

# THE ROMAN EMPIRE AND THE GRAIN FLEETS: CONTRACTING OUT PUBLIC SERVICES IN ANTIQUITY

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**The application of contemporary public sector management concepts and theories allows us to rethink some of our perceptions of the Roman Empire's rôle as a service provider and the way in which the provision of services was made more efficient. This paper uses the imperial grain supply as a case in point to demonstrate that contracting out allowed the state to take advantage and build on its core competencies, whilst at the same time leveraging the core competencies of the service providers; in this case, the owners of merchant ships. Furthermore, the contracting régime undertaken by the Empire served to increase the transport capacity of the state by means of the establishment of regularised control mechanisms.**

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## INTRODUCTION

The concept of contracting out essential public services is generally thought to be a modern development. In particular, it is most closely associated with New Public Management (NPM), which came to the fore in the 1980s. The academic literature regularly frames this development from a strategic management perspective, i.e. that governments should adhere to their core competencies, such as organising and regulating, while private concerns should carry out operations that are closely aligned to their own respective core competencies.<sup>1</sup> The logic behind this is that each party does what it does best, which, from a theoretical perspective, should result in an overall gain in system efficiency. This is particularly important in the case of the modern public sector organisation, the operations of which are closely allied to the political interests of the government of the day, e.g. the oft-cited whole-of-government focus.<sup>2</sup>

Thus the efficient carrying out of public services gives the incumbent government kudos in the eyes of the electorate, whereas a failure to do so may cost that régime dearly when votes are next cast.<sup>3</sup> Modern academics are wont to see contemporary management philosophies as a comparatively modern advent, although Hood has pointed out – and quite rightly too – that some of the tenets of NPM are hardly modern and existed long before Thatcher and Reagan came to power.<sup>4</sup> In fact, further

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<sup>1</sup> Rasheed and Gilley, *Outsourcing*, p. 523.

<sup>2</sup> On this, see Brown *et al.*, *Change*; Waterhouse *et al.*, *Pacific Motorway*.

<sup>3</sup> Brown *et al.*, *Change*, p. 234, have issued a warning, in the context of electoral backlash, about 'the overzealous adoption of NPM [New Public Management] philosophies, particularly contracting'. Others have argued that NPM is not delivering the democratic and inclusive outcomes demanded by communities (Denhardt and Denhardt, *New Public Service*; Hazlett and Hill, *Policy*; White, *Changing the 'Whole System'*; Cohen, *Strategic Framework*).

<sup>4</sup> Hood, *Public Service*, p. 300.

analysis reveals that the concept of contracting out public services to private service providers, one of the key elements of NPM, is a concept that is deeply rooted in history. While the academic framework of the concept is new, the underlying operational details are clearly not. This has received little attention in the bulk of the contemporary literature on the topic.

The present discussion will look at the way in which the government of the Roman Empire fed the underprivileged population of its greatest city, why it chose not to vertically integrate the supply chain, how the system was managed, and what lessons can be learned with respect to contracting out in today's world. In particular, this paper will examine the grain ships, the men and women who owned or helped to finance these vessels, and the networks and relationships established as a result of the imperial system of grain transport, which was known in Latin as the *annona* (which term will be used hereafter for the sake of convenience).

What emerges is a contracting out framework that is surprisingly modern, and which casts certain Roman emperors with a reputation for bad works in a rather more positive light. Indeed, it emerges that not only Augustus, the first and perhaps most famous of the Roman emperors, was instrumental in establishing the imperial *annona*, but also that maligned emperors like Claudius and Nero did much to enhance its efficiency and introduce a more relationship-based aspect to its operation, whilst at the same time expanding the transport and indeed military capacity of the Empire. In particular, we need to understand the Roman contracting out of public services in the context of a minimalist approach to government, which state of affairs effectively characterised the Roman Empire. To cast it in the language of strategic management, organisational elements of the Roman state were of the 'modular' type; that is, the government arm responsible for administering the *annona* was 'actually a central hub surrounded by networks of outside suppliers and specialists'.<sup>5</sup>

For reasons of convenience, this paper will focus primarily on the period known as the Principate, and especially the Julio-Claudian period through to the age of the Severans (27 BC to AD 235), although mention of the Late Empire will be made when deemed appropriate.

## CONTRACTING OUT AND NEW PUBLIC MANAGEMENT

Before the paper turns its attention to Rome, it is important to discuss briefly the overall notion of contracting out and the integral part it plays in NPM, the principles of which, though they have recently been cast into a more relationship-oriented contractual form, very much characterise the activities of contemporary government agencies in first-world nations. As is widely recognised, approaches to public sector management in most OECD countries have come under the influence of public choice theory and neo-classical economics that emphasise smaller government, deregulation and competition.<sup>6</sup> In this environment, policy initiatives such as privatisation and contracting out have been regarded as instrumental to reform. This is for two important reasons. First, they represent an attempt to engender efficiency and innovation through quasi-market arrangements.<sup>7</sup> Secondly, they represent a mechanism to achieve cost savings, improve customer service and, perhaps more

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<sup>5</sup> Dess *et al.*, *Corporate Architecture*, p. 8.

<sup>6</sup> Recascino Wise, *Public Management*; Van Slyke, *Mythology*.

<sup>7</sup> Kitchener and Whip, *Tracks*; Chapin and Fetter, *Contracting*; Johansson, *Independent Movement*; Hernes, *Organizational Responses*.

importantly, implement greater control outcomes.<sup>8</sup> Indeed, a more covert by-product of contracting out is the incorporation of private actors into the state.

In particular, the notion of contracting out is believed to reduce costs associated with providing a public service,<sup>9</sup> though this has been contested. As a result of this perception, many functions of government previously pursued in-house are now outsourced.<sup>10</sup> For example, a review of 182 contracting studies carried out in the mid-1990s concluded that ‘on average the unit cost of services is reduced through competitive tendering of public services’.<sup>11</sup> Given the close association of government policy with electoral performance, as introduced above, it is important to bear in mind that contracts have been promoted by incumbent governments as a means of achieving and demonstrating greater accountability and efficiency.<sup>12</sup>

Thus one of the underlying principles behind contracting out in an NPM environment is that ‘public sector activities are more efficient when product markets are competitive or contestable’.<sup>13</sup> The dominant belief is that competitive tendering and contracting (CTC) arrangements produce better results for the general public, various other stakeholders, and the incumbent government.<sup>14</sup> Indeed, there is a belief that competitive markets allocate resources better than do governments,<sup>15</sup> although dissenting voices also note that NPM ‘threatens to eliminate democracy as the guiding principle of public administration’.<sup>16</sup> Despite these concerns, the recent shift to a more relationship-based type of NPM (usually referred to as hybrid-model NPM) has represented a cultural transition away from traditional bureaucracy *and* economic rationalism. The latter, in particular, has been criticised by modern public sector managers keen to ensure ‘high stakeholder satisfaction’.<sup>17</sup> It has also prompted the espousal of more egalitarian and non-tangible values. By promoting such values, public sector organizations, it is argued, will be able to serve the interests of democratic citizenship, community and civil society.<sup>18</sup>

With the above borne in mind, it is now time to turn to the Roman Empire in order to see how the NPM ideas introduced above correlate with and speak to the contracting out activities prosecuted by the Roman imperial administration around two millennia ago. In particular, the concept of incorporating the private sector into the state must be borne in mind, for this will emerge as one of the underlying reasons for the implementation of a contracting out environment. As will be seen, this operating environment is remarkably close to that which is familiar today. In fact, study of the provision of the *annona*, which involved the bulk transport of grain from Egypt and North Africa to Rome (much of which was owned by the Roman government and took the form of in-kind taxation from grain-rich Mediterranean provinces),<sup>19</sup> reveals some initiatives that seem remarkably modern; namely, the

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<sup>8</sup> Heinrich, Outcomes-based Performance.

