
ARTÍCULOS DOCTRINALES / ARTICLES

**ACCOUNTANTS ON BOARD THE EIGHTEENTH-CENTURY NAVIES:
SPAIN, FRANCE, AND ENGLAND****Fernando Ignacio Gómez-Juárez de la Torre**

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Abstract: The commitment of the treasuries of Spain, France and England to their Navies was gradually increased as the eighteenth century progressed. The will of these three enlightened states to carry out the correct management of naval resources extended to the decks of the ships, where those in charge of the economy on board were also responsible for the accounting. The purpose of this paper is to understand how the work of the onboard accountants was carried out and how it affected the ship's environment, how they attained the position, which tasks were entrusted to them, what records were made and how and to whom they rendered accounts. The study will be carried out through a comparative analysis of the main regulations. The conclusion is that although the onboard accountants have similar functions in all three cases, the way in which the roles were successfully carried out in each country was very different.

Keywords: *History of Accounting, Real Armada, Marine Royal, Royal Navy, contador, écrivain, purser, 18th century.*

**CONTABLES EMBARCADOS EN LAS ARMADAS DEL SIGLO XVIII: ESPAÑA,
FRANCIA E INGLATERRA**

Resumen: El esfuerzo de las Haciendas Reales de España, Francia e Inglaterra en sus Marinas de Guerra fue cada vez mayor conforme avanzaba el siglo XVIII. La voluntad de estos tres Estados ilustrados por realizar una correcta gestión de los recursos en sus armas navales se extendió a las cubiertas de los navíos, donde los encargados de la economía a bordo iban a ser a su vez los responsables de la cuenta y razón. El objetivo planteado consiste en conocer cómo se desarrollaba el trabajo de los contables embarcados y cómo impactó en su entorno, cómo era su forma de acceso al puesto, cuáles eran las tareas encomendadas, cuáles eran los registros y cómo y ante quién rendían sus cuentas. El estudio se hará mediante un análisis comparado de la normativa principal. Se concluye que, si bien en los tres casos los contables embarcados tienen unas funciones similares, la forma en que estas se llevaron a buen término en cada Estado fue muy distinta.

Palabras clave: *Historia de la Contabilidad, Real Armada, Marine Royal, Royal Navy, contador, écrivain, purser, Siglo XVIII.*

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1) Introduction

Gerónimo de Uztáriz, eminent Spanish economic thinker and secretary of the Trade Board with Felipe V, presented the following concept in his book *Teórica y práctica del comercio y la marina* (Theory and practice of trade and the navy) written in 1724 and republished in 1742:

“...the ruling and maxim of being heavily armed at sea is ordered by the laws of our monarchs, advised by all great politicians, represented by the courts and other ministries, and even voiced by the people. The difficulty lies in devising and having the necessary funds to cover all expenses without causing new strain on the Royal Treasury or taxing the vassals of His Majesty, afterwards providing the appropriate prudent economy and good rules so that the fruit does not spoil with superfluous and wasteful expenses...”¹ (de Uztáriz, 1742: 203)

This reflection, valid for Spain in the 18th century, may also be applied to the other two monarchies with the largest overseas empires of the period: France and England. The three kingdoms needed powerful naval forces to defend the overseas territories where one of the main sources of their wealth was located. Their monarchs had to be conscious of the significant investment that these institutions required, and had to pay special attention to their proper management so as not to excessively encumber the treasuries, and as a result, those who had to pay taxes. Good management had to be comprehensive; it had to encompass the highest levels to the smallest of the units which constituted the Navies. In the three cases, care for the onboard economy would be entrusted to a figure who will be the focus of this study.

The seventeenth century was a period of absolutism and despotism, where the figure of the King accumulated increasing levels of power around his person; laws originated from them, and societies were organised based on their will (Rodríguez Hernández, 2012: 52). Although this statement is fully valid in the cases of France and Spain, in England this power was shared with parliament.

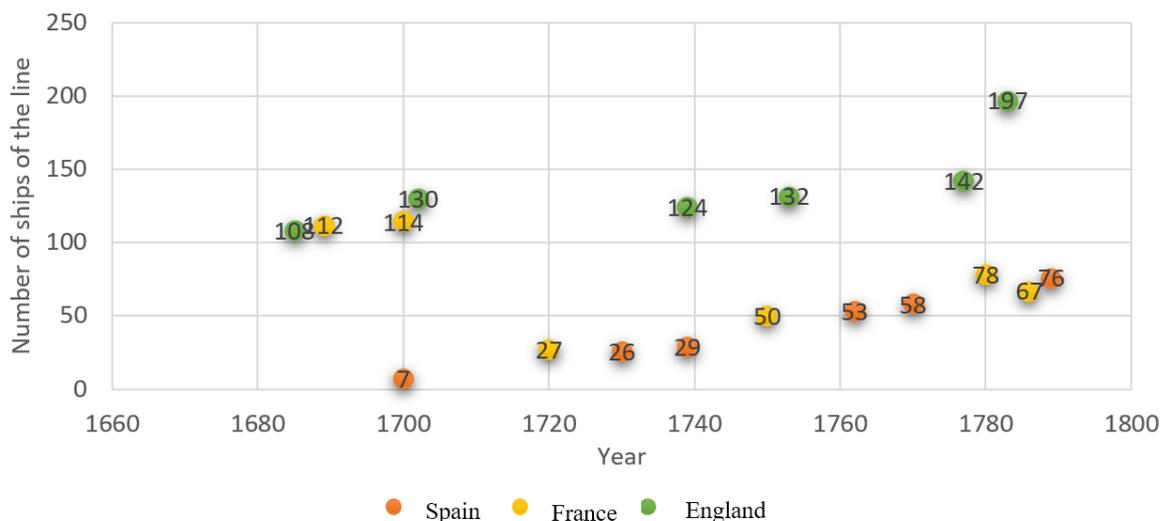
¹ *“...pues el dictamen y máxima de que estamos muy armados por mar lo encargan las mismas leyes de nuestros monarcas, lo aconsejan todos los grandes políticos, lo representan los tribunales y otros ministros y lo vocean hasta los pueblos. La dificultad está en discurrir y disponer los fondos necesarios para la dotación de todos sus gastos sin causar nuevos empeños a la Real Hacienda ni gravar a los vasallos de Su Majestad, y después en suministrarlos con aquella prudente economía y buenas reglas que conviene para que no se malogre el fruto con gastos superfluos y otros desperdicios...”*

During these years, arbitrimism also gave way to planning and the Enlightenment (Delgado Barrado, 2001); reason based on study and research was going to be present in the justification of measures that governments would apply and the economy and auditing of accounts would take on an important role (Fernández Duran, 1999: 155). This was a time in which mercantilism would become the mainstream form of economics (González Enciso, 2020), although at the end of the century, books were being published and measures were being applied on free trade. Mercantilism proposed that the States achieved greater happiness and power with greater accumulation and circulation of precious metals. This objective had to be achieved through industrialisation and active commerce which allowed the monetisation of surpluses.

In the three monarchies examined in this study, with territories and interests on all known continents, the main routes through which both interior and exterior active commerce had to flow, were maritime routes. This is where the naval forces took on their tremendous importance, not only due to being entrusted with planning the forces in case of armed conflict, but also due to being responsible for protecting trade at all times, whether during war or peacetimes. That is, they had to keep ports open, ensure the peaceful transit of merchants, and fight against pirates and smugglers (Mahan, 1901: 272). The Navies are the forces which allow the production of the kingdoms to be monetised, which generate resources for treasuries through taxes, and which make kings great and powerful.

However, a Navy is not established overnight; it requires great investment and planning, as well as having high maintenance costs. As an example of the magnitude that naval expenses represented in the total budgets of these three monarchies, it is estimated that in the case of Spain, the sums invested in its Navy between 1753 and 1780 amounted to one in every four reales collected by the Royal Treasury (Pieper, 1992: 172); in England, this percentage increased to 35%; and in France naval expenses were considered one of the causes of national bankruptcy after the American War of Independence (Merino Navarro, 1981: 124).

Figure 1. Operational ships of the line in Spanish, French and English Navies



Source: Own creation based on *Trafalgar and the Anglo-Spanish conflict of the 18th century*, (Rodríguez González, 2005: 27 and 28)

The evolution of the power of the Spanish, French and English Navies is set out in Figure 1, which shows the evolution of the magnitude of *operational ships of the line*. Ships of the line were the most powerful ships of the Navies, and there is a positive correlation between this magnitude and the capacity for action of each monarchy in the naval sphere. In brief, the pattern of this variable summarises the history of each one of these military institutions over the course of the 18th century.

