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Social Mobility in the Royal Navy during the Age of Sail: investigating intergenerational social mobility in the Royal Navy between 1650-1850

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Abstract

The Royal Navy was the most effective naval power during the Age of Sail. This is undisputed. A rather more contentious issue, however, relates to the extent and nature of social mobility within the institution. Whilst some historians have characterised it as mobile and meritocratic, other have pointed to widespread nepotism and class bias. This study attempts to reconcile these views. I calculate the rate of intergenerational mobility within the Royal Navy, between the years 1650-1850. I make use of a relatively new method: the surname approach. Doing so requires the use of rare surname groups (we assume to be families), identified as being high status due to their overrepresentation within the elite commissioned officer ranks. I find that social mobility was disaggregated. For the most part, the institution appears highly intergenerationally mobile. However, an elite group of commissioned officers, the decedents of previous Admirals of the Fleet, were able to ensure above-average status persistence. I draw on a selection of qualitative and quantitative sources to explain why. It transpires that rather than engaging in nepotism, elite families sponsored the upward mobility of their kin by investing in their human capital and particular traits desired by the Royal Navy. Subsequent generations of 'Admiral of the Fleet' families attained a similarly high status because they remained among the most qualified of recruits.

1. Introduction

This study seeks primarily to engage with the debate on intergenerational social mobility in the Royal Navy. This has long been a vibrant field of enquiry, with the first empirical study on social mobility being conducted by Michael Lewis in 1965.

During the Age of Sail, the Royal Navy was amongst the most elite of British institutions and a career as a commissioned officer came with a unique social standing. Officers were situated in two distinct social spheres. According to Elias, there was a fundamental conflict in their social status. Whilst officers had a claim to gentlemanly status, they could not be classified as such due to the professional

aspect of their role.[1] Therefore, whilst not necessarily dominant in either field, Royal Navy officers could draw on two distinct aspects of their status: their connection to the ancien regime as well as a modern technical sphere. According to Cavell, the rising social status of naval officers was recognised by many sons of aristocratic families, for whom it became the career path of choice.[2]

An officer's career provided a unique combination of opportunities for social distinction; worldwide travel, leadership, and the potential to accumulate wealth.[3] The exit opportunities were similarly exclusive. Many officers included in this study retire to become Peers, Members of Parliament, and colonial Governors.

Throughout the period in question, the Royal Navy was an institution heavily tied to British national identity. Men throughout the period flocked to Royal Navy to play their role in forging an empire and upholding notions of national, familial, and individual pride. This study asks how intergenerationally mobile was this unique and elite institution.

This study also engages with the literature on how aristocratic families in Britain retained their status. Scholars have increasingly focussed on the role of education and the marriage market. It is not clear, however, whether such practices were strategically employed by elites in a naval setting.

This study also seeks to contribute to the debate on meritocracy within historical institutions. Despite being at the heart of the British elite, the Royal Navy was primarily a fighting institution. The Age of Sail saw a huge increase in naval competition from other European states. In such an environment, did the forces of elite persistence or meritocracy prevail?

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[1] Elias, Norbert. "Studies in the Genesis of the Naval Profession" The British Journal of Sociology, Vol.1 No.4 (1950): 291-309.
[2] Cavell, Samantha. "Playing at Command: Midshipmen and Quarterdeck Boys in the Royal Navy, 1793-1815" LSU Master's Thesis, 2356 (2006), p.6
[3] Allen, Douglas W. "The British Navy Rules: Monitoring and Incompatible Incentives in the Age of Fighting Sail" Explorations in Economic History: Vol.39, No.2 (2002): p.204-231.

2. Literature & Theory

Most naval historians tend to agree that the Royal Navy was a rather intergenerationally immobile institution. However, opinions diverge on what caused this. In explaining the low rate of mobility and persistence of elite group, historians tend to sit in two camps; those who emphasise the direct and conscious effort of incumbents and those who emphasise a more unconscious and indirect mechanism. The first camp point to widespread nepotism and patronage, both of which relied on direct influence over recruitment and promotion. In emphasising indirect factors, the second camp relies on the notion of an intergenerational transfer of valued skills and qualities within family networks.

2.1 Empirical studies

Michael Lewis conducted the first significant enquiry into the social backgrounds of Royal Navy officers. Lewis found that officers were largely recruited from high-status backgrounds and whilst "merit always counted for something … [it was not as] much as it should [have]."[4]

Evan Wilson's study is probably one of the most recent into naval social mobility. He finds that the Royal Navy was a relatively mobile institution where merit was the distinguishing factor in recruitment. Wilson suggests that differences in one's social background were less important than competence as, in line with Benjamin and Tifrea, promoting the wrong candidate could mean the difference between life and death. Whilst claiming that the sons of officers were at an advantage when it came to recruitment, Wilson takes a less hard-line approach than Lewis, characterising the Royal Navy as an institution where the elites were drawn from a wide range of backgrounds.[5]

