdam had successfully intruded the Baltic-Southern Europe bulk trades.

export of Baltic grain to Portugal and the coasts near the Strait Gibraltar.[259] The acknowledgement that the Baltic trades were an integral part of the portfolios of the *Nação*'s businessmen in no way diminishes the importance of other merchants operating in the Dutch staple-markets in channelling cereals into Portuguese ports. Nor does it call into question the relevance of cross-cultural partnerships and agency relations in the launching of trade voyages between the Baltic and the ports of Viana, Porto, Lisbon, Faro, and with the salt exporting hubs of Setúbal and Aveiro.[260]

Finally, the regular imports from the Northern Sea and the Baltic regions should not obfuscate the contribution of the Mediterranean, even if this area was also importing Baltic wheat and rye with an increasing frequency. Although comparatively smaller in volume, cereals grown in the Italian peninsula and the fertile fields along the Eastern coast of the Maghreb sporadically entered the Portuguese market, especially when the coastal cities could not be supplied from Northern Europe.[261] There is, unfortunately, little quantitative evidence of this trade to make a qualified assessment about the frequency and volume of this trade.[262]

Compared to cereals, other foodstuffs were easier to obtain, since they could be procured within the Portuguese kingdom. One of the most important items in the diet of the *Carreira da Índia's* crews was wine, a commodity that was produced in nearly every region of the country, including Lisbon's hinterland.[263] By drawing on the vineyards that grew in big numbers in the Tagus valley and the region of Estremadura, the royal fleets could be provisioned with wine at short distance. For instance, for the convenience of 1,000 soldiers in transit to India, in 1587, 288 filled pipes of wine from places in Lisbon's hinterland (Alenquer, Sacavém, and Caparica) were commissioned to a contractor, as shown by table 8.

Another Mediterranean crop that was always included in the diet of the Lisbon-Goa voyages were olives. Olive oil was the main source of vegetable fat on board the ocean-going ships, and it was used for cooking as well as for lighting.[264] The provisioning of the Indiamen with this product was also unproblematic due to the large surpluses of what was one of most dynamic export sectors of the Portuguese agriculture in the sixteenth and seventeenth centuries.[265] Olive groves existed in significant numbers all across south and central Portugal, and during the 1500s they expanded northwards to the region surrounding Coimbra and even north of the river Mondego, responding to the growing domestic and foreign demand.[266]. A good example of this expansion was the penetration of merchant-capital into

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[259] Jessica Roitman, *The Same but Different?: Inter-Cultural Trade and the Sephardim, 1595-1640*, Brill's Series in Jewish Studies ; v. 42 (Leiden: Boston : Brill, 2011), 133. Chapter 4 will further stress this point.

[260] Cátia Antunes, 'Cross-Cultural Business Cooperation in the Dutch Trading World, 1580-1776: A View from Amsterdam's Notarial Contracts', in *Religion and Trade: Cross-Cultural Exchanges in World History, 1000-1900*, ed. Francesca Trivellato, Leor Halevi, and Cátia Antunes (New York: Oxford University Press, 2014), 150–59; Antunes, *Lisboa e Amsterdão. 1640-1705*.

[261] For instance, in August 1630, with Lisbon's Municipal Council in session, it was recommended that in the event that Hanseatic or Southern Netherlandish merchants could not be hired to bring shipments of grain into the Portuguese capital and other port towns, the Portuguese political institutions should request permission to import cereals from other territories of the Spanish Monarchy, such as Andalusia, Oran and Sicily. A similar recommendation had been made seven years prior, when grain to make biscuit for the squadrons patrolling the Atlantic was in short supply. Eduardo F. de Oliveira, *Elementos para a História do Município de Lisboa,* vol. 3, Lisbon: Typographia Universal, 1887: 57, 361.

[262] Godinho, *Os Descobrimentos e a Economia Mundial*, 3:229–31.

[263] Costa, Lains, and Miranda, *An Economic History of Portugal, 1143-2010*, 65; José Vicente Serrão, 'O Quadro Económico', in *História de Portugal. O Antigo Regime (1620-1807)*, ed. António Manuel Hespanha (Lisbon: Editorial Presença, 1998), 71–72.

[264] Costa, Lains, and Miranda, *An Economic History of Portugal, 1143-2010*, 65–66.

[265] Costa and Reis, 'The Chronic Food Deficit of Early Modern Portugal: Curse or Myth?', 423; Virgínia Coelho, 'Preços Do Azeite Em Lisboa: 1626-1733. Tentativa de Compreensão Analítico-Sintética', *Revista de História Económica e Social* 4 (1979).