The Spanish *Real Armada* practically did not exist in 1700, the different naval rearmament policies implemented over the course of the century establishing it as the second largest naval force in the 1780s.

The French *Marine Royal* had come to be the first naval force at the end of the 17th century, this institution suffering the consequences of the hardships of the French Treasury during the second half of the 18th century. It was not until the arrival of Louis XVI and ministers such as Choissieul and Sartine after the Seven Years' War that it began to recover with significant investments and naval rearmament policies (Villiers, 2021).

The English Royal Navy was the great naval power of the century, uncontested by any of its rivals and always with an overwhelming superiority at all times.

As shown in Figure 1, the 18th century is a continuous naval arms race, where there were an increasing number of ships in the three Navies, which in turn entailed more personnel, more provisions, more repairs, etc.; in short, greater expense. One of the main problems of the Treasuries of the 18th century consisted not only of creating naval forces, but of financing their normal operation and their provisioning (Fernández Duran, 1999; Torres Sánchez, 2018; González Enciso, 2020). As a result of this, in all documents and plans referring to the Navies of the three cases addressed in this work, two ideas would appear time and again: economics and monitoring (Vergé-Franceschi, 1996; Torres Sánchez, 2012a); economics being understood as the efficient use of the money invested, and control being understood as an efficient flow of information from the centres where the cost was produced to the decision making bodies.

Who better than an accountant to monitor, record and communicate the economic information generated on board the ships? It is to this figure that this work is dedicated.

One part this work will, from Naval History, focus on the study of one of the crew members of a ship of the line – the largest machines with the greatest technological development that humanity had constructed to date (Torres Sánchez, 2021: 56). Each ship constituted a closed micro-society², where a diverse range of people (from multiple social classes, different cultural levels, different geographic origins, etc.) interact together: they work, eat, sleep, attend mass, play cards, fall ill and are cured, and also die together. In itself, a ship represented a complex and unique system of relationships of technical, military, social, economic, political and cultural elements, enclosed within a very specific “floating” environment. The accountants on board would have a vital importance in this environment,

² The Real Armada, in the words of illustrious Spanish sailor and scientist Antonio Ulloa (Seville, 1716 – Isla de León, 1795), was the result of the conversion of ships into “floating republics” (Torres Sánchez, 2021, p. 16). Applying a logical extension to this reflection, if the Navy is a republic, a ship would be a town or city.

because as the parties responsible for monitoring and recording of the onboard economy, they would be in charge of writing the history of their ship in accounting language. The aggregation of the specific stories of each one of them, similarly to as proposed by the inductive method, would lead to the creation of part of the general history of the Navies of Spain, France and England of the 18th century (Marchena Fernández, Cuño Bonito (Eds.), 2018: 17).

The other point from which to approach the figure of the accountants on board will be the History of Accounting. This discipline is not limited to determining only the evolution of accounting techniques, but also intends to identify and research the interactions produced between the accounting world and its surroundings, whether cultural, political or socioeconomic; that is, how accounting, accountants and their work affect individuals, organisations and society. The History of Accounting transcends economic practice, and reaches levels of social practice, and even moral practice. (Hernández Esteve, 2010; Serrano Álvarez, 2013; McBride, 2019).

The use of methodologies of the History of Accounting to create a Naval History generates synergies arising from the use of sources which are sometimes ignored, although being tremendously rich in details if it is understood how to read and understand information which follows very specific rules: recording, explanation, sequence, interconnection and checking of precision (Hernández Esteve, 2017).

This work is also an exercise in Comparative History in the field of the History of Accounting. When these two disciplines are combined in the task of describing part of three institutions with the same objectives operating in the same geographic space, we may consider ourselves to face a study of competition, which will allow the operation of these institutions to be understood, to subsequently allow the situation to be assessed.

The objective proposed is to understand the persons responsible for onboard accounting as an integral part of the system of economic management of the naval forces examined. To do so, the case of *contadores de navío* (accountants of ships) of the *Real Armada* will be compared with those of the other two most important Navies of the period, the French and English. This work will examine the differences and similarities in accessing the position, the tasks entrusted, the different ways of recording the economic activity and the accounting ledgers they used, the extent of their responsibilities, and how accounting and accountants influenced their surroundings. This will be carried out through a comparative study of the different regulations in effect in each one of these monarchies.

The main sources of information consulted are legislative, above all ordinances and other lower level legal documents, as well as work instructions and explanatory works published in that period.

Using regulations of the 18th century as a source for the work methodology has two significant limitations which must be understood. Firstly, an ordinance is only valid on the day that it is signed by the king; from that very moment it may be corrected, clarified or supplemented by lower level regulations (Salazar and Salazar, 1814: letter 5, p. 57). Secondly, it is one thing to issue a regulation, but quite another to change a custom; this is seen throughout the century when laws were repeated year after year as they were not obeyed (Desdévise du Dezert, 1989: 164).

Despite these limitations, and as will be seen throughout this work, the use of matching ordinances during the period allows a comparative study to be carried out on how things “theoretically” should have been done.

Other Spanish primary sources of information on the *Real Armada* are found dispersed in the network of national archives, those from before 1783 being held in the General Archive of Simancas (hereafter, AGS), those after this date being in the “Don Álvaro de Bazán” General Naval Archive (hereafter, AGMAB), there also being a significant historical repository in the archives of former naval departments, such as the Naval Archive of Cartagena (hereafter, ANCT).

The secondary sources on military legislation of the 18th century are numerous (Merino Navarro, 1981; Salas López, 1992; Alía Plana, Sánchez Prieto, & Alía Plana, 1997; Corrales Elizondo, 2001; Guzmán Raja, 2006; Guimerá Ravina & García Fernández, 2008; Domínguez Nafría, 2011). An overview of the history of military administration in Spain with a detailed list of regulations that were published year to year is found in the monograph by Antonio Requejo Alonso (1992), which is very useful when beginning a work which requires the law in effect at any time to be identified.

The history of the administration of the *Real Armada* has a reference book written over 150 years ago by Saralegui Medina (1867), which is perfectly complemented by an article by José Manuel Serrano Álvarez (2013) which describes how and why the different ordinances were approved in the 18th century, describing the reason they were written, how they were expanded and why they disappeared, also including a significant section on the intricacies of the individuals who participated in these regulations in one way or another.

Accountant Hernández Esteve (2004) has also carried out an exhaustive regulatory overview of the administration on board the *Real Armada* at the start of the 18th century (Ordinances of 1735), focusing on the formal obligations which had to be fulfilled in terms of bookkeeping. Blasco Leante et al. (2011) have also worked on the onboard administration through a case study, the rendering of accounts on the voyage for exchange of captives of 1768-1769. Finally, the anonymous work *Juicio crítico sobre la Marina Militar de España*, attributed with little room for doubt to Luis María de Salazar (1814), must be highlighted, which is the essential source to refer to when studying the internal operation of the *Real Armada* of the 18th and early 19th centuries. This text dedicates a full letter, the twentieth, to the *Analysis and specific examination of the accounting of ships*.

The work of the *écrivains* within the French Navy in the 18th century was regulated in ordinances published in the 17th century in the times of Colbert, which remained in effect until after the Seven Years’ War humbled a Navy which was no longer even a shadow of what the Sun King had created. A complete study on the *Marine Royale* in the 18th century, without forgetting its origins rooted in the 17th century, is that published by Vergé-Franchesi (1996), and if further information is sought on the administration and management of this institution until the arrival of the revolutionary period, the monography by Sainte-Croix (1892) is a work of reference on this matter.

For the section referring to accounting in the English Royal Navy, the regulations in effect during this period were referred to: the *Regulations and Instructions relating to His Majesty’s Service at Sea*, in which a full chapter of its third part is dedicated to the work of the

pursers, in charge of provisioning of goods, also presenting some examples of how bookkeeping should be carried out and the formats of the reports that had to be used in its annexes. Also consulted, from a recent doctoral thesis by compilation defence by McBride (2020) was '*Nipcheese*' the *Beancounter: Purser Accounting and Accounting Change in the Royal Navy, 1665-1832* in which the provisioning of English ships is analysed from an accounting perspective.