Both these studies suffer from significant methodological limitations. Firstly, Lewis relied on a rather poor selection of sources. In relying solely on biographies

[4] Lewis, Michael. "The Navy in Transition: A Social History, 1814-1864" London: Hodder and Stoughton, 1965. p.39

[5] Wilson, Evan. "Social Background and Promotion Prospects in the Royal Navy, 1775-1815" The English Historical Review, Vol.131 No.550 (2016): p.571

written by O'Byrne and Marshall, Lewis exposed himself to potential bias. Most of the entries were accounted for by the officer themself. This raises the possibility that officers may have exaggerated their family's status. Lewis recognised this, admitting that "the kind of people who are 'respectable' in Marshall are Warrant Officers, R.N., Merchants and Attorneys … But, in O'Byrne, such folk have mostly blossomed into Esquires or, if not bolsterable enough, are simply omitted."[6]

In relying on a contemporary database of fathers' careers, Wilson's study avoids such problems. However, Wilson follows the same traditional method as Lewis. Both attempt to calculate intergenerational mobility using the status attributed to the career of an officer's father. This approach provides a huge amount of scope in interpreting the status of an occupation. This is evident when comparing their respective findings. Wilson finds that one-fifth of officers came from a 'titled or landed gentry' background. Whilst for Lewis such groups are twice as common, finding two-fifths of officers with such a background. This disparity is even clearer in the case of officers whose fathers were categorised as 'business and commercial men'. Whilst Wilson found 36% of officers with this a background, Lewis categorised only 4% as such.[7] Clearly, the traditional approach does not provide a consistent and reproducible way of measuring social mobility.

2.2 Orthodoxy

Nepotism

Naval historians who have stressed the importance of direct factors, point to nepotism as the primary mechanism limiting the extent of intergenerational social mobility. In the broader literature on social mobility, there is also a general focus on opportunity hoarding. McKnight, for example, states that intergenerational "stickiness between generations in high level occupations represents opportunity hoarding; allowing less room for the upwardly mobile to fill these positions."[8]

[6] Lewis "A Social History" p.31
[7] Wilson "Social Background and Promotion Prospects" p.577-578
[8] McKnight, Abigail. "Downward Mobility, Opportunity Hoarding and the 'Glass Floor'". Research Report. London: Centre for Analysis of Social Exclusion (CASE), London School of Economics (2015). p.3

Opportunity hoarding is intentionally employed, as Payne suggests, through the process of sponsored mobility.[9] Turner states that this "involves controlled selection in which the elite or their agents choose recruits early and carefully induct them into elite status."[10]

Naval historians such as Consolvo have characterised social mobility within the Royal Navy in a similar way. Her study of the late eighteenth century Royal Navy suggests that that patronage was the dominant factor in recruitment.[11] Similarly, Clark, Hack-Polay and Bal have referred to the commissioned officer ranks as a "homogenous upper echelon and self-selecting elite hierarchy".[12]

Class bias

Naval historians who emphasise the indirect mechanism have sought to explain the lack of intergenerational mobility through an unconscious transfer of desirable skills and qualities within the extended family and wider social networks. According to Maxwell and Aggleton, elite occupations often demand a high level of social capital. This is the key factor that ensures the hoarding of senior positions by established elite groups.[13] In contrast to Payne, (but still wedded to the the indirect camp) Keeley has characterised the phenomenon of sponsored mobility as a symptom of an organization highly valuing social capital.[14]

Social Capital is what employers today usually refer to as 'interpersonal skills'. It encompasses network relationships and certain shared values. In the context of

[9] Payne, Geoff. "The New Social Mobility: How the Politicians Got It Wrong" Bristol, Policy Press, University of Bristol (2017): p.164
[10] Ralph H. Turner. "Sponsored and Contest Mobility and the School System." American Sociological Review, Vo. 25, no. 6 (1960): p.856
[11] Consolvo, Charles. "The Prospects and Promotion of British Naval Officers, 1793-1815" The Mariner's Mirror, Vol. 91, No. 2 (2005): p.151-152.
[12] Clark, Stephen, Hack-Polay, Dieu, and Bal, Matthijs. "Social Mobility and Promotion of Officers to Senior Ranks in the Royal Navy: Meritocracy or Class Ceiling?" Armed Forces and Society, Vol.25 No. 2 (2020): p.1
[13] Maxwell, Claire, and Aggleton, Peter. "The Bubble of Privilege. Young, Privately Educated Women Talk about Social Class." British Journal of Sociology of Education 31, no. 1 (2010): pp.3-15.
[14] Keeley, Brian. "OECD Insights: Human Capital How What You Know Shapes Your Life" Paris: OECD, (2007)

the early modern Royal Navy, this is a reference to gentlemanly conduct. Bell has suggested that traits referred to as "officer-like qualities were held in higher esteem than natural intelligence and educational attainment."[15] As such, technically astute officers of a lower rank were often thought to lack the authority and leadership skills naturally possessed by commissioned officers.[16] Because of this, the promotion prospects of upwardly mobile officers were often limited by a class ceiling.[17] Bell has argued that the high financial barriers to becoming a commissioned officer also served to indirectly screen out officers of less desirable social background. The fees charged at naval colleges and training establishments were, therefore, one way of ensuring officer cadets met the Royal Navy's strict social criteria.[18] Rather than a conscious attempt at maintaining family status, this interpretation emphasises the disproportionate attainment of desirable social characteristics by connected individuals.