<sup>9</sup> Hall and Rimmer, Performance; Domberger and Rimmer, Competitive Tendering; Grimshaw *et al.*, Going Privately.

<sup>10</sup> Channon, Outsourcing, p. 246.

<sup>11</sup> Hodge, *Contracting Out*, p. 26.

<sup>12</sup> White, Changing; Heinrich, Performance; Ryan *et al.*, Public Sector.

<sup>13</sup> OECD, *Governance*, p. 5. On this topic, see Smyth, Competition.

<sup>14</sup> This is the view espoused by Domberger and Rimmer, Competitive Tendering, p. 450.

<sup>15</sup> Weller *et al.*, Role, p. 3.

<sup>16</sup> Box *et al.*, New Public Management, p. 608.

<sup>17</sup> Hazlett and Hill, Policy, p. S517.

<sup>18</sup> Denhardt and Denhardt, New Public Service.

<sup>19</sup> Some of the grain, of course, was privately owned and imported. Egypt, according to Duncan-Jones, *Structure*, p. 189, was ‘mainly taxed in-kind under the Empire’. This province, which had been wrested by Octavian (later known as Augustus) from the Ptolemaic rulers upon Cleopatra VII’s suicide/murder,

maintenance of ongoing relationships with key stakeholders, efforts to minimise contractor risk, and the creation of an administrative agency responsible for the overall co-ordination of grain-shipment activities – all of which prompts a comparison with the relational model of NPM and the concept of government incorporating private actors into the state.

Still, it will be well to note that the idea of competitive tendering is not directly relevant to the subject that concerns us, viz. the transport of grain to the inhabitants of Rome.

## POLITICAL BACKGROUND

It is well documented that the Roman peninsula at the height of the Empire was no longer self-sufficient, as had been the case for imperial Athens around three centuries earlier during the period of the Athenian-controlled ‘Delian League’.<sup>20</sup> This was especially the case for Rome itself, a city upon which many of the unemployed and destitute of the Empire descended in order to look for work and succour. In effect, Rome was the eighteenth-century London of the ancient Mediterranean world. These people had little resources and many certainly could not afford grain sold on the open market at unsubsidised prices.

In these circumstances, it is important to remember that the Roman emperor’s hold on power was always somewhat tenuous, relying as it did on his prestige (*auctoritas*), control of the armies, efforts to placate his fellow senators,<sup>21</sup> and his ability to take care of the fickle Roman mob, which the historian Tacitus described as the *plebs sordida* (‘the degraded populace’).<sup>22</sup> This being so, it was in the emperor’s best interest to see to the continued supply of grain to the Empire’s capital.<sup>23</sup> One has only to remember the connotations imparted by the Roman satirist Juvenal’s famous phrase *panem et circenses*, ‘bread and circuses’.<sup>24</sup> Thus provision of the *annona*, which largely emanated from the grain-rich provinces of Egypt and Africa (which encompasses parts of modern-day Algeria, Libya and Tunisia), was directly related to the successful continuation of the incumbent emperor’s tenure of the purple.<sup>25</sup>

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might well be regarded as the emperor’s personal fief – it was governed by an equestrian prefect and senators were not allowed to travel thence without his permission, which clearly alludes to the immense political importance of the *annona* and the ability to secure it; see Cassius Dio, 51.17.1; Tacitus, *Annals*, 2.59.2–3; *Histories*, 1.11.1. Sicily was taxed in-kind in the late Republic and this state of affairs, despite Rostovtzeff, *History*, pp. 208–209 (who argues for a *stipendium*, i.e. a land or poll tax ‘paid in money’), seems to have continued into the Empire. On the debate, see Duncan-Jones, *Structure*, p. 191. Africa, the other important grain province, may have been taxed in a mixed fashion, but payments in-kind are certainly attested by the ancient sources; for details, see Duncan-Jones, *Structure*, p. 192.

<sup>20</sup> The so-called ‘Delian League’ was founded in 488/487 BC. On grain-supply and famine in ancient Athens (and the surrounding region of Attica), see the comprehensive treatment by Garnsey, *Famine*, chs. 6–9; see also Rickman, *Corn Supply*, pp. 2 and 8.

<sup>21</sup> The emperor was the *primus inter pares*, ‘the first among equals’. He was also known, especially in the first century of the Augustan system, as the *princeps*, ‘the first citizen’. At this stage, the term *imperator*, from which we derive the word emperor, merely meant ‘victorious commander-in-chief’.

<sup>22</sup> Tacitus, *Histories*, 1.4.

<sup>23</sup> Finley, *Ancient Economy*, p. 40.

<sup>24</sup> Juvenal, *Satires*, 10.81.

<sup>25</sup> Matters became even more difficult for Rome’s rulers after the partitioning of the Empire into East and West (especially after AD 395). In the Late Empire, Rome had to rely more or less exclusively on the African grain, since provisions from Egypt were reserved for the eastern capital of Constantinople. On this situation, see Charles, *Transporting*, pp. 281–283; Moss, *Effects*, p. 723.

Tacitus, who puts the following words into the mouth of the emperor Tiberius, best summarises the situation:

the very existence of the people of Rome is daily at the mercy of uncertain waves and storms. And unless masters, slaves, and estates have the resources of the provinces as their mainstay, our shrubberies, forsooth, and our country houses will have to support us.<sup>26</sup>

Noreña points out that ‘The notion that a ruler had a moral obligation to provide his subjects with material benefits had a long history in the ancient world, going back at least to Xenophon’s *Cyropaedia*’, which text hails from the fourth century BC.<sup>27</sup>

Thus the provision of benefits and liberality was not looked upon as an additional boon, in addition to gladiatorial displays, running water and the occasional coin donative. Rather, it was looked upon as a right. As might readily be imagined, unrest among the local populace would encourage the masses to look to alternative leaders. It was never especially difficult to find a senator eager to advantage of an uncertain political situation, which makes for a valid point of comparison with the electoral systems of modern democratic societies.<sup>28</sup> For example, Tacitus reports that the noblewoman Crispinilla, during the period of crisis following the emperor Nero’s forced suicide in AD 68, ‘crossed to Africa to stir up Clodius Macer [the governor] to rebellion, and had openly tried to bring famine on the Roman people’.<sup>29</sup> The Roman political system was often in a state of flux, even when it did not seem to be. The emperors, therefore, were constantly guarding against the possibility of conspiracy and usurpation.

As a consequence, it should come as no surprise to learn that the imperial government did all it could to ensure that the bellies of the underprivileged Roman populace were kept full and content, generally at the cost of the state. And it should also be borne in mind that even the marginally self-sufficient or well-to-do (and one must talk in relative terms since the genuine élite of the Empire numbered less than 1% of the population)<sup>30</sup> also expected a steady flow of grain sold at reasonable prices. Modern studies suggest that around 200,000 people, or perhaps more, were eligible to receive free grain doles. In the context of a city of *circa* one million people around the time of the emperor Augustus (who reigned 27 BC–AD 14), this represents a considerable figure.<sup>31</sup> The figure becomes even more significant when one takes into

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<sup>26</sup> Tacitus, *Annals*, 3.54.4.

<sup>27</sup> Noreña, Communication, p. 160. But the ‘full adoption’ of the official imperial virtue of *Liberalitas* (‘liberality’) did not seem to come about until the reign of Trajan, as Noreña, Communication, pp. 161–162, points out. *Liberalitas* complemented the four personalised Augustan virtues of *Virtus* (the most immediate translation is ‘virtue’, but the sense of the word goes beyond this), *Clementia* (‘clemency’), *Iustitia* (‘justice’) and *Pietas* (‘piety’), which were inscribed on the *clupeus virtutis* (‘shield of virtue’) awarded to Augustus; see Augustus, *Res Gestae*, 34.2. In all, the eleven virtues are as follows: *Aequitas* (‘fairness’), *Clementia* (‘clemency’), *Constantia* (‘constancy’), *Indulgentia* (‘indulgence’), *Iustitia* (‘justice’), *Liberalitas* (‘liberality’), *Munificentia* (‘munificence’), *Patientia* (‘patience’), *Pietas* (‘piety’), *Providentia* (‘foresight’), *Pudicitia* (‘modesty’), and *Virtus* (roughly, ‘virtue’) (Wallace-Hadrill, Emperor, p. 310).