2) Contadores de navío, accountants on board the Spanish Real Armada

The reformist process of the Bourbons gained momentum with the end of the War of Succession and the strengthening of the throne of the pretender Felipe V. After signing the Treaty of Utrecht (1713), a significant proportion of the institutional changes were aimed at laying the foundations for a new administrative regime in the Spanish Navy (Hernández Esteve, 2004: 27).

Until the start of the 18th century, the Spanish Navy was not a single institution, instead being formed by multiple squadrons and fleets³, each one of them independent from the others, with its own specific structure and financing. This organisational dispersion extended to the administrative and accounting systems (Saralegui and Medina, 1867: 70). One of the first measures that King Felipe V took once the war ended was to unify the different parts of this puzzle in a single institution (Royal Decree of the 14th of February 1714), which from then on was known as the *Real Armada* (Merino Navarro, 1981: 18; Blanco Núñez, 2012).

Milan's José Patiño y Rosales, the great organiser of naval forces at the start of the century, sought "an economically managed and governed Navy" (Valdez-Bubnov, 2012: 202). To achieve this, by the ordinances of 1717 he created the Ministerial Corps, to which the personnel of the economic and administrative area of the Armada would belong. It was led by the general quartermaster of the Navy, and under his direct supervision were the Planning and Accounting Commission of the Navy, which among other functions, would be in charge of strict compliance in keeping accounts in the Navy.

In the 1740s, Ensenada gave new momentum to the Spanish naval policy, and with it arrived the Arsenal, naval maintenance, construction and innovation centres which were focal points of economic activity of the 18th century (Ruiz García, 2017). In the regulatory field, His Majesty's Ordinance for military, political and economic governance of his Naval Armada of 1748 (hereafter, ordinances of 1748) did not entail a change in the economic field, as its third volume, which should have been dedicated to this matter, was never published. The administration continued to function as it had been designed by Patiño, practically unaltered until a triggering event caused the change.

³ *Armada de Flandes, del Mar Océano, de la Guarda de la Carrera de Indias or de la Avería, del Estrecho, de Lisboa, de Vizcaya, del Mar del Sur, de Barlovento and de Tierra Firme*, and the galley squadrons of Spain, Naples, Sicily and Genoa.

The losses of Havana and Manila during the Seven Years' War showed the weakness of Spain's overseas defensive system, jeopardising the great wealth that arrived from there (Fernández Duro, 1895: 9). The Treaty of Paris in 1763 initiated a new reform process which deeply affected the Navy, as this was the connecting link between the territories of both hemispheres:

- at a military level, a phase of expansion and personnel training began, with the creation of new academies for midshipmen and engineers (Sánchez Baena, 2012; Ortega-del-Cerro, 2018);
- at the level of naval construction, a process of standardisation began with the French ally (construction systems, parts, artillery calibres, etc.) (Maruri Villanueva, 2001: 123; Sanchez Carrión & Cerrolaza Asenjo, 2004: 57);
- at an administrative level the publications of His Majesty's Ordinance for the best method for preserving the supplies of the ships of the *Real Armada* and military command of the naval arsenals (hereafter, supply ordinance of 1772) and His Majesty's Ordinance for the service of the Naval Engineer Corps in the departments and on board the warships (hereafter, engineers ordinance of 1772), compiled and expanded in His Majesty's Ordinance for the military and economic governance of his Royal Naval Arsenals (hereafter, Arsenals ordinance of 1776), implementing a new functional organigram and a new system of control and recording of economic information (Torres Sánchez, 2012b; Solbes Ferri, 2014; Torres Sánchez, 2018).

At the end of the century, at a very complicated political and military juncture, two important sailors belonging to the General Corps and not the Ministerial Corps, José de Mazarredo and Antonio Escaño, created the General Ordinances of the Armada in 1793 (hereafter, ordinances of 1793). In these, the Navy was now considered as a whole, regulating military, economic, health, and food aspects, etc. (Corrales Elizondo, 2001). The ordinances of 1793 dedicated two full headings to onboard accounting⁴. At length, these set out how the recording of all economic movements on a ship had to be recorded. This work will not delve into this regulation, as it was in place at the limit of the period examined.

On the ships of the *Real Armada*, administrative work⁵ was always the responsibility of the Ministerial Corps, from its creation in 1717. The tasks were divided between two figures: *contadores de navío*, previously known as *escribanos de navío* (ship scribes) or *escribanos del rey* (king's scribes), whose main function was the intervention, monitoring and recording of any economic movements occurring on board; and the *maestres de jarcia* (rigging master), in charge of care and custody of goods.

It must not be forgotten that the *Real Armada* was a military institution, and although in the early years the administrative area had great independence in management, members of the

⁴ Ordinances of 1793. Section 6. Heading I. *Lists of crews of ships, their posts, enlistment and discharge*; Ordinances of 1793. Section 6. Heading II. *Accounting of receipts, cargo and consumption of supplies on armed ships, by the administrative official, accountant and cargo officials*.

⁵ "...on all ships of the Armada an accountant is on board, to take charge of the Administration and consumption of provisions, supplies, munitions and other goods belonging to my Treasury..." ("...en todos lo bajeles de la Armada se embarca un contador, para que cuide de la Administración y consumo de víveres, pertrechos, municiones y demás géneros pertenecientes a mi Hacienda...") Ordinance 1748. Heading V. article 44.

General Corps were in command of the ships. On board there existed a military figure with control over the work of the accountants⁶, the *Oficial de Detall* (Administrative Official) (normally the second captain or first lieutenant), who had to have timely knowledge of the food, supplies and munitions that were loaded on board, the consumption of which had to be accounted for in detail (Ordinance 1748. Heading V. article 10).

The *maestres de jarcia* had to keep records of the materials that were issued to them and the consumption that occurred⁷, which was carried out by the *contadores de navío* and noted in their own ledgers⁸. Upon arrival at the base port, the accounts of the *maestre de jarcia* had to be presented before the main accountant. These could never result in favour of the *maestre*, as it was prohibited to load goods that did not belong to the Royal Treasury onto warships; that is, positive outcomes (originating from a simulated consumption) were retained by the administration, and negative outcomes (due to embezzlement or negligence), being related with the administration of accounting, and determining economic responsibility, had to be covered by the wages of the *maestre*.

The post of *maestre de jarcia* was eliminated in 1772 and its tasks were entrusted to the *contadores de navío* (supply ordinance of 1772. Heading VII. article 167)⁹.

The officials of the *Real Armada* at the start of the century put great effort into detailing the functions that *contadores de navío* had to carry out in regulatory texts (Crespo Solana, 1994; Hernández Esteve, 2004; Guzmán Raja, 2006). Among others, the Instruction of 1717 must be highlighted, compiled along with other regulations in 1725 in the *General ordinances and instructions forming the Royal Order which must be observed by the quartermasters and other ministers of the Navy and clerks of the ministry, in accordance with the post and position of each one for the best administration of the Royal Treasury and its accounting* (hereafter, ordinance of 1725). Also pertinent due to its relationship with this work is the *Ordinance and instruction for clerks and masters of ships of the King formed by the accounting which must be carried out on board on voyages and at port*, enacted in 1735 (hereafter, ordinance of 1735).

⁶ The *contadores de navío* had to keep a daily record of the goods and supplies consumed on board, as well as noting a monthly summary in the same ledger, which had to be compared with the Administration Book maintained by the official in charge (Supply Ordinance of 1772. Heading VII. article 170).

⁷ They were mandated by the ordinance of 1725: “to keep accounts of the supplies consumed on ships, both in ports and on voyages” (“llevar la cuenta y razón de los pertrechos que se consumen en los navíos de su destino tanto en puertos como en las navegaciones” Ordinance 1725. Chapter VI. article 1).

⁸ Set out in the ordinances of 1748: “As the constable receives the supplies in their charge from the store guards, interim receipts will be issued, which will be collected afterwards by the *maestre de jarcia* when signing the acknowledgements, and will be issued to the constable, so that comparing them with the cargo that must appear in the ledger of the *Contador de navío*, they may sign it without doubt, or misgivings on the amounts received for which the *maestre de jarcia* must be responsible.” (“Según fuere el condestable recibiendo de los guardalmacenes los pertrechos de su cargo, dará a su favor recibos interinos, los cuales recogerá después el *maestre de jarcia* al tiempo de firmar los conocimientos, y los entregará al condestable, para que confrontándolos con el cargo que ha de formársele en el libro del contador de navío, pueda firmar en él sin dudas, ni reparos, respecto de que de todos cuantos conste recibió ha de ser responsable al expresado *maestre de jarcia*.”) Ordinance 1748. Heading X. article 14.