[266] Neto, 'Conflict and Decline, 1620-1703', 115; Magalhães, 'A Estrutura Das Trocas', 299.

the olive oil and wine production, leading to the acquisition of olive-grows and vineyards or the purchase of plots of land where these crops could be grown.[267]

Animal protein was a major part of the *Carreira da Índia's* nourishment and the procurement of different types of meat and fish was contracted out. To meet the animal meat quotas of their contracts, merchant-bankers or traders of more modest means drew on the country's animal husbandry, the country's leading farming sub-sector in terms of output, ahead of grain-crops, wine and olive oil.[268] For instance, Pedro de Baeça da Silveira, one of the leading contractors and bankers of the Portuguese Crown at the end of the Union of the Crowns, owed a ranch with dozens of heads of cattle. Knowing Baeça's involvement in the provisioning of the Brazil-bound armadas at the turn of the 1630s (see chapter 8), it is not surprising to find livestock in his investment portfolio.[269]

Contractors were expected to procure different assortments of meat and fish. Although different types of meat and fish were commissioned, each with a specific amount, the Crown granted some wiggle room to its suppliers, allowing them to make some adaptations to victuals they delivered. For instance, a certain amount of pork to be replaced for twice as much beef, while a batch of hake could be exchanged for half that amount in dried-cod.[270]

Among the fish diet included in the Indiamen's rations, sardines were at times included, as was tuna, which came primarily from the fisheries of the Algarve region, in the South (*Almadravas).* This was a sector of the economy that was under Crown monopoly, meaning that the tuna fisheries were frequently farmed out to private contractors, who exploited them in exchange for the customary flat concession fee of all tax-farming contracts.[271] The farming out of monopolistic contracts over fisheries stemmed from the legal framework regulating the ownership of riverine and seaside economic assets, which reserved to the Portuguese king the exploitation, taxation and equally the prerogative to grant the rights it enjoyed over those patrimonial assets to third parties. The grants could be extended as gracious rewards or as temporary leases against payment of a lump-sum.[272] Another prevalent fish species was dried and salted cod, which should come as no surprise given that it was the main source of animal protein in Iberia for non-elite, lower income social groups.[273] While the Portuguese only very sporadically made incursions to the New-Foundland fisheries before to the period under study, in spite of a conventional nationalist wisdom insisting to the contrary, their involvement in those waters did gain some traction during the Union of the Crowns.[274] This progress notwithstanding, victualing contractors and the overall consumer most likely supplied themselves through the English, French or

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267 Magalhães, 'As Estruturas Da Produção Agrícola e Pastoril', 237.

268 Costa, Lains, and Miranda, *An Economic History of Portugal, 1143-2010*, 97.

269 ANTT, Miscelâneas Manuscritas do Convento da Graça (hereafer MMCG), 'Livro em que se lançam as Consultas e Decretos tocantes à Junta dos Três Estados', p. 153.

270 BA, 51-VI-28, 'Miscellanea de noticias para a história civil da marinha e do exército de Portugal', fl. 79.

271 These fisheries were part of the king's domain revenues going back to the Middle Ages. For an example of a contract for the Tuna Fisheries of Algarve, see the farm of André Vaz de Resende from the 1620-23 triennium; AGS, SPP, lib. 1474, fl. 203-211.

272 Inês Amorim, 'The Evolution of Portuguese Fisheries in the Medieval and Early Modern Period. A Fiscal Approach', in *Beyond the Catch. Fisheries of the North Atlantic, the North Sea and the Baltic, 900-1850*, ed. Louis Sicking and Darlene Abreu-Ferreira (Leiden-Boston: Brill, 2009), 245–46.

273 Regina Grafe, 'Popish Habits vs Nutritional Needs: Fasting and Fish Consumption in Iberia in the Early Modern Period', *Oxford Discussion Papers in Economic and Social History* 55 (2004).

274 Darlene Abreu-Ferreira, 'Terra Nova through the Iberian Looking Glass: The Portuguese-Newfoundland Cod Fishery in the Sixteenth Century', *Canadian Historical Review* 79, no. 1 (1998): 100–117; Darlene Abreu-Ferreira, 'Portugal's Cod Fishery in the 16th Century: Myths and Misconceptions', in *How Deep Is the Ocean?: Essays on the History, Sociology, Archaeology, and Ecology of the Canadian East Coast Fishery*, ed. James E. Candow and Carol Corbin (Halifax: The Louisbourg Institute, 1997), 31–44.

even Basque export fishing sectors, until English fishing fleets came to dominate the supplying of the Iberian markets later in the seventeenth century.