<sup>28</sup> Noreña, Communication, p. 161, infers from the writings of Tacitus (in the *Histories*, especially with reference to the speeches of the imperial contenders Otho and Piso, the latter of whom would be adopted by the emperor Galba) that ‘personal generosity was expected of potential emperors, especially among the troops and urban plebs of Rome’.

<sup>29</sup> Tacitus, *Histories*, 1.73. Macer was executed by the imperial procurator Trebonius Garutianus, who was acting on the orders of Galba, emperor at the time (Tacitus, *Histories*, 1.7).

<sup>30</sup> Toner, *Rethinking*, p. 50.

<sup>31</sup> Garnsey and Seller, *Roman Empire*, p. 83.

account that perhaps 30% of the population were slaves.<sup>32</sup> If we ignore the amount of grain that was to be provided *gratis*, the overall amount of grain that needed to be sent to Rome was in the vicinity of 20–40 million *modii*, which equates to 150–300,000 tons.<sup>33</sup> As can be imagined, much organisation was required. This was especially impressive given that Rome, in the Principate, was ‘basically [a] non-bureaucratic society’.<sup>34</sup>

Of especial import is that there was no state-owned fleet of merchantmen, or vessels which Latin speakers called *naves onerariae*.<sup>35</sup> This may seem odd to some observers. Indeed, it is often perceived, mainly as a result of inaccurate portrayals in literature and the popular media, that the Roman Empire was a military-state or at least a command economy in terms of its control and regulation of all aspects of daily life.<sup>36</sup> Yet closer investigation reveals that minimal government was, to a certain extent, the hallmark of the Empire, except when the failure to exercise stricter control would have resulted in adverse political implications. Temin has recently demonstrated that the Roman economy in the early Principate was very much a market economy, albeit ‘not ... the market economy of elementary economics textbooks’.<sup>37</sup> As Garnsey contends, the Imperial state was ‘something less than *libero commercio* or *laissez faire, laissez passer*’, but it was still far removed from ‘*dirigisme*’.<sup>38</sup> Pliny the Younger’s *Panegyricus*, which discusses the state of the *annona* early in Trajan’s reign, seems to provide sufficient witness to this:

It is plain to see that every year can abundantly supply our needs – and without harm to anyone. Harvests are not snatched as if from enemy soil to perish in our granaries, carried off from allies who lament in vain; instead, these bring of their own accord the produce of the soil, the year’s harvest nurtured by their climate; unburdened by fresh impositions (*indictiones*)<sup>39</sup> they can meet long-standing obligations, and the imperial treasury (*fiscus*) pays openly for its purchases. Hence these provisions and the grain-supply, with prices

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<sup>32</sup> Garnsey and Saller, *Roman Empire*, p. 83. This could even represent a conservative figure. Brunt, *Italian Manpower*, p. 383, believes that somewhere between 100,000 to 300,000 slaves lived in Rome during the early Principate. Rickman, *Corn Supply*, p. 9, rightly believes that the ‘lower end of that scale seems ... too low’. See also Westermann, *Slave Systems*, pp. 63–69.

<sup>33</sup> Temin, *Market Economy*, p. 176; Rickman, *Corn Supply*, p. 10; Garnsey, *Famine*, pp. 191 and 231. Finley, *Ancient Economy*, p. 198, describes an absolute minimum of 150,000 tons.

<sup>34</sup> Finley, *Ancient Economy*, p. 199.

<sup>35</sup> Charles, *Transporting*, p. 297; Garnsey, *Famine*, p. 233; Temin, *Market Economy*, p. 177. There is reference to the institution of an African fleet (*classis ... Africanam*) supposedly called the *Commodiana Herculea*, which was assembled by the emperor Commodus (reigned AD 180–192) in case the supply of grain from Alexandria should fail. But this reference comes from the highly dubious collection of imperial biographies known as the *Historia Augusta* (*Commodus*, 17.7–8), which is now generally believed to have been written in the late-fourth century by a scholarly fraudster. As a consequence, we need not give the above testimony much credence, as Garnsey, *Famine*, p. 235, points out.

<sup>36</sup> On this debate, see Saller, *Framing*, p. 227; Garnsey and Saller, *Roman Empire*, p. 48 (‘the transport of goods by order of or under control of the state, “redistribution”, or “administered trade”, was of singular importance’); with Rostovtzeff 1957, pp. 158–159, who highlights the supposed ‘command’ aspects of the provision of the *annona*.

<sup>37</sup> Temin, *Market Economy*, 181.

<sup>38</sup> Garnsey, *Grain*, p. 128.

<sup>39</sup> *Indictiones* refers to additional (and irregular) provincial taxation – outside of the usual *tributa* – that was required in emergency situations. Pliny, therefore, lauds the fairness displayed by his imperial honorand.

agreed between buyer and seller; hence, without causing starvation elsewhere, we have plenty here in Rome.<sup>40</sup>

This is worth bearing in mind as this discussion progresses. It is also useful to remember that Rome had no professional standing army for much of its history (especially in the early to mid Republic), and that Rome ruled the Mediterranean for centuries with a political apparatus that was designed to administrate a polis rather than a culturally and ethnically diverse pan-Mediterranean empire.

To couch the question of the *annona* in modern strategic management terms, the Roman government realised that its core competency, with respect to the grain supply, was the housing and distribution of subsidised grain within Rome itself. The Empire had no special ability with regard to transporting the grain from the provinces to Italy. In addition, ‘apart from providing specialist service at lower cost, outsourcing [equivalent to contracting out] helps to reduce capital intensity’.<sup>41</sup> Of note is that modern literature on the topic holds that contracting out and outsourcing can lead to a heightened focus on core competencies.<sup>42</sup> In addition – and this is particularly relevant for the public sector – ‘Outsourcing [and contracting out by extension] also increases an organization’s responsiveness by keeping the organization leaner and preventing the growth of large bureaucracies’.<sup>43</sup> Likewise, it can make organisations far more responsive to the needs of their customers.<sup>44</sup> The above, as is well understood, are some of the core aspects of NPM, which public sector management approach has gone hand-in-hand with the move towards what has been termed ‘smaller government’.

To return to the ancient world, private ship-owners, of course, had the resources and wherewithal to undertake grain-transport, but carrying grain was hardly the most lucrative of commercial enterprises, especially when higher-end commodities such as wine, silk, spices and other luxury goods were in constant demand by the Roman élite. The other danger was that merchants would import and sell grain at unreasonable prices, which could also cause unwelcome political repercussions. As a response to this, and to avoid the unhappy situation of the Republic (where individual senators took upon themselves the duty of feeding the poor in order to curry their favour, a situation which led to greater factionalism and ultimately civil war),<sup>45</sup> the Roman emperors decided to institute a more centrally-directed system overseen by the state.

## THE INSTITUTION OF THE *ANNO*NA

As mentioned above, the emperor Augustus, the progenitor of the system of government known as the Principate,<sup>46</sup> sought to bring the provision of the *annona*

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<sup>40</sup> Pliny the Younger, *Panegyricus*, 29.3–5; translation slightly adapted. Of course, this is a largely sanitised version of the situation composed for imperial ears.

<sup>41</sup> Channon, *Outsourcing*, p. 246.