⁹ Reiterated in the Royal Order dated the 13th of August 1775 (ANCT. Royal Orders. Box 2208). Reiterated, word for word, in the Arsenals Ordinance of 1776, Section 1. Heading VII. article 206.

These ordinances, due to various upheavals, happenstance and even disagreements between the officers of the Armada, would not be completely abolished, and were largely in effect until 1793.

The King ordered that the *escribanos* or *contadores de navío*, a central element of this study, should “*be subjects capable of understanding how to care for everything belonging to the Royal Treasury, taking action in everything which may have a formal or future interest, undertaking the work of the ministry in their duties*” (Ordinance 1725. Chapter XXXI. article 1).

Unlike other members of the corps of the *Real Armada*, for whom enlistment required cleanliness of blood (General and Engineer Corps), to access the Ministerial Corps candidates only had to be children of decent families with a regular and established life (Hernández Esteve, 2004: 47-48). Normally, they were young men with limited education. It was understood that their work required the practice that they had acquired and honed in exercising their profession (Salazar y Salazar, 1814: letter XX, p.124), and there were no training centres or reference works where accountants could learn their trade (Desdevises du Dezert, 1989: 550). However, prior to joining this corps, they had to pass an “examination” which would certify that they possessed prior knowledge such as knowing how to read, write, count and have training in handwriting¹⁰.

The *contador de navío*, as personnel of the Ministerial Corps, answered for their actions before the quartermaster through the ordinance commissioner and the main accountant of the departments. Within Accounting Offices they were considered second class personnel¹¹, and they were usually only turned to for support in administrative tasks on land in cases of necessity, and provided that they had the necessary qualities (Blasco Leante et al., 2011: 10).

On board, the *contadores de navío* were held in higher regard, being among the senior officials, and as such they enjoyed the right to be in the chamber that they had at their disposal, although having an individual cabin was not guaranteed, as even the more modern second lieutenant or the midshipmen had preference of choice over them (Ordinance 1748. Section 3°. Heading V. article 11). Their day to day life was complicated, not having a fixed and comfortable workplace, and with security for their documents being poor, being merely the

¹⁰ According to the ordinances of 1725 the age for access was between 20 and 25 years. Royal Orders have been found where access was permitted at a younger age: “*The King has ruled that scribes received hereafter at both Accounting Offices and at Arsenal and other offices which offer vacancies of the Ministry have, beyond the circumstances set out in previous royal orders, that of being unmarried and no younger than fifteen or older than twenty-five years of age, having good handwriting and knowing how to count, all of which must be demonstrated by examination carried out by the main accountant to be received*” (“*El Rey ha resuelto que los escribientes que se reciban en adelante tanto en las Contadurías como en las dependencias de Arsenales y demás en que les está declarado opción a las vacantes del Ministerio tengan a más de las circunstancias prevenidas en anteriores reales ordenes la de ser solteros y que no baje de la edad de quince años ni excedan de la de veinticinco, que hagan buena letra y sepan contar todo lo cual ha de constar por examen que haga el contador principal para ser recibidos*”) ANCT. Royal Orders. Box 2215. Royal Order dated the 3rd of June 1785.

¹¹ An example: “*With regard to contadores (...) writing well they may hold supernumerary official posts, this class may be reduced as much as possible, but not entirely*” («*Respecto de que los contadores (...) puedan como que escriban bien ocupar los huecos de oficiales supernumerarios podrá reducirse esta clase cuanto convenga, pero no enteramente*») ANCT. Royal Orders. Box 2192. Writing of the quartermaster dated the 28th of July 1756.

officers' chamber which, for example, would disappear in case of preparations being made for combat.

Among the functions entrusted to the *contadores de navío*, along with intervention and monitoring, was keeping accounts. The accounting was recorded by the charge and discharge method or single entry method, which is characterised by the use of multiple auxiliary ledgers (Donoso Anes, 2003: 820), which on board were grouped into three series of bound books¹²: (1) *Ledgers of Supplies, Weapons and Munitions*, (2) *Ledgers of Food and Medicines*, and (3) *Ledgers of Crews*.

In the *Ledgers of Supplies, Weapons and Munitions*, the inventory and movements of all items, rigs, rigging, sails, artillery, weaponry, gunpowder, munitions and goods of any type on board for any reason had to be noted, with the exception of food and surgical products that were noted in the *Ledgers of Food and Medicines*. The accounts had to be kept daily, accumulating the monthly consumption in a summary ledger (Supply Ordinance of 1772. Heading VII. article 170, Arsenal Ordinance of 1776. Section 1. Heading VII. article 210).

In the *Ledgers of Crews*, records were kept of the members of the crew and other people on board¹³ mainly for the purposes of accrual of wages and remunerations, as well as the consumption of food rations. It was made up of three volumes:

- Ledger of Senior Officers and Crew, for personnel of the General Corps, Engineer Corps, Ministerial Corps, Naval Officers, etc.
- Ledger of Infantry Troops, for the Naval Infantry Battalion Corps.
- Ledger of Artillery Troops, for the Naval Artillery Battalion Corps.

The ordinance commanded that the master lists of each one of the books be kept on land by the main officials at the Accounting Offices of the Departments. The *contadores de navío* had to take a copy of the original lists for use on board. They were also obligated to keep lists or documents of new information arising with enlistments, discharges, charges, payments and other aspects related with the personnel on board¹⁴.

In the case of long voyages, they were closed and sealed, and had to be submitted without breaking these seals, along with the documents of new information, to the officer in charge of the Ministerial Corps upon their arrival at the new port. On land, the official was in charge of transferring the annotations into the books.

¹² The requirement of being bound is set out in the ordinance of 1717, although not in that of 1735 (Hernández Esteve, 2004: 53)

¹³ An example of persons who did not belong to the crew and who were noted in the Ledgers of Crews were servants accompanying major officials.

¹⁴ The ordinances also established how to proceed in case of theft of the accounting information: "If due to any accident, the lists of the voyage and certifications of the Contador de Navío that the captain must have been lost, in which case there are no instruments to record the charges and discharges, the payment will be made..." ("Si por algún accidente se hubieran perdido las listas de viaje y las certificaciones del Contador de Navío que el capitán ha de tener, de suerte que no haya instrumentos por donde consten las altas y bajas, se hará el abono...") Ordinance 1748. Heading VIII. article 20.

Although until 1772 the different regulations had emphasised defining the content of the accounting records, the Arsenals Ordinances of 1776 led to the standardisation of the presentation of information, including examples of the formats which had to be used (Figure 2).

Figure 2. Example of an article of the Arsenals Ordinance of 1776 and form which must be used

“Comparing the two books of consumption referred to [that of the *contador de navío* and that of the *oficial de detall*], the *contador de navío* will immediately compose the corresponding certification, observing form number 12” (Arsenals Ordinance of 1776. Section 1. Heading VII. article 211)

Formulario num. 12. Artic. 211.

D. N. Contador de navío destinado en el nombrado, &c.
 Certifico, que de los pertrechos, y generos embarcados en el
 expresado baxel para su respeto, y de que tengo firmado
 conocimiento para data del Guarda-Almacen de Depositos
 D. N. se han consumido, según consta de papeletas dadas
 por los respectivos Oficiales de cargo, visadas por el de de-
 tall, con noticia del Comandante del navío, notadas por mí,
 y copiadas à la letra en mi libro de consumos, à que me re-
 mito, los pertrechos, y generos siguientes.

Contramaestre.

Tantas brazas de veta de primera suerte,
 de tantas pulgadas de grueso, en tal
 cabo, por haver faltado el dependien-
 te.....

Condestable.

Tantas libras de polvora en tantos cañona-
 zos de tal calibre para señales, o lla-
 mar embarcaciones, &c. y así de los
 demás.....

Y para que conste, y sirva de data à los expresados Oficiales
 de cargo, que los han consumido, doy la presente à bordo
 de tal navío, &c.

V. B. Firma del Contador de navío.

Firma entera del Comandante.

Source: His Majesty's Ordinance for military and economic governance of his Royal Naval Arsenals. 1776.