Although, as in case of codfish, fish and meat were salted so they could be preserved, the sources reveal that in some cases it was only fit for consumption for a few months after departure, as happened in the 1587 expedition when salted beef had to be consumed before four months after departure. Complementary to salted meat, it is known that living animals were taken on board and slaughtered during the journey so that fresh meat could be made available.[275]

As far as vegetables were concerned, chick peas, lentils and dried fruits (almonds and prunes) were important items in the nourishment of the armadas' crews, soldiers and passengers. Sugar, honey and mustard were also added as they were an energy source and were used for medicinal purposes, often reinforced with medicinal chests (*boticas*). In order to ensure the quality of the medical and pharmaceutical supplies on board, the Crown's leading physician (*físico mor*) was responsible for inspecting the contractor's provisions. To ensure vitamin c intakes, which were crucial to prevent an outbreak of scurvy on board, fresh and picked fruits (lemons and oranges) were also included in the food supplies' lists. These could be found in abundance in the orchards of the region of Lisbon, so much so that in the second half of the seventeenth century the surplus started being exported in considerable volumes to supply Northern European fleets. Another thriving export staple, especially in the Southern ports of the Algarve, were dried fruits and figs, which were also consumed by the crews of the India Run.[276]

Having discussed the composition and origin of the rations of the crews and soldiers that sailed to Asia, it is now time to address how they were accommodated and preserved on board. Packaging was of paramount importance for the up keeping of the food supplies during the many months at sea, especially in the tropical or sub-tropical latitudes sailed by the Indiamen. For that reason, contractor Manuel Moreno de Chaves, who supplied the Portuguese coastal fleet (the *Consulado* fleet) during 1620 and the *Carreira da Índia* armada of the same year, was expected to provide, at his own expense, the caskets and containers. Depending on the victual in question, the contract specified the containers where the foodstuffs had to be packed. The contractor stood, however, free to decide whether to make the caskets himself or to purchase them from a third party, as long as he complied to the quality standards set by the royal apparatus. To make sure these were met, the containers were subject to quality control by royal officials jointly with a member of the coopers' guild. For the 1638 voyage, the delivery of pipes and other containers was commissioned to João Hals,[277] whereas Francisco Bresane procured iron hoops.[278] Another examples was the shipment of casks to Goa by Miguel van Bersen, who was no stranger to such activities, having been one of António Fernandes Pais suppliers of naval stores during Fernandes Pais's provisioning contracts for the India Run.[279] As these examples reveal, both German or Southern Netherlands merchants and autochthonous businessmen with contacts in Northern Europe were entrusted with for the procurement of containers in the international manufacturing and shipping centres.

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275 BA, 51-VI-54, 'Papeis varios pertencentes as conquistas da America e India', fl. 26-27

276 Antunes, *Lisboa e Amsterdão. 1640-1705*, 120–21.

277 João Hals would later become the representative of the leading international arms dealers Tripp, de Geer and partners in Lisbon (the members of the partnership were Pieter Trip, Laurens de Geer and Claes Jansz Clopper and Gabriel Marselis Jr.). In that capacity Hals oversaw the delivery of arms and munitions procured in Amsterdam by the firm for the benefit of the Portuguese State. Antunes, 126, 136.

278 AHU_CU_058 (Índia), cx. 21, doc. 80.

279 ANTT, ADL, Cartório Notarial no. 2, cx. 30, livro 147, fl. 21-22, 41-42.

Table 11. Victuals for the 1636 India fleet

	800 Soldiers	400 Seamen
Biscuit (quintais)	1.972	1.660
Wine (pipes)	228	154
water (pipes)	690	193
Pork meat (arrobas)	1200	800
Dried cod (arrobas)	800	400
Rice	-	400
Olive oil (quartos and cantaros)	15 quartos + 5 cantaros	13
Vinegar (pipes)	16	11

Source: Charles R. Boxer, "The Carreira da Índia (Ships, men, cargoes, voyages)". From Lisbon to Goa, 1500-1750. Studies in Portuguese Maritime Enterprise, London: Variorum Reprints, 1984: 72, appendix IV.

The issue of ownership of the casks and barrels was addressed in the contract, given that in the past it had been the source of disputes between Crown and contractors. The clauses made it clear that at no point the containers ceased to belong to the contractor, and as such they were considered on loan by the Crown for the duration of the voyages. As soon as the outward-bound leg ended, the containers were to be returned to the factors or attorneys of the contractor in Goa or elsewhere in Asia. It also meant that the contractor would have to be compensated if the containers were seized or damaged by a royal official or a crew member. Aside from the containers, the contractor was also required to appoint three pantrymen per carrack, two to hand over the rations to the armed sailors and soldiers, and the other to the sailing crew.[280] These men were responsible for the storage, account-keeping and distribution of the daily and monthly rations to everyone on board. The concessionaire also served as warrantor (*fiador*) of the men he appointed before the Crown. Since the pantrymen were liable for the fate of supplies and packages during the voyage, the contractor was held responsible for the risks of perishability and damage which could result from the pantrymen's oversight. Through this requirement the Crown transferred the risk of non-compliance or incompetence in the up keeping of the victuals placed on board to the contractor. The conclusion to be taken is that the authorities found the costs of monitoring the performance of these pantrymen to be so high that they preferred to transfer that responsibility to the concessionaires. As a result, the individuals in charge of overseeing the hand-over of food supplies to the crews and passengers, as well of making sure that victuals were not overspent during the trip or that they did not deteriorate were not salaried Crown officials but an external party who had the contractor's trust and answered to him.[281]

[280] AHU, CU, cod. 1192, fl. 41v.