<sup>42</sup> Allen and Chandrashekar, *Outsourcing*, p. 25; Barthelémy, *Seven*, p. 87; Lei, *Outsourcing*, p. 198; Quinn, *Intelligent Enterprise*, pp. 49 and 52.

<sup>43</sup> Rasheed and Gilley, *Outsourcing*, p. 523. This is not particularly relevant for the early Empire. The multi-layered Byzantine bureaucracy did arise until centuries later. In fact, imperial administration near the beginning of the Principate was surprisingly lean.

<sup>44</sup> Lei, *Outsourcing*, p. 196.

<sup>45</sup> See Rickman, *Corn Supply*, ch. 2.

<sup>46</sup> Augustus was known officially as the *princeps*, or ‘first citizen’ (hence the term ‘Principate’).

under his immediate control. Since his régime was essentially conservative and ostensibly based on precedent,<sup>47</sup> it was no great leap to tie the *annona*, which had hitherto been the purview of representatives of the senate,<sup>48</sup> to the person who had come to symbolise peace and prosperity after decades of civil war. This was the age of the *pax Augusta* ('Augustan peace'), and the cornucopia would be one of its symbols. As a consequence, Augustus made an attempt to secure as much grain for Rome as possible. It should be added that Augustus, in principle, was supposedly against the concept of free grain doles. Despite this, he maintained the system, not so much to bind the people further to his person, but to prevent other politicians (especially of a demagogic variety) from attempting, at some time in the future, from using the promise of free grain to elicit popular support.<sup>49</sup> Suetonius preserves a letter of Augustus that provides the following information:

I was strongly inclined to do away forever with distributions of grain, because through dependence on them agriculture [in Italy] was neglected; but I did not carry out my purpose, feeling sure that they would one day be renewed through desire for popular favour.<sup>50</sup>

Despite the above, studies have suggested 'a lack of system and a dangerous degree of improvisation' on the part of Augustus.<sup>51</sup> Perhaps the single most important innovation was the appointment, towards the end of Augustus' reign, of an equestrian<sup>52</sup> prefect of the grain supply (*praefectus annonae*), which official would attempt to co-ordinate the *annona*. Despite this, we should not allow ourselves to think in terms of a highly regulated system. Indeed, the *annona*, at least by modern standards, was never highly regulated, but it did, in time, come to be more closely monitored and manipulated by the imperial authorities. What seems to emerge, especially under Augustus' immediate successor Tiberius, is the concept of 'import targets'.<sup>53</sup> Tacitus writes of Tiberius' efforts to increase the amount of grain being imported to Rome, although he does not state how this was achieved.<sup>54</sup>

The Roman emperor Claudius, damned by Gibbon as 'feeble' and painted by the ancient sources as an uxorious and simple-minded cripple,<sup>55</sup> emerges as a ruler responsible for doing much to ensure the continued supply of grain to Rome.<sup>56</sup> As it turns out, he did so by means that are, from a public sector managerial perspective,

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<sup>47</sup> The Principate, as a political system, tried to differentiate itself from monarchy in the traditional sense and attempted to assimilate itself with the senate-led Republic – one has only to bear the fate of Julius Caesar, Augustus' adoptive father, in mind to understand why Augustus sought to hide the true nature of his régime under a Republican cloak.

<sup>48</sup> Rickman, *Corn Supply*, pp. 158-186.

<sup>49</sup> Tacitus, however, writes that Augustus used 'cheap corn' (i.e. wheat) to win over the populace (*Annals*, 1.2).

<sup>50</sup> Suetonius, *Augustus*, 42.3. On Augustus' innovations with regard to the *annona*, see Lehmann-Hartleben, *Hafenanlagen*, p. 185: 'Erst in der augusteischen Zeit ist die Annona zu einer wirklich durchgebildeten Organisation gediehen'.

<sup>51</sup> Garnsey and Saller, *Roman Empire*, p. 85.

<sup>52</sup> The equestrians or knights (*equites*) were ranked below the senators, though they should not necessarily be thought of as coming from a different class, as some have incorrectly opined. Indeed, of two Roman brothers, one could be a senator, and the other an equestrian (*equus*). Both were of the class that constituted the Roman élite. The *equites* thus comprised an *ordo* – an 'order' rather than class.

<sup>53</sup> Garnsey and Saller, *Roman Empire*, p. 86.

<sup>54</sup> Tacitus, *Annals*, 6.13.

<sup>55</sup> Gibbon, *Decline*, p. 104. For a résumé of the traditional interpretation of the generally derogatory remarks and tone of the ancient writers, see Carney, *Changing Picture*, p. 99.

<sup>56</sup> Scramuzza, *Emperor*, p. 118. See also Scramuzza, *Emperor*, p. 270 n. 56.

surprisingly modern.<sup>57</sup> This action was prompted by grain shortages at the time of his accession, in addition to a more serious occasion in 51, during which Claudius was abused by a hungry mob in the middle of the Forum.<sup>58</sup>

First of all, Claudius decided to create the appropriate macro-level infrastructure. In this case, this meant securing the port of Ostia (grain ships were far too large to travel up the River Tiber directly to the capital) by means of constructing a suitable port that could protect ships in adverse weather conditions.<sup>59</sup> A lighthouse, like the famous Pharos at Alexandria – one of the seven wonders of the ancient world – was also established.<sup>60</sup> This meant that larger ships no longer had to offload their cargo at Puteoli (modern Pozzuoli) and have smaller vessels ferry the grain thence to Ostia, and then up to Rome via the Tiber in even smaller vessels.<sup>61</sup> As a necessary concomitant, impressive storage facilities were also constructed, both at Ostia (for the grain from Africa) and at Puteoli (for the grain from Egypt).<sup>62</sup>

Unfortunately, Claudius' new harbour was still unable to provide sufficient protection, and it was not until Trajan's reign (AD 98–117) and the establishment of an even more protected inner harbour (Portus) at Ostia that large ships could 'sail direct to Ostia to unload their grain in relative safety'.<sup>63</sup> Of import, too, is that Claudius transferred the free grain from the Aerarium, the treasury of the state (overseen by the senate), to the Fiscus, which was the imperial treasury.<sup>64</sup> As Momigliano first pointed out, 'Distribution of these doles through the Fiscus ... was an open indication that it had become the Emperor's personal largesse'.<sup>65</sup> Furthermore, Momigliano saw this as part of a Claudian imperial 'policy of centralization'.<sup>66</sup>

Claudius also seems to have understood that contracting out in the context of a mere 'arm's-length market transaction'<sup>67</sup> would not provide the appropriate industry environment for greater collaboration between the state and its service providers. Thus, in order to engage more readily with his contractors and promote a suitable

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<sup>57</sup> Garzetti, *Tiberius*, p. 111, refers to Claudius' 'intelligence in matters of business – when he was not overcome by absent-mindedness'.

<sup>58</sup> Suetonius, *Claudius*, 18.2; Tacitus, *Annals*, 12.43. The much later Orosius (*History*, 7.6.17) also records the incident. For shortages at the beginning of his principate, see Seneca, *Dialogues*, 10.18.5; Cassius Dio, 59.17.2; Aurelius Victor, *Caesars*, 4.3. There were also shortages in AD 51 (Tacitus, *Annals*, 12.43) and, according to Hurley, *Suetonius*, p. 141, 'perhaps in 53' (Cassius Dio, 60.33.10). On famine under Claudius, see Gapp, *Universal Famine*, though this article deals with grain shortages throughout the Empire (which matter is also raised at *Acts*, 11.27–30 in the Bible).

<sup>59</sup> Suetonius, *Claudius*, 20. On the construction of the port, the definitive study remains Lehmann-Hartleben, *Antiken Hafenanlagen*, pp. 182ff. (includes all appropriate ancient references, including epigraphic sources).