Adjustments to the accounts were not the responsibility of the *contadores de navío*, but instead the main occupation of the Accounting Offices. This was not a simple task, as the situations examined were enormous, and in the case of large squadrons, delay in accounts being settled was a logical consequence. This was complicated even further when additional information had to be gathered, which taking into account the dimensions of the Spanish Monarchy of the 18th century, sometimes required a lot of time, and led to the disrepute of the Accounting Offices.

The adjustments being made on land limited the accounting work of the *contadores de navío*, as they were only in charge of part of the task, the rest being carried out by the main offices (Salazar y Salazar, 1814: carta XX, p. 90).

The adjustments of accounts recorded by the single entry system or charge and discharge method were related with the economic responsibility of the accountants or whoever had caused damages to the Royal Treasury.¹⁵

The decks of Spanish ships of the 18th century were not exempt from the social reality and power struggles which existed in the Navy. The war between the “sword and pen”, between soldiers and politicians, for power within the institution, and ultimately, for managing the immense budget of the Armada, was also reflected in the micro-society existing on board ships and frigates. The evolution of the functions entrusted to accountants on board was an evident example of the victory which the General Corps gradually had over the Ministerial Corps in this bloodless war. The obligation of the *contadores de navío* to report to the *oficiales de detall*, governed by the ordinances of 1748, transformed into a duty of obedience in 1772¹⁶, and at the end of the century, the *oficial de detall* was given even more power over the economic sphere¹⁷, being granted intervention and control of everything received and consumed on board¹⁸. The accountant was then relegated to being a figure solely in charge of custody of goods and recording of movements.

3) *Les écrivains, accountants on board the French Marine Royal*

From 1692, the French Navy, which Richelieu and Colbert had made strong and powerful in the 17th century, suffered the consequences of an excessively indebted Treasury. The continuing lack of economic resources ended up becoming a weakness, reaching its

¹⁵ “In view of these documents [certifications presented by the *contador de navío* after disarming upon arrival at port], the main accountant may settle with greater formality and safeguards the account of consumption and supplies, and form the charges resulting, discounting their amount from their credit or subsequent wages or greater execution in their own assets if the case requires it, [...], in order to reimburse my Royal Treasury for the discovery found.” (“En vista de estos documentos [certificaciones presentadas por el *contador de navío* tras desarmar al llegar a puerto], podrá el *contador principal* liquidar con la mayor formalidad y resguardo la cuenta de los consumos de pertrechos, y formar los cargos a los que les resulten, descontando su importe de sus haberes o subsiguientes sueldos o de mayor ejecución en sus propios bienes si el caso lo requiere, [...], a fin de reintegrar a mi Real Hacienda el descubierto en que se halle.”) Supply Ordinance of 1772. Heading VII. article 182.

¹⁶ “The *contador de navío* will obey their commander without dispute through the *oficial de detall*, on the consumption of supplies and their use on board, certifying and intervening in the established way, without refusing to do so on any pretext” (“El *contador de navío* obedecerá sin mover disputa cuanto disponga su comandante por medio del *oficial de detall*, sobre consumo de pertrechos y uso de ellos a bordo, certificándolo y interviniendo en la forma prevenida, y sin negarse a ello por pretexto alguno”) Supply Ordinance of 1772. Heading VII. article 186.

¹⁷ “On all ships of my Armada there must be a war officer, specially assigned its administration or detail in all disciplinary and economic matters” (“En todo bajel de mi Armada ha de haber un *oficial de guerra*, especialmente encargado de su *detall* o por menor en toda materia de disciplina y economía”) Ordinances of 1793. Heading II. art 1.

¹⁸ “The *oficial de detall* must be a general controller of everything received and consumed on board” (“El *oficial de detall* ha de ser un *interventor general* de cuanto se recibe y consumo a bordo”) Ordinances of 1793. Heading II. article 4.

pinnacle in the Seven Years' War (1756-1763), which for France entailed a great military defeat and significant territorial losses (Canada and Louisiana in the Americas, Pondicherry in India).

It was with the arrival of Louis XVI on the throne in 1774 that *La Royal* was again reborn, seeking to once again achieve the position it had lost among the main Navies of the World (de Sainte-Croix, 1892). At a regulatory level, the ordinances of Colbert published in 1689, *Ordinance of Louis XIV. For the naval forces and arsenals* (hereafter, ordinance of 1689), were the legislative texts of reference for over 75 years, until they were replaced a few years before the coronation of Louis XVI by those published by Choiseul in 1765, *Ordinance of the king. Concerning the Navy* (hereafter, ordinance of 1765). However, it would be those which appeared in 1776, with Antoine de Sartine as Naval Secretary, *Ordinance of the king. Concerning the general and specific management and administration of naval ports and arsenals* (hereafter, ordinance of 1776), which would initiate the great regulatory reform in the pre-revolutionary Navy.

The functional organisation created by Colbert was based on the strict separation between two autonomous areas in its operation: military and economic (Lutun, 2002: 310). The Military Corps was to be dedicated to the science of sailing, naval tactics and command of units. The management of internal gearing, economic management and accounting were to be carried out by civilians in charge of undertaking meticulous monitoring and supervision which would guarantee order and economics. Its structure was based on four main divisions:

- 1) the purchase of raw materials,
- 2) the construction of ships and their equipment,
- 3) the safekeeping, conservation and maintenance of goods and materials,
- 4) the management of armed ships, their personnel and provisioning.

The first three were the responsibility of civilian personnel (the pen), the fourth being the responsibility of the military (the sword).

At the level of spatial organisation, in 1715, the Navies of the East (Mediterranean) and West (Atlantic) were dissolved to form a single *Marine Royal* with a management that Vergé-Franchesi (1996: 207) classified as more modern, and which American naval thinker Mahan (1901: 133) classified as even more efficient than that of the English.

On board the ships, services were provided by the *écrivain du roi* (king's scribe), also known as the *écrivain du bord* (onboard scribe), *écrivain du vaisseau* (ship's scribe) or *écrivain du fond de cale* (bilge scribe). These were officials appointed by the King, whose main functions were the supervision, recording and monitoring of goods and personnel on board.¹⁹

¹⁹ The intervention, recording and monitoring are regulated in Ordinance 1689. Book I. Heading IX article 1. "*The Écrivain appointed to serve a ship will receive from the stores all devices, gear and tools, weapons and munitions of war ordered by the ship on which they must be established, making an inventory in a register that will be delivered from the store, listed and numbered by the quartermaster*" ("*L'Écrivain nommé pour servir sur un vaisseau, recevra des magasins tous les agrès, apparaux & ustensiles, armes & munitions de guerre ordonnées pour le vaisseau sur lequel il devra être établi, dont il fera un inventaire dans un registre qui lui sera délivré du magasin, cotté & paraphé par l'Intendant*"). This article is repeated almost word for word in the ordinances of 1765 book X, heading LX, article 780.

To enter the administrative corps as *écrivains de marine et clases*, the ordinances for officials of the administrative area of 1765 (article 23) ordered that candidates be chosen by the *intendants* or *ordonnateurs* from the *commis* employed in the offices of the port. To do so merely required a declaration of ability and good conduct of the candidate.

The *écrivains* had to record everything that was loaded onto, consumed on, and unloaded from ships, movements which they had to account for before the quartermaster upon their return. They also had to preside over the distribution of weaponry to officials and sailors, muster the crew, and account for repairs.

Among the materials loaded on board, goods such as masts, sails, rigging, pulleys, weapons, munitions, medicines and other surgical tools were provided by the king from the warehouses of the arsenals (Toulon, Brest and Rochefort, later also Dunkerque and Le Havre). Their weights and measurements were regulated by ordinance and had to comply with the *Règle de l'achat français*; that is, where possible having to be manufactured or originate in France, or in the case of being imported, the merchants from whom they were purchased had to be French (Lutun, 2002: 292).

The *écrivain* was responsible for the materials from the time of receipt, and as such had to be present and record them being issued, whether to the ship's personnel or personnel outside of the ship. This task required them not to leave the ship, only being permitted to leave for official matters and always with the express permission of the captain.