[281] With the exemption of damage caused by shipwreck or battle. The exact same situation occurred in the contracts for the High-Seas fleet (*Armada del Mar Océano*) based at Lisbon, except that the Crown and contractor took turns in appointing the overseer of supplies. In the years when they were royally appointed, the Crown bore with the risks of depreciation and accommodation. For example, the 1617 victualing and wage-paying contract adjudicated to Manuel Gomes da Costa. See Thompson, *War and Government in Habsburg Spain, 1560-1620*, 232.

2.1 Concluding remarks

In addition to the expensive costs of procuring large amounts of food-supplies, which was in itself a source of hardship for the strained royal treasury, victualling for inter-oceanic shipping was a complicated task for several other reasons. More than being expensive, it was logistically burdensome. It required a higher degree of planning and accounting precision than the victualing the of landed campaigns (since armies could be re-supplied as they marched along) than other naval logistics, such as the acquisition of construction material for the hull and the super-structures of the ships, or the steering and propelling equipment. It pushed the accounting systems of the royal apparatus and those of private contractors to their limits, as well as the Crown's quality control assessment. The same could be said about weaponry, which will be analysed in the next chapter, because even though arms and munitions also had to be provided and assembled before the ships' departure and the chances to renew stocks during the voyage were next to none, they did not deteriorate at the pace that nourishment did. The only way to overcome the problem of short term deterioration was by accommodating the foodstuffs and liquids in solidly built containers be extremely zealous in their up keeping during the many months at high sea.

If calculating the amounts necessary and overseeing their distribution and preservation on board were challenging tasks, the actual procurement of the foodstuffs was even more. As far as the most important component of the rations (bread) was concerned, nothing could be further from the truth. Portugal had to deal with its recurring shortages of grain, despite the country performing better in this department than it was previously thought, and it recurrently relied on imports to supply its ocean-going expeditions with bread rations. A steady supply of grain was ensured by contractors, normally by import-exporters operating at the port of Lisbon, many of whom belonged to the capital's foreign merchant communities, or who otherwise had contacts in the grain markets of Castile. Other foodstuffs were, by comparison, easier to obtain, such as vegetables, liquids and animal protein. Still, there were perennial problems with the diet, which affected all the naval forces of the period, namely the lack of vitamin c on-board the sea-crats.

Victualing contractors were, more than most, dependant on reliable information about market conditions, given that information assymmetries on demand and prices could easily render their contracts unprofitable. This was certainly the case if the prices they paid for produce turned out to be much higher than the price per unit they had negociated with the the Crown. With regards to the foodstuffs that had to be imported, first and foremost grain, contractors had to be able to coordinate information about several markets that they received from their network of correspondents in the kingdom and abroad. This meant that the concessionaires most prized assets were their information gathering and management.[282]

The victualing of the *Carreira's* ships stimulated regional specialization within the Portuguese domestic economy, continuing a trend that was already visible in the sixteenth century, when the annual Lisbon-India voyage was established. As with the supply of pine wood and the sails and rope making sector, the provisioning of food supplies to the crews of the ocean-going ships provided domestic agriculture and certain manufacturing sectors with a secure outlet, even if there could be risks to the consumers. One of the main risks was the surges in the prices of basic food staples in the months leading to the departure of the Indiamen, or whenever wholesalers made large bulk purchases to fulfil their contracts. In turn, for speculators, the business of supplying foodstuffs to the Crown (and its contractors)

[282] Chapter 4 will further explore the importance of maintaining an international network of correspondents that could keep the contractors informed about the evolution of market conditions in far away jurisdictions.

was ripe for profiteering schemes, especially when purchases occurred within a very short period.

Although assessing levels of market integration in early seventeenth-century is beyond the scope of this dissertation, it seems clear that the victualing of the *Carreira*'s armadas knitted Lisbon and different regional markets for produce and livestock together. The annual voyage to India also increased the exposure of the Portuguese capital to the grain surpluses of Northern Europe, the Baltic and Southern Spain. This is at least what historians of the "contractor state" have argued for other countries. They posit that state demand for foodstuffs and the brokerage of government contractors was a driving force for market integration at national and international level. Although this is a plausible argument, future quantitative analysis is necessary to ascertain how important the contractor state was in this process.[283]

[283] Torres Sánchez, *Military Entrepreneurs*; Knight and Wilcox, *Sustaining the Fleet, 1793-1815*, chapter 4.