<sup>60</sup> Suetonius, *Claudius*, 20. Improvements to the harbour at Ostia began after the grain shortage of AD 41; see Suetonius, *Claudius*, 20.3; Cassius Dio, 60.11.5; Pliny the Elder, *Natural History*, 9.14 and 16.202; *Corpus Inscriptionum Latinarum*, 14.85 [of AD 46] = *Inscriptiones Latinae Selectae*, 207; *Roman Imperial Coinage*, vol. 2, Claudius 94).

<sup>61</sup> Garnsey, *Famine*, p. 233; Rickman, *Corn Supply*, p. 19.

<sup>62</sup> Levick, *Claudius*, p. 110; Rickman, *Corn Supply*, pp. 23–24; Rickman, *Roman Granaries*, pp. 123–132. On the Campanian ports of Misenum (which became a naval base) and, more importantly, Puteoli, see Frederiksen, *Campania*, pp. 324–328 and 333–334.

<sup>63</sup> Garnsey, *Famine*, p. 233. Pliny the Younger, *Panegyricus*, 29.2, alludes to this.

<sup>64</sup> The definitive studies on these institutions remain Jones, *Aerarium*; Sutherland, *Aerarium*; see also Last, *Fiscus*.

<sup>65</sup> Momigliano, *Claudius*, p. 49.

<sup>66</sup> Momigliano, *Claudius*, p. 49.

<sup>67</sup> Rasheed and Gilley, *Outsourcing*, p. 526; supported by Lei, *Outsourcing*, p. 196: 'The most prototypical form'.

contracting environment, Claudius instituted a variety of additional benefits and incentives. Suetonius, Claudius' biographer, writes that the emperor 'offered to those who would build merchant ships [*naves mercaturae*] large bounties, adapted to the condition of each'.<sup>68</sup> Those recipients of benefits are referred to as *negotiatores*, or business people. In the context, this term encompasses those who 'financed and operated ships', which persons, by extension, could also be referred to as *navicularii* or ship-owners.<sup>69</sup>

Suetonius also provides further details. If the ship-owner was a Roman citizen, Claudius determined that he should be exempted from the *lex Papia Poppaea*,<sup>70</sup> a law which financially penalised celibacy.<sup>71</sup> If the ship-owner only possessed Latin rights (a reduced and less prestigious form of Roman citizenship), he should be able to acquire full Roman citizenship.<sup>72</sup> If a woman, the ship-owner should be granted the privileges normally reserved for mothers of four children,<sup>73</sup> which was known in Latin as the *ius IV liberorum*.<sup>74</sup> Suetonius tells us that these provisions were still in force in his day (c. AD 120).<sup>75</sup> Writing roughly at the same time as Suetonius, Tacitus adds that further encouragement to shipbuilders was provided by the succeeding emperor Nero,<sup>76</sup> who decreed that ships were not to be assessed as part of the owner's property. This effectively meant a reduction in tax.<sup>77</sup>

Other privileges are also recorded by the ancient sources. Ship-owners servicing the *annona* were exempted from harbour taxes, which Finley states were 'usually but not always 2½ per cent *ad ualorem*' (a rather low figure in any case) and were 'collected in probably every major port in the Mediterranean'.<sup>78</sup> Finally, ship-owners were exempted from *tutela*<sup>79</sup> and from performing civic duties compulsory for citizens of their means, which benefit was referred to as *publici muneris vacatio* and involved an exemption from municipal *honores* and the decurionate.<sup>80</sup> At some stage,

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<sup>68</sup> Suetonius, *Claudius*, 18.2. Hurley, *Suetonius*, p. 142, points out that 'adapted to the condition of each' (*pro condicione cuiusque*) really means 'in accordance with the legal status of each'.

<sup>69</sup> Hurley, *Suetonius*, p. 5. On the subtle differences between *negotiatores* and *navicularii*, see Garnsey, Grain, pp. 123–126. Garnsey holds that, for most purposes, one can think of the two groups as more or less identical, something which imperial legal rescripts often seem to do: '*navicularii* were men (and women) who chose to invest some of their resources in shipping, rather than be drawn into the performance of more onerous, inconvenient or expensive liturgies'.

<sup>70</sup> This law was passed in AD 9, i.e. after the failure of Augustus' law *de maritandis ordinibus*; see Suetonius, *Augustus*, 34.

<sup>71</sup> Suetonius, *Claudius*, 19. Details are also recorded at Gaius, *Institutes*, 1.32; Ulpian, 3.6; *Codex Theodosianus*, 13.5.7.

<sup>72</sup> Suetonius, *Claudius*, 19.

<sup>73</sup> Suetonius, *Claudius*, 19.

<sup>74</sup> Again, the state desired to increase the birth-rate; cf. Cassius Dio, 55.2.

<sup>75</sup> Suetonius, *Claudius*, 19. See also Orosius, *History*, 7.6.17.

<sup>76</sup> See also Ulpian, 3.6: 'A Latin acquires Roman citizenship by an Edict of the Divine Claudius, if he has built a ship having a capacity of not less than ten thousand measures [*decem milium modiorum*] of grain, and has used it for six years for the transport of grain to Rome'. This is repeated at Gaius, *Institutes*, 1.32<sup>c</sup>.

<sup>77</sup> Tacitus, *Annales*, 13.51. This refers to immunity from *tributum*, or tax.

<sup>78</sup> Finley, *Ancient Economy*, p. 159. On this, see also Rougé, *Commerce*, pp. 443–449; with De Laet, *Portorium*.

<sup>79</sup> *Codex Theodosianus*, 13.5.7.

<sup>80</sup> *Digest*, 50.2.9.1, 50.4.5, 50.5.3 and 50.6.1.5.3–9. In ancient Rome, more affluent citizens were required to become involved in 'city council' activities. Part of this involved helping to pay for infrastructure and services; see Jones, *Caste System*, p. 399. Immunity from public liturgies, according to Garnsey, Grain, p. 124, 'was available to *navicularii* at least from Hadrian's time'; see *Digest*, 50.6.6.5; see also *Digest*, 60.6.6.8. However, it seems that some unscrupulous individuals posed as

the privileges signalled above only became valid if the applicant employed at least two-thirds of his or her capital in the shipping business.<sup>81</sup> Similar privileges were also available to bakers, the other important link in the supply chain.<sup>82</sup> According to Jones, the privileges enjoyed by both the *navicularii* and bakers lasted until ‘the fourth century’.<sup>83</sup>

## MITIGATING RISK

Of especial interest is that modern commentators on the contracting out of public services have raised concerns about the redistribution of risk from the public sector to the private sector.<sup>84</sup> Unfortunately, we have little understanding with regard to the work conditions of those who sailed on the Roman grain fleets – Roman history, after all, is largely the story of the élite and powerful, and those who came directly into contact with that particular echelon of society. But we do have information about the ship-owners themselves. One of the conditions for participating in the imperial scheme is that grain had to be transported during the highly dangerous winter months.<sup>85</sup> Vegetius, in his *Epitome of Military Science*, discusses at length the unpredictability of the Mediterranean during these months.<sup>86</sup> He notes, furthermore, that ‘the violence and roughness of these do not permit navigation all the year round, but some months are very suitable, some are doubtful, and the rest are impossible for fleets by law of nature’.<sup>87</sup>

Thus, it seems, a high degree of risk would have been devolved to the ship-owners (since the risk of loss owing to inclement weather was obviously much higher during the stormy winter months). In order to remedy this, the emperor Claudius responded in what seems to be a surprisingly modern way. Suetonius tells us that he insured merchants against the loss of their ships in stormy weather – and this seems to be regardless of the season.<sup>88</sup> In effect, this meant that ship-owners were guaranteed of ‘a good return on their ventures’.<sup>89</sup> As Momigliano observes, it is not clear if this risk was to be borne by the *Fiscus* (the imperial treasury) or the *res privata* (the emperor’s private purse).<sup>90</sup> Whatever the case, the Roman state seems to have avoided shifting risk down the supply chain, especially as the continual transport of grain – even during the treacherous winter months – was for the general public good.<sup>91</sup>

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*navicularii* in order to gain benefits; see rescripts from the reigns of Antoninus Pius and Marcus Aurelius (and his co-emperor Verus) respectively: *Digest*, 50.6.6.9 and 60.6.6.6.