By contrast, the food was supplied by position. The reason for this practice must be sought in the mores and customs of the 17th century, when captains were obligated to feed their crews. This commercial role assigned to a member of the military corps went against their functions, as well as entailing a significant hotbed of corruption (Taillemite, 2011). In the ordinances of 1689, the King released them from this task, entrusting it to a contractor known by the name of *munitionnaire general* (general supplier). From then on, they would be in charge of supplying and distributing food on board, and to do so they had to bring their own personnel on board: commissaries (*commis*), assistants (*maîtres-valets*), head cooks (*cocqs*) and cooks (Ordinance 1689. Book X. Heading III).

The *écrivain du roi* had to monitor the *munitionnaire*, supervising and recording that the food loaded on board was of the regulatory quantity and quality, as well as being present during its distribution.

Finally, the *écrivain* was responsible for monitoring and recording new information in the muster of the ship. This had to contain the names of each member of the crew (sailors and soldiers), date of boarding (from which they began to receive their remuneration), gross amount of their wages, events taking place during the voyage (punishments, hospitalisation, desertion, date and place of death, etc.).

Neither the ordinances of 1689²⁰ nor those of 1765 explicitly established the formats that the accounting ledgers had to use, only indicating the work that had to be carried out, giving freedom in how to draw up the records:

- They had to receive an inventory of the goods delivered by the warehouse of the arsenal, which would be double in the case of munitions. This would be reported to the masters of each office on board on registers on separate sheets, with the materials that concerned each one of them, including a separate one for surgical tools and medicines.
- A daily record would be kept with all discharges.
- An inventory of the provisions that had been loaded on board would be received from the *commis*, and the discharges would be monitored depending on the muster of the crew.
- A muster of the officials and crew on board, as well as of passengers, would be received. This document would be kept updated with incidents that arose during the voyage.

Upon arrival at the port, *écrivains* had to render accounts before the *Intendant des Armeés Navales* (naval quartermaster), in charge of the justice, policing and finances of French squadrons. To do so, naval officials mainly had to render accounts before them on the materials that had been issued to them (Ordinance 1689. Book I. Heading IV. article 14). The accounting statements that had to be presented were divided into three groups:

- Goods discharged and delivered in the specific warehouse of the ship.
- Goods remaining on the ship.
- Report on damaged goods and materials for replacement.

Once the disarmament of the ship had been completed, the work began again, as it had to be verified that the missing goods were replaced in the adequate qualities and quantities until completing the *inventaire d'armament* (weapons inventory).

Through different regulations, the king used the *écrivains* and their work to be certain that the economy on board his ships was managed with precision, but also to generate trust within the micro-society that was a ship of the line of the 18th century. An example of this is the evolution which occurred in the ordinances regarding the positioning of the accountant in case of an extreme situation such as a confrontation with another ship occurring. In the ordinances of 1689, it was established that they should position themselves in the gunroom²¹ to take note

²⁰ The ordinances of 1689 set out some of the forms for recording economic information, although they did not affect the work of the *écrivains*, such as the *Modèle du rôle de Montre & Revue en papier* (Ordinance 1689. Book XXI. Heading III. article 8) which had to be presented by the captain of the ship and approved by the *commissaire* (naval commissioner) and *contrôleur de marine* (naval controller) for payment of the crew.

²¹ The gunroom of an 18th century ship was where the gunpowder necessary for using the cannons was stored. Due to the hazard that storing a large quantity of explosive material there entailed, it was located in the hold, the safest part of the ship, and normally located toward the stern, the rear of the ship.

of the gunpowder consumed²²; subsequently in those of 1765, they were ordered to stay with the wounded to ensure that they were promptly attended to and to prevent their property being stolen by pickpockets²³. It can be observed that while their duty was initially to take care of the king's assets, their work later transformed into generating trust between their comrades who were wounded in combat, ensuring that they were assisted quickly and that they were not robbed of their belongings.

The organisation of the French Navy created by Colbert in the 17th century, based on the strict separation of the administrative and military areas, began to disappear in the ordinances of 1765, where career officials began to take charge of administrative matters²⁴, “the sword” starting to impose itself over the “the pen”. In these ordinances, the *Officier chargé du détail* (administrative officer) was entrusted with the task of supervising the work of the *écrivains*.

The ordinances of 1776 confirmed the definitive subrogation of the administrative area to the military area, and on board the ships, the clearest evidence of this was the elimination of the post of *écrivain de marine*, effective on the 1st of December 1776, their tasks being assumed by the *officier chargé du détail*. The reason for this substitution is very clear in the explanatory statement of the *Ordinance of the king for regulating the functions of naval officers of the 27th of September 1776*:

*“HIS MAJESTY, receiving reports on the current form of the service of the Navy, Squadrons, Ships and other Warships, with regard to consumption and replacement of Munitions and Effects and reviews of Equipment, has recognised that the functions of which the Intendants, Commissaires and Écrivains of the Navy were formerly in charge on board the Vessels, may be taken over, with greater benefit and greater economy in their service, by Naval Officers, being part of the Military staff of the Vessels.”*²⁵

²² “In combat, he will remain in the gunpowder room, to there note the consumption and ensure that the powder bags are distributed – in a precise and orderly manner, after combat he will first ascertain the quantity of powder remaining, and will render accounts to the Commander and the Quartermaster, and in the absence of the latter, to the Commissary on board” (“Dans un combat, il se tiendra au courroir de la soute aux poudres, pour y écrire les consommations, & prendre garde que les gargousses soient distribuées -exactement & avec ordre s'informera d'abord après le combat, de la quantité de poudre qui restera, & en rendra compte au Commandant & à l'Intendant, & en l'absence de ce dernier, au Commissaire embarqué”) Ordinances of 1689. Book I. Heading IX. article 13.

²³ “In combat, he will remain on the lower deck to ensure that the wounded are promptly attended, and that they are not robbed by members of the crew” (“Dans le combat, il se tiendra sur le faux-pont pour veiller à ce que les blessés soient promptement secourus, & qu'il ne leur soit rien volé par les gens de l'Équipage”) Ordinances of 1765. Book X. Heading LX. article 792).

²⁴ We can find an example of this in the relegation in the articles which regulate the highest representative of the Administrative Body, the *Intendant des Armées Navales* (naval quartermaster): in the Ordinances of 1689 they appear in book I, heading IV; however, in the Ordinances of 1765 they appear in book X, heading LX. In this loss of relevance, the victory of “the sword” over “the pen” can be observed in the regulatory documents of the Navy.

²⁵ “SA MAJESTÉ s'étant fait rendre compte de la forme actuelle du service sur ses Armées navales, Escadres, Vaisseaux & autres Bâtiments de guerre, en ce qui concerne les consommations & remplacements des Munitions

4) Pursers, accountants on board the English Royal Navy

As the famous English song says, “*Rule, Britannia! Britannia, rule the waves!*”²⁶; the Royal Navy ruled over the seas in the 18th century, and as such, it is the yardstick against which the other navies must be compared.

The illustrious English Navy was organised around the Admiralty, a collegiate body formed by seven Lords commissioned with two main figures: The First Lord, generally a politician, and the Naval Lord, a soldier of renowned prestige (Haythornthwaite, 1993: 6). Administratively, it was divided into three sections within the well-known Navy Board (created in the 16th century), which was responsible for shipyards, warehouses, construction, ship repairs, etc. Under its command, although operating independently, was the Victualling Board (created in 1683), in charge of guaranteeing provisioning of the ships of His British Majesty (Syrett, 1997: 57).

The most important ordinances of the Royal Navy during the 18th century were the *Regulations and Instructions relating to His Majesty’s Service at Sea* (hereafter, Regulations), which were issued by the Admiralty with the objective of standardising the governance of its Navy, increasing control over personnel, materials and provisions intended for it. They were published for the first time in 1731, being republished practically unaltered on three occasions until 1790²⁷, maintaining their structure and content until 1808 when they were broadly reformed and expanded (McBride, 2019: 3 y 12).

The onboard accountant in the Royal Navy was known as the purser. They were responsible for the monitoring and recording of inflows and outflows from the provisions and clothing room²⁸, and were also in charge of keeping the muster of the crew updated.²⁹

They were usually a civilian of the bourgeoisie, well-connected and with the possibility of financing, as taking the position required presentation of a large deposit³⁰ as a guarantee of their responsibility, which would not be repaid until it was approved (McBride, Hines, & Craig, 2016, p. 9).

& des Effets & les revues des Équipages; Elle a reconnu que les fonctions dont les Intendants, Commissaires & Écrivains de la Marine étaient ci-devant chargés sur ses Escadres & à bord de ses Vaisseaux, pourraient être remplies, avec plus d’avantage & plus d’économie pour son service, par des Officiers de la Marine, faisant partie des États-majors de ses Vaisseaux”.