<sup>81</sup> See *Digest*, 50.6.5.6. Jones, *Caste System*, p. 399, provides further details.

<sup>82</sup> For further information, see Jones, *Caste System*, p. 399. Hopkins, *Models*, p. 102, points out that Roman investors probably ‘split the risk’ by taking shares in several ships, something which was especially necessary given the high costs associated with shipbuilding in the Roman world and the ever-present threat of loss.

<sup>83</sup> Jones, *Caste System*, p. 399.

<sup>84</sup> Quiggin, *Fiscal Gains*; Quiggin, *Future*.

<sup>85</sup> Suetonius, *Claudius*, 18.2.

<sup>86</sup> See also, Duncan-Jones, *Economy*, p. 2.

<sup>87</sup> Vegetius, *Epitome*, 4.39.1; see also Rougé, *Navigation*, pp. 316–325.

<sup>88</sup> Suetonius, *Claudius*, 18.2.

<sup>89</sup> Suetonius, *Claudius*, 18.2.

<sup>90</sup> Momigliano, *Claudius*, p. 50. Garzetti, *Tiberius*, p. 139, also provides no assistance on this matter.

<sup>91</sup> Finally, on this point, Quiggin, *Future*, argues that cost savings often result in a reduction in staff wages and benefits. A recent report (Ryan *et al.*, *Public Sector*) conducted on the contracting out of public services in Western Australia found that, with the advent of contracting out, blue-collar wage levels fell, but the salaries of white-collar workers increased. With respect to the *annona*, one might

As Hurley points out, a precedent can be found for Claudius' resolution. During the Second Punic War, waged by Rome against her arch-rival Carthage during the time of the Republic, supplies were urgently needed in Spain.<sup>92</sup> The state, of course, did not own a transport fleet that could carry these supplies. Livy reports that the merchants, recognising their strong bargaining position, demanded that the cargo be shipped at the state's risk, rather than their own.<sup>93</sup> Hurley maintains that 'There is no evidence for this kind of underwriting after ... [Claudius]'.<sup>94</sup> But, if such underwriting became a normal occurrence, it would hardly surprise us to find no further reference to the matter in the works of subsequent writers. An *argumentum e silentio*, it is true. Despite this, it should also be pointed out that a) extant ancient sources generally only record what is novel or of especial interest to the intended audience, and b) that only a very small proportion of all the works written by ancient writers have been transmitted to us. As a consequence, it is impossible for us to say with any certainty whether Claudius' resolution survived his death. It could very well be that it continued for many years.

According to Charles, the writings of the Roman jurist Scaevola,<sup>95</sup> who flourished towards the end of the second century AD, 'suggest that many cargo vessels, though built and maintained privately, were more or less seconded to the service of the Empire (*ad annonam populi Romani*) in return for exemption from compulsory public services'.<sup>96</sup> The jurist Gaius adds that privileges are granted to those who build a 'seagoing ship' (*navem marinam*) that can carry no less than 'ten thousand *modii* of grain'.<sup>97</sup> Charles argues that these notices, and other similar references, 'do not specifically allude to an imperial grain fleet *per se*, but do indicate a high degree of imperial regulation'.<sup>98</sup> Still, according to the theoretical models promoted by modern authorities on contracting out, this interpretation may warrant some slight redefinition. Whether the government *directly* owned the ships is therefore irrelevant. Rather, what is important is that the state viewed it expedient to contract out the transport of grain to private ship-owners who were, in some way, given a reward for doing so. This, of course, may not mean public sector contracting out in the modern sense (and there is certainly no reference, as far as one can tell, to competitive tendering), but it is clear enough in the sense of *quid pro quo*, i.e. a market transaction. If the state was not satisfied with the performance of its seafaring agents, that is, if they transported less than ten thousand *modii* over a specified period, the agreement – at least in terms of the bestowal of privileges – could presumably be rendered null and void.

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equate the merchants and ship-owners with white-collar workers, and sailors with blue-collar workers. As a result of Claudius' provisions, the returns for the ship-owners increased, as a result of being able to operate largely risk-free throughout the year, in addition to other benefits. One obviously cannot make too many comments with regard to the average seaman's situation, but it might safely be presumed that little benefit was passed down to him. Furthermore, one might also wonder whether 'danger money' or special bonuses were paid to sailors plying the Mediterranean during the storm season – though one would think not.

<sup>92</sup> Hurley, *Suetonius*, p. 141.

<sup>93</sup> Livy, 23.49.1–3.

<sup>94</sup> Hurley, *Suetonius*, p. 142. Still, evidence exists from the Late Empire that the cost of a lost cargo cargo could be borne by the *fiscus*; see *Codex Theodosianus*, 13.9.4 and 13.9.5. Cf. *Codex Theodosianus*, 13.9.1 from AD 372 and 13.9.5 (from AD 397), where the shipper was held to be responsible for the loss. On this, see Rickman, *Corn Supply*, p. 203.

<sup>95</sup> In the *Digest* at 50.5.3.

<sup>96</sup> Charles, *Transporting*, pp. 289–290.

<sup>97</sup> Gaius, *Institutes*, 1.32c.

<sup>98</sup> Charles, *Transporting*, p. 290 n. 61.

What, then, can be determined from the information presented above, especially with respect to the benefits awarded to merchants? Garnsey and Saller believe that the provision of benefits is skewed in favour of those ship-owners who were able to ship grain in bulk.<sup>99</sup> It seems that the Empire was looking for a smaller set of transport suppliers rather than a multifarious blend of large-scale operators and small-scale operators, many of whom would probably only wish to provide transport services on a more casual or *ad hoc* basis. Thus it appears that the ultimate aim of imperial policy was to regularise the Empire's relationships with the larger merchant houses (i.e. those composed of the *navicularii*),<sup>100</sup> which seem to have become increasingly networked and were formed into 'colleges' (*collegae*).<sup>101</sup> As Finley notes, it is difficult to recognise 'long-term partnerships' in terms of private business affairs during the Principate, 'except perhaps among the merchants and shippers responsible for the imperial corn [*sic*] supply'.<sup>102</sup>

The benefits of relationship contracting are regularly pointed out in modern management literature. However, from the present study, it would appear that the Roman Empire also understood the benefit of integrating the supply chain in terms of spreading risk in an equitable fashion and sharing the benefits in a mutually acceptable way. In addition, it realised that the long-term engagement of contractors would be useful with respect to increasing the efficiency of the supply chain. Suetonius points out that Augustus was aware of the needs of the consumers of grain, in addition to the needs of the farmers and traders: 'he regulated the practice [i.e. the *annona*] with no less regard for the interests of the farmers and grain-dealers [*negotiantes*] than for those of the populace'.<sup>103</sup> In this context, *negotiantes* refers to ship-owners as much as others involved in business transactions, as Garnsey seems to suggest when he uses the word 'traders'.<sup>104</sup> The following passage is especially revealing:

As he [Augustus] sailed by the gulf of Puteoli, it happened that from an Alexandrian ship<sup>105</sup> which had just arrived there, the passengers and crew, clad in white, crowned with garlands, and burning incense, lavished upon him good wishes and the highest praise, saying that it was through him they lived, through him that they enjoyed their liberty and fortunes. Exceedingly pleased at this, he gave forty gold pieces to each of his companions, exacting from every one of them a pledge under oath not to spend the sum that had been given them in any other way than in buying wares from Alexandria.<sup>106</sup>

With reference to the provision of the *annona*, the Roman Empire desired stability above all other considerations. Thus it should come as no surprise that Rome did all it could to ensure that its relationships with maritime transport contractors were strong yet flexible. This will become an especially important consideration in the light of what follows.

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<sup>99</sup> Garnsey and Saller, *Roman Empire*, p. 88.

<sup>100</sup> The *navicularii* would, like other important professions, become a hereditary 'caste' in the Later Roman Empire. On this, see especially Jones, *Caste System*, pp. 396–401.

<sup>101</sup> Duncan-Jones, *Economy*, p. 268, points to one such 'college' of *navicularii* established at Pisaurum (modern Pesaro, in Umbria). This information comes from an inscription (for text, see Duncan-Jones, *Economy*, p. 193).

<sup>102</sup> Finley, *Ancient Economy*, p. 144.

<sup>103</sup> Suetonius, *Augustus*, 42.3.

<sup>104</sup> Garnsey, *Famine*, p. 235. The word *negotiantes* has essentially the same meaning as *negotiatores*, the former being a present participle used as a substantive (from the deponent verb *negotiari*).

<sup>105</sup> Alexandria was the port whence the Egyptian grain was dispatched.

<sup>106</sup> Suetonius, *Augustus*, 98.2.

## THE BENEFITS OF NETWORKS: TRANSPORTING THE TROOPS

It is important to develop some kind of understanding with regard to the type of merchant ships or *naves onerariae* (literally, ‘ships of burden’) that were used in the ancient Mediterranean world. While this may not seem immediately relevant to the topic under discussion, some knowledge of ancient ship-types will be important when dealing with the themes discussed below – in particular the question of whether networks and contractual arrangements undertaken for grain transport can better inform our rather limited understanding of troop transport in the Roman Empire.

It must be borne in mind that Roman merchant ships, or at least those used for the bulk transport of grain, were large vessels propelled exclusively by sail – they were not oar-propelled galleys, i.e. the type of vessel most readily associated with classical antiquity. There is ample evidence, both literary and pictorial (in the form of mosaics and relief sculpture), to suggest that this is the case.<sup>107</sup> Such ships relied more or less exclusively on the favour of the winds and could not venture out of their berths into the sea lanes under their own power.<sup>108</sup> The largest ancient freighters, according to Casson, were ‘three-masters, carrying a mizzen ... hoisted on a short mast set midway between the mainmast and the sternpost’.<sup>109</sup> The Roman encyclopaedist Pliny the Elder also appears to describe a three-masted ship, a vessel with not only the normal mainmast, but also additional masts at the front (ancient vessels did not have a forecastle) and on the poop deck.<sup>110</sup> Those merchant galleys that did exist were smaller in size and more suited to short-range transport duties.<sup>111</sup> As far as one can tell, ancient merchant galleys had neither the bulk to survive a winter journey from Egypt or Northern Africa to the Italian peninsula, nor the requisite carrying capacity.

In view of the above, the maintenance of private contractors for the purpose of the *annona* has a further implication in terms of our understanding of contracting out. It is a little recognised fact that the Roman Empire did not generally transport its troops in times of war in state-owned naval vessels. This again needs to be couched in the language of strategic management, especially the notion of outsourcing or contracting out ‘when someone else can perform the activity better than you can’.<sup>112</sup>

With respect to matters naval, one of the core competencies of the Roman navy was the operation of oared vessels or galleys.<sup>113</sup> These were ships fitted with a ram

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<sup>107</sup> See Meiggs, *Roman Ostia*, pls. 23c and d; and 24. Synesius (lived AD 370–413) mentions that the small vessel in which he travelled encountered two-masted merchantmen *en route* from Alexandria to Cyrene (*Letters*, 4.160d–161a). Pictures of the harbour of Portus show it filled with vessels of this type; see Meiggs, *Roman Ostia*, pl. 22. In addition to the literary sources, a mosaic from Ostia clearly shows a three-masted merchantman (see Meiggs, *Roman Ostia*, pl. 24). It should be noted that many representations of ancient freighters show a sprit-rig near the bow of the vessel (not to be confused with a bow-sprit proper). This sprit-rig is often sufficiently upright as to suggest a mast; see Casson, *Ships*, figs. 147, 149 and 156.

<sup>108</sup> They could, of course, be towed or warped.

<sup>109</sup> Casson, *Ships*, pp. 242–243.

<sup>110</sup> Pliny the Elder, *Natural History*, 19.5. In addition, Lucian (*Navig.* 14) provides a reference to five vessels that were ‘all three-masters’. According to Casson, *Ships*, p. 243 n. 75, the vessel described by Philostratus as ‘trebly equipped’ (*Life of Apollonius* 4.9) is a three-master: ‘since sailing ships consistently carried their working sails one on each mast, the distinction between a “three-sailer” and “three-master” is academic’. But what of Pliny the Elder’s statement (*Natural History*, 19.5) that ‘other sails are added above the yards’? (cf. Ammianus 14.8.14, where we read of the ‘topmost sails’ of Cyprian freighters; and Lucan 5.428: ‘the high topsails’ [of Caesar’s transports]). Perhaps Casson means ‘principal sails’ rather than ‘working sails’. If so, his interpretation of Philostratus remains valid.

<sup>111</sup> Casson, *Ships*, p. 157.

<sup>112</sup> Greer, Youngblood and Gray, *Human Resource*, p. 87.

<sup>113</sup> On this, see Charles, Vegetius.

and, in the larger varieties, catapults for visiting harm upon the enemy. On the other hand, the state was not adept at maintaining and operating the large sail-propelled *naves onerariae* usually employed to carry grain rather than soldiers.<sup>114</sup> This is especially the case since these costly ships would have been irregularly used in peacetime – which was more commonplace in the first century AD than what one might imagine (witness the *pax Augusta* or the ‘Augustan Peace’). As Charles points out, ‘many of these ships might never have seen active duty before the completion of their service-lives’.<sup>115</sup> The maintenance of a standing fleet of transports, therefore, would have put unnecessary strain on the state’s financial resources. Thus it stands to reason that the same privately-owned ships contracted for the *annona* could also be used for troop-transport in times of conflict. Unfortunately, previous studies have proved unable to provide any useful evidence regarding the precise contractual arrangements.<sup>116</sup>

The idea of simple requisitioning or forced appropriation, as was practised by Commonwealth armed forces during the Second World War, is tempting and was suggested in a recent paper.<sup>117</sup> Still, a more nuanced investigation into this problem appears to be warranted. One should remember that the Roman navy would have been unable to provide the sort of skilled sailors needed to handle large transport vessels, at least not with the requisite amount of haste. An oarsman who has learned his trade on a galley is hardly a ‘sailor’ in the word’s true semantic sense. Even those who looked after the sails with which all but the smaller riparian galleys were equipped would have struggled with the demands of operating a merchant ship.

To be sure, rowing a manoeuvrable galley was rather different to handling a bulky merchantman with several masts and a large number of sails, though ancient merchantmen certainly not carry as many sails as eighteenth- or nineteenth-century vessels. Thus the sailors, it follows, must have gone along with the ships. For requisitioning in the modern sense of the word to have taken place, these merchant marine sailors must have been pressed into military service, as they were in the British Royal Navy in Nelson’s day.<sup>118</sup> But this does not seem to be a sound conclusion either. Indeed, these sailors would be needed to help to transport the grain after the troops had been landed at their destination. It should go without saying that the last thing that an emperor would have wanted was war in one of the provinces *and* political disturbances on the home front. Indeed, the effective procurement of grain in terms of conflict would obviously have had a solid propagandistic purpose.