²⁶ Song heard for the first time in 1739, set to music by Thomas Augustine Arne (1710-1778) using a poem by James Thomson.

²⁷ The variations were added in successive annexes under the name Additional Instructions.

²⁸ “*The purser, being the officer who is entrusted with the keeping and distributing the provisions out to the Ship’s Company, is to observe the following Instructions*”. (Regulation 1734, 1757, 1790. The purser. Article 1).

²⁹ “*He is to keep an exact Muster-Book of the time of the entry, discharge, desertion, death, attendance and absence of every person belonging to the ship*” (Regulation 1734, 1757, 1790. The purser. Article 30).

³⁰ In 1807 this varied between 1200 pounds for a first-rate ship and 600 pounds for a sixth-rate ship.

The route for young men who wanted to become purser involved first having to serve for at least one year as Captain's clerk, the person employed by the commander of the ship to keep records, correspondence and accounts.

To help them in their work they used several non-official ledgers which clarified the accounting aspects of the Regulations, notable among them being *Instructions to pursers* by Oliver King, who was purser on board the *HMS Savage* in 1759 (McBride, 2019: 19).

The purser was a non-commissioned officer and was appointed by the Victualling Board (Haythornthwaite, 1993: 11). At the end of the century, they came to be appointed directly by the Navy Board, being assigned similar wages to those of a boatswain. It was not until 1807 that pursers received a uniform and designation as *warrant officer*³¹.

Their place on the ship was on the lower decks, near to the goods that they had to safeguard, a suitable place for avoiding temptations and dissuading potential theft. Although they had the right to access the officials' dining room and chamber, the status of the pursers within the micro-society that was a Royal Navy ship depended on the size of the ship, ranging from being little more than an onboard shopkeeper, to rubbing shoulders with the officials on large ships and having assistants (a butler and a cooper).

The purser had to ensure that the ship was provisioned in accordance with Naval standards, which depended on the size of the ship and the expected duration of its voyage. To do so, they were allocated money by the Victualling Board, with which they had to acquire the goods necessary for preparation of the ship. Two thirds of this money was received in cash, the rest being credit in their name. The purchases made were loaded onto the ship with receipts signed by them and by the captain. The prices by which the money allocated was calculated were set by the Victualling Board, and any difference that arose was against or in favour of their account.

The Regulations gave specific instructions on the accounting that had to be carried out to monitor provisions, material and personnel, including the formats that had to be used for the recording and presentation of the purser's accounts (Figure 3).

The ledgers that were used on board were divided between those related with personnel (muster and pay book) and with materials:

- 1) Muster book, where a list of the muster of the crew was kept, when and where they had enlisted, if they were volunteers, absences, deaths, etc.
- 2) Pay book, keeping an account of payment of personnel.
- 3) Victualling book, for food; two sets of books were kept, one for everyday use and a copy.

³¹ Warrant officers were appointed by a writ of the Admiralty, unlike those who were appointed by the captain of the ship.

the voyage, the records had to express the material purchased, and the place and date of the transaction, as well as expressing it in English currency and units of measurement (Regulation 1757. The purser. Article 25)

The accounts that the purser had to render had to be certified and signed by the commander of the ship as proof of their prior verification. The purser would not receive their payment until the Victualling Board certified their accounts, which could take long periods of time due to the crossings of information which had to be made.

The image of the pursers was not very good within the English Navy³², rumours accusing them of excessive savings (stealing) in the rations of their colleagues as they did not receive any wages; it was also said that albatrosses that followed the ships in southern latitudes were the spirits of pursers who had previously served there and who had come to recover part of their goods (McBride et al., 2016: 12).

The truth is that their pay was not very high, and they were therefore allowed to carry out trade on a small scale on board. Their reputation as swindlers was also not completely unfounded, as the mores and customs in the English Navy accepted the use of the purser's pound, by which they were permitted to issue the crew seven eighths of the measurements established by ordinance, which guaranteed that the purser would have a healthy account at the end of their service, at the expense of their comrades on board³³. This practice, along with other reasons, led the navy to revolt against its officials in 1797, in the renowned Spithead and Nore mutinies.

The role of the purser in an institution like the Royal Navy can be framed within an organisational theoretical framework such as Agency Theory (McBride, 2020). The English Navy sought efficiency and effectiveness in the management of food by means of using agency agreements to control rations through the purser. The agency relationship arises when one group (the Victualling Board) delegates control to another group (the purser), and both groups are motivated by their own interest. The agency costs are reduced when the interests of both parties are consistent. In the present case, the objective of the Victualling Board (as director) of minimising the cost of supplying food in a context of information asymmetry, installed the purser (as agent) in a position with ample room for not following regulations. The Victualling Board had to consider to what extent it was prepared to expend resources to control the greed of the purser. The solution was the purser's pound, a measurement with no cost for the Royal Navy, which had the advantage of informally providing a legitimate source of remuneration to the pursers, allowing the official wages of pursers to be kept low, and in turn leading to savings for the Victualling Board.

³² "The Purser, most denounced, satirized and lampooned of all officers in the Kings ships" (Leyland, 1912).

³³ Until 1797, when as a result of the Spithead and Nore mutinies, the use of the purser's pound and other purser's measures were abolished in the whole Royal Navy. One of the complaints of the mutineer sailors was that their provisions were supplied using the purser's pound and not the honest pound (McBride et al., 2016: 17).

5) Comparative study

From a regulatory perspective (Figure 4), the analysis of the ordinances related with the naval administrative sphere has shown that in the cases of Spain and France, after a lengthy period of legislative stability in which their regulations were barely modified, the Seven Years' War was catastrophic for both States, among other consequences leading to a profound regulatory change consisting of an update of the legal texts, seeking to strengthen Navies which, as demonstrated in this conflict, had to collaborate on a battlefield which was no longer European, but global. This fact did not occur in England, which until this time had not had a rival on the seas anywhere in the world.

Figure 4. Main regulations in effect in Spain, France and England on onboard administration

Origin	Valid		Regulation
	From	To	
Spain	1717	1772	Instruction on different points which must be observed in the Spanish Navy and which must have the force of Ordinance until His Majesty orders the publication of those which must be practiced inviolably
France	1689	1765	Ordinance of Louis XIV. For the Navy and Naval Arsenals
England	1731	1806	Regulations and Instructions relating to His Majesty's Service at Sea

Source: Own creation

The differences between the accountants on Spanish, French and English ships began from the very moment of their accessing the position that they would hold (Figure 5). In the *Real Armada*, *contadores de navío* formed the lowest rung of the hierarchy within the Ministerial Corps; it was the entry point for young men with minimal training who wanted to make a career in the administrative branch of the Navy. The barriers to entry were minimal, requiring no more than knowing how to read, write and count, the trade being learned along the way. At the other extreme were the pursers of the Royal Navy, who before accessing the post had to undergo a demanding quality test, having to work at least one year in the position of Captain's Clerk. In an intermediate case, the *écrivains* had to have prior training in a post where they carried out accounting and administrative work, and once their ability and good conduct had been certified by the quartermaster they could access the post.

It is also important to highlight the solvent economic position required of English pursers, as they had to pay a deposit which guaranteed their account (the larger the ship on which they had to provide their services, the larger the sum). In the cases of Spanish and French accountants, this requirement was not necessary.

Figure 5. Access to the post of onboard accountant

<i>Contadores de navío</i>	<ul style="list-style-type: none"> • Young men between 15 and 25 years old. • Previous training in calligraphy (good handwriting) and minimum knowledge of mathematics (knowing how to count). • Access by examination of the main accountant. • Learning their trade as they work. • No reference works to consult apart from the regulation itself.
<i>Écrivains du Roi</i>	<ul style="list-style-type: none"> • Had to be selected from employees at offices of the port. • Accessed by decision of the quartermaster. • Had to demonstrate ability and good conduct of the candidate.
Pursers	<ul style="list-style-type: none"> • Had to have previously served one year as <i>Captain's Clerk</i>. • Had to pay a deposit which guaranteed their account. • Non-official reference and consultation works existed for their tasks.

Source: Own creation

The appointments to these positions were also different, as in the French Navy they were officials appointed by the king, in the English Navy they were appointed by the Victualling Board, a body reporting to the Navy Board, and in Spain they were appointed by the quartermaster at the behest of the main accountant.