If further reason were needed to set aside the idea of requisitioning, one should consider the degree to which the state did all it could to encourage merchants to build

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<sup>114</sup> Merchant ships often carried passengers in addition to grain and other cargo, but comparatively few were normally embarked.

<sup>115</sup> Charles, *Transporting*, p. 297.

<sup>116</sup> The present authors intend to explore this problem in a future study, the scope of which lies beyond the aims of this paper.

<sup>117</sup> Charles, *Transporting*, p. 289.

<sup>118</sup> Of course, sail merchantmen of this era, especially the larger ocean-going variety, were rigged in a more or less identical fashion to the men-o’-war of the British Royal Navy. This meant that merchant sailors could easily be transferred from the merchant marine to naval service, even if this was not regarded as an especially palatable – or life-prolonging – career move. What is more, many merchantmen, especially vessels of the Honourable East India Company (known as East Indiamen), were equipped with defensive weaponry in order to ward off piratical attack, or the depredations of foreign privateers and naval vessels during times of conflict. This meant that most sailors had an understanding of how cannon operated, which would have served them well in battle – Royal Navy sailors, like most of their contemporaries, were expected to operate both the sails and the weapons of their ships.

cargo ships, and keep them in the service of the Empire. That merchant ships could, to all intents and purposes, be confiscated by the state should they be needed for troop transport would appear to militate against the view that requisitioning was the norm in times of crisis. Those with funds ready to invest would hardly have been encouraged to build merchant ships if the possibility existed that these vessels could be lost to unproductive military service. This would hardly have promoted the environment needed for investor confidence. Rather, troop-transport was merely an additional service that ship-owners could provide to the state, in addition to transporting grain.

With the above taken into consideration, a less complicated state of affairs presents itself. As a result of the solid business relationships already forged between the state and the ship-owners (witness the *collegae* referred to previously), it seems quite possible that ships usually employed for grain supply were simply diverted from their usual routes in order to transport Rome's troops to wherever they were needed for combat duty. Thus we can frame this as another contractual obligation, after which the ships could resume their normal grain-carrying duties or else engage in supplying the troops with the necessary provisions.<sup>119</sup> Furthermore, if one accepts that five-year contracts were drawn up between the state and the *navicularii*, as Sirks has convincingly demonstrated,<sup>120</sup> it stands to reason that troop-transport was merely one of the transport services that the ship-owners might provide should the need arise. Unfortunately, no such contracts have, to our knowledge, survived the rigours of time. Thus one cannot be entirely sure. Whatever the case, we see another example of the Roman Empire contracting out public services in the interests of superior service and cost-efficiency, which correlates with some of the precepts of modern NPM discussed previously. To put it simply, private ship-owners could provide a military transport service at a far lower overall cost than the state could ever have provided.

Finley called for models of the ancient economy in his landmark *The Ancient Economy*.<sup>121</sup> While the present paper has not dealt specifically with economic issues, it has sought to develop a model that will help explain how the Roman state interacted with those merchants involved in the grain supply. This model, as established *supra*, allows us to factor in troop-transport. As seems relatively clear, the model is quite accommodating in terms of dealing with this additional variable, which seems to suggest that the model of interaction based on relationship contracts is quite feasible. As Temin has aptly pointed out, 'A good model fits the observed facts more closely than a poor one'.<sup>122</sup> This certainly seems to be the case with the present model, though one needs to guard against simply stretching a model's fabric over the existing armature of facts.<sup>123</sup> Temin adds that 'simple statement' can be used to test the general validity of any formulated model.<sup>124</sup> A null hypothesis, as is wont to be used by economists, can be adduced with a view to demonstrating the superiority of the model posited above. In this case, the null hypothesis is that the Empire requisitioned ships, or else purchased them outright in times of war. We have demonstrated the problems of this null hypothesis, from which observation we may conclude that the present model has considerable validity.

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<sup>119</sup> Or perhaps such vessels could be kept on immediate stand-by in case of the need to facilitate an evacuation, should things go awry. Scipio Africanus seems to have done so in the Second Punic War, specifically in the campaign leading up to the battle of Zama (202 BC). Livy first introduces *naves onerariae* at 29.24.9; see the description of the naval battle at 29.10 *passim*.

<sup>120</sup> For a detailed summary of the ancient evidence, see Sirks, *Food*, pp. 25–33.

<sup>121</sup> Finley, *Ancient Economy*, pp. 27 and 182.

<sup>122</sup> Temin, *Market Economy*, p. 170.

<sup>123</sup> In as much as anything pertaining to the ancient world can be regarded as fact.

<sup>124</sup> Temin, *Market Economy*, p. 170.

## CONCLUSION

In sum, the Roman Empire, to put it in contemporary strategic management terms, had no interest in vertical integration of the supply chain of the *annona*. Rather, its principal interest was the incorporation of private shipping activities deemed useful to the public good into the mechanisms of control exercised by the state. These mechanisms of control, as seen above, included contracts.

By contracting out the transport of grain, the Roman Empire also ensured quality service by experienced seafaring professionals, and an avoidance of the costly maintenance, staffing costs and continual provision of suitable vessels – ancient ships, owing to their ‘shell-first’ construction were presumably more expensive to build than later ‘frame-first’ vessels.<sup>125</sup> With the cost of these substantial overheads removed,<sup>126</sup> the state was thus more readily equipped to sell the grain at a heavily subsidised price. At the same time, it could promote employment – through the building and manning of the vessels – and general wealth creation, all of which was designed to ensure a more stable society. It would be unwise to draw too much from this study with regard to monetary savings, but one could very well argue that the Empire saved public financial resources, especially in terms of wages and infrastructure, by contracting out the provision of the *annona* to private ship-owners.<sup>127</sup> The state also seems to have publicised, wherever possible, its provision of a continual food supply to the fickle urban populace,<sup>128</sup> which propaganda was intended to ensure continued political support.

In addition, the Roman Empire, by means of the contractual relationships already established with the *navicularii*, had established regularised transport networks that could be leveraged in times of crisis. The ancient sources demonstrate time and time again the utility value of sail-propelled merchant ships (*naves onerariae*) with respect to troop-transport. Thus, in order to increase the military capacity of the Empire, the private sector was effectively co-opted into the state so that it could be employed for the public good when the occasion demanded. With regard to the *annona* and its military ramifications, perhaps the last word should be left to Tengström, who stated that it ‘was a very complicated system that could easily be disrupted’, and that we should ‘stress not the apparent deficiencies of the system ..., but rather the fact that it normally worked fairly well’.<sup>129</sup>

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<sup>125</sup> On this, see Hopkins, *Models*, pp. 96–102. Hopkins describes ancient construction methods in detail and compares the cost of building a transport ship in the Roman world with buildings ships in Genoa in the middle of the fifteenth century, and England in the seventeenth century.

<sup>126</sup> Rasheed and Gilley, *Outsourcing*, p. 523.

<sup>127</sup> One report, based on case studies from a wide range of countries, calculated that savings obtained by governments from contracting out are in the vicinity of 20 percent; see Domberger and Rimmer, *Competitive Tendering*, p. 450 (although this is in a CTC environment). Quiggin, *Fiscal Gains*, p. 97, casts doubts about the magnitude of savings, but admits that ‘there appear to be no grounds for doubting that contracting out reduces budgetary costs’. In addition, one study reports that three-quarters of U.S. managers surveyed held that outsourcing outcomes had not met initial expectations; see Bryce and Useem, *Impact*.

<sup>128</sup> Augustus’ *Res Gestae*, an autobiographical (and largely self-aggrandising) record of his reign set up by his successor Tiberius in most of the Empire’s cities (Brunt and Moore, *Res Gestae*, pp. 1–2), is a good example of this, as are the numerous coins that bear witness to imperial munificence; see Rickman, *Corn Supply*, appendix 11, for a full discussion.

<sup>129</sup> Tengström, *Bread*, p. 93.

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