Although the functions to be carried out by the onboard accountants were similar (intervention, recording and monitoring), each one of the regulations established a different way of undertaking this work (Figure 6). In Spain, until 1772 the tasks were divided between two figures: the *contadores de navío*, in charge of accounting, intervention and monitoring of inflows and outflows of goods and personnel; and *maestres de jarcia*, in charge of custody and safekeeping of goods. In France, there was a very similar situation, the *écrivain du roi* having the same functions as the *contadores de navío* of the *Real Armada*, except with regard to the custody and monitoring of perishable goods, which were the responsibility of a contractor, the *munitionnaire*, who sent their own personnel on board.

Figure 6. Tasks of the accountants on board

<i>Contadores de navío</i>	<p>The responsibilities on board were divided between two figures:</p> <ul style="list-style-type: none"> • <i>Contador de navío</i>: intervention, monitoring and accounting. • <i>Maestre de jarcia</i>: safekeeping and custody of goods (until 1772).
<i>Écrivains du Roi</i>	<ul style="list-style-type: none"> • Intervention of inflows and outflows of goods and personnel occurring on the ship. • Recording of movements on and off of the ship, whether in the muster or goods (except food). • Supervision of quality, quantity and distribution carried out by the <i>munitionnaire</i> (onboard food contractor).
Pursers	<ul style="list-style-type: none"> • Purchasing the goods, safeguarding and distributing them. • Recording the movement of goods on board. • Keeping the muster of the crew updated.

Source: Own creation

Other differences in the way of working arise from the way of provisioning the ship; while in Spain all goods loaded were owned by the State and came from the warehouses of the arsenal, in France this was the case except with regard to food. Both in France and Spain, it was not money, but goods that were managed; however, in England the purser was in charge of purchasing the goods which had to be loaded on board, for which the Victualling Board provided a sum of money and a line of credit in their name which they would have to manage, their earnings depending on how well they performed this task.

Each one of the ships was in independent unit on which the *contadores*, *écrivains* and pursers were in charge of recording the economic movements occurring on board, and rendering accounts upon their return. The ordinances of the three monarchies place great emphasis on the content of the accounting (Figure 7). The English ordinances of 1731 were the first which also showed the format in which to present the economic and accounting information. Spain set this out in the Arsenal Ordinances of 1776, and France would leave this section out of its legal texts.

Figure 7. Recording of accounting information

<i>Contadores de navío</i>	<ul style="list-style-type: none"> • On board, a copy of the accounts was kept, the original kept on land • Accounting books: <ul style="list-style-type: none"> • Ledger of supplies, artillery, weapons and munitions. • Ledger of food and medicines. • Ledgers of crews.
<i>Écrivains du Roi</i>	<ul style="list-style-type: none"> • The ledgers and format that must be used are not explicitly specified. • A record of the quality of the goods loaded on board by the <i>munitionaire</i> must be kept. • Register of the muster, weapons and munitions.
Pursers	<ul style="list-style-type: none"> • Daily records of movements and bimonthly accumulated movements which must be approved by the captain and other officials. • Accounting ledgers: <ul style="list-style-type: none"> • Muster Book . • Pay book. • Victualling book. • Auxiliary accounting ledgers: <ul style="list-style-type: none"> • Slop Book. • Book of dead men's clothes. • Tobacco book.

Source: Own creation

The accountants on board had to render accounts upon arrival at port (Figure 8), the *contador de navío* before the Main Accounting Office, the *écrivain* before the quartermaster, and the purser before the Victualling Board. All of them kept their records using the charge and discharge system and were responsible for the ranges or deviations occurring in their accounts. The wages of the Spanish and French accountants were fixed by ordinance, those of the English accountant largely depending on how well they had managed their account.

Figure 8. Rendering of accounts

Contadores de navío	<ul style="list-style-type: none"> • Did not manage money. • Did not safeguard goods until 1772. • Rendering of accounts carried out at the Main Accounting Office of the department. • Positive outcomes were retained by the Royal Treasury, negative outcomes were offset by personal wealth or present and future wages.
Écrivains du Roi	<ul style="list-style-type: none"> • Accounting for movements before the quartermaster upon arrival at port.
Pursers	<ul style="list-style-type: none"> • The Victualling Board advanced a sum of money and a line of credit in their name with which they had to provision the ship in accordance with ordinances. • Rendering of accounts before the Victualling Board. • Positive or negative outcomes were retained by the purser.

Source: Own creation

Positive outcomes arising as a result of the accounts rendered by Spanish and English accountants were treated very differently. While in the case of the *maestres de jarca* and *contadores de navío*, and despite accounting by the charge and discharge system, the owner of the account (the king) would not allow it to remain in their possession; conversely, in the English case, this positive outcome was institutionalised through the purser's pound and formed part of the remuneration of the accountant. However, in the case of negative outcomes, all were liable with their own personal wealth or present or future wages.

6) Conclusions

The function of the onboard accountants, in charge of the intervention, recording and monitoring of the economy on board the 18th century warships, has been shown to be essential when fulfilling the objective proposed by Uztáriz in 1724 for a basis of efficient and effective management of the increasing resources that the Enlightened States dedicated to their Navies, in his words, "...so that the fruit does not spoil with superfluous and wasteful expenses...".

It has been shown that the tasks that the *contadores*, *écrivains*, and pursers had to carry out were similar: supervision of the quality and quantity of inflows and outflows of goods and personnel on board, prompt registration of economic movements, and rendering of accounts upon arrival at port.

From undertaking this work, it can be concluded that the Spanish *contadores de navío* carried out their work as officials whose mission, established by ordinance, was to ensure savings and the economy on board. Like the Spanish, the French *écrivains* were officials who apart from safeguarding their stores, acted as controllers of the subcontractors to whom the State had delegated part of their functions. Finally, the English pursers were agents of the Victualling Board, in charge of purchasing and managing their cargo and stores, and as such were forced to make the maximum savings in the tasks entrusted to them. In summary, while we may initially think that these similar tasks should be carried out by similar means, it has been shown that this was not the case, as in each of the cases analysed, a different way of completing the tasks was chosen.

During this study, the role of the onboard accountants has also been shown to have promoted or prevented changes within and outside of their organisation. In two of the cases presented, accounting, accountants and their work directly influenced the micro-society that was an 18th century warship, and the institutions of which they were a part.

This was a positive influence in the French case, where the evolution of the regulation shows that the *écrivain* was a figure which transformed from having a purely institutional character to ascending significantly in society. This is seen in the change of the location in which the accountant had to stay during combat: in the ordinance of 1689, their job was to generate trust in the king's business, being ordered to stay in the gunroom to monitor and record movements of gunpowder, a very valuable good owned by the State; in the ordinances of 1765, they take on an economic and also social character, generating trust between their comrades in arms in the tragic moment of combat, the regulation ordering *écrivains* to position themselves alongside the wounded to ensure that they were assisted promptly and to avoid their belongings being stolen.

Conversely, in the case of the English purser, the accountant projects a negative aura in the micro-society formed on the ships of the Royal Navy. Due to the remuneration of pursers depending on the management of stores for which they were responsible, they were constantly accused of robbing the crew and causing living conditions on board to deteriorate, leading to their bad reputation.

However, the pursers did not only affect their environment by creating a bad "working environment"; their mores and customs contributed to what could have been a political-military disaster, and what was a human tragedy. The abusive use of the purser's pound was one of the causes of the Spithead and Nore mutinies breaking out in 1797, when England was at war with Revolutionary France and Spain, and although it was not an especially violent revolt, the English courts executed 29 of the ringleaders, and many more were imprisoned, punished by lashing, or deported to Australia.

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- Box 2192. Document by the quartermaster dated the 28th of July 1756.
- Box 2208. Royal Order dated the 13th of August 1775.
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Regulations and Legislation

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Ordenanza e instrucción de escribanos y maestros de bajeles del Rey, formada para la cuenta y razón que se debe llevar a sus bordos en viaje y en puerto. 1735.

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Ordonnance du roi. Concernant la Marine. 25th of March 1765

Ordonnance du roi. Concernant les officiers d'administration de la Marine et des écrivains. 25th of March 1765

Ordonnance du roi. Concernant la régie et administration générale et particulière des ports et arsenaux de Marine. 27th of September 1776.

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