2.3 Revisionism

More recently, scholars have taken a nuanced view. Diamond's sociological survey of the Royal Navy found that a commissioned officer role came with unique cultural and behavioural expectations and that an officer's social background had a stronger influence over their career prospects than economic or training factors.[19] In doing so, Diamond stresses the importance of experiences and relationships within the extended family in preparing an officer for the requirements of naval life. In this sense, officer recruits from established naval families were likely better qualified than their unconnected peers. Rather than just a good social fit, Diamond suggests that connected candidates were better qualified due to a better understanding of the role and early exposure to it.

[15] Bell, "Class, Social Mobility, and Democratization in the British Naval Officer Corps." p.699
[16] Ibid.
[17] Clark, Hack-Polay and Bal, "Social Mobility and Promotion of Officers" p.1
[18] Bell, Christopher M. "The King's English and the Security of the Empire: Class, Social Mobility, and Democratization in the British Naval Officer Corps, 1918–1939." The Journal of British Studies, Vol. 48, No. 3 (2009): p.697
[19] Diamond, Sue. "From Rating to Officer: Habitus Clive and Other Struggles Associated with Promotion in the Royal Navy" (PQDT, UK & Ireland, 2017).

Cavell provides a similarly balanced interpretation. She argues that whilst 'gentlemanly conduct [increasingly] became a proxy for merit', it mainly stood alongside competence and other traditionally demanded qualifications. Therefore, whilst patronage and social bias were widespread, merit remained the distinguishing factor.[20]

Benjamin and Tifrea also stress the compatibility of merit and patronage. They explain that by vouching for a candidate, an officer was putting their reputation on the line. Loss of credibility with the Admiralty posed problems for an officer's future progression and this provided a strong incentive to vouch only for one's kin if they were likely to perform well.

Voth and Xu provide empirical evidence to support this mixed interpretation. They find that officers with blood ties to the admiralty had vastly improved promotion prospects. Their most significant finding, however, is that the selection effect of patronage was positive; that once promoted, connected officers outperformed their unconnected peers. Voth and Xu view patronage as an effective solution to the existence of asymmetric information in recruitment. They argue that "most admirals promoted on the basis of merit and not in favour of their kin."[21] This positive selection effect may explain why, as Laurison and Friedman state, that even when the less privileged break into an elite group, they remain less likely to perform at the same level as those from the established elite.[22]

Traditionally, historians have proposed the direct influence of nepotism and the indirect role of class bias as competing explanations for the persistence of elite groups. Revisionist interpretations argue that there is no such dichotomy; that ability was to some extent as equally inherited as status. Whilst patronage served to limit social mobility, it did not necessarily contradict meritocratic principles.

[20] Cavell, "Playing at Command" p.34-35
[21] Voth, Hans-Joachim and Xu, Guo. (2019), "Patronage for Productivity: Selection and Performance in the Age of Sail", CEPR Discussion Paper 13963: p.31
[22] Daniel Laurison, and Sam Friedman. "The Class Pay Gap in Higher Professional and Managerial Occupations." American Sociological Review 81, no. 4 (2016): pp.668-95.

Benjamin and Tifrea have explained this through reference to incentives, whilst Diamond has argued that naval families groomed their kin to be the most prepared and qualified candidates for promotion. The revisionist perspective is summarised by Tom Wareham who argues that whilst social status and networks were an enabler of success, without talent it was essentially meaningless to a naval career.[23]

In most cases, the existing literature lacks a long-term perspective and the use of reliable and reproducible methods. Furthermore, a combination of social mobility and meritocracy measures would provide a more complete picture. My study seeks to rectify this.

3. Research Design

My research design is split into two parts: (1) measuring the rate of intergenerational social mobility and (2) testing whether the persistence of elite status is associated with persistent above-average performance.

3.1 Measuring Intergenerational Social Mobility

Traditionally, measuring intergenerational social mobility entails calculating how the distribution of an individual's socioeconomic backgrounds relates to their current status. This requires information on the social status of both parents and their children. The two prominent studies into social mobility in the Royal Navy, by Lewis and later Wilson, have both followed this approach. As previously mentioned, both studies clearly suffer from a lack of reliable information on parents' social status and allow far too much scope for interpretation.

In this study, I make use of a relatively new approach to measuring intergenerational social mobility. This is the surname approach, pioneered by

[23] Wareham, Tom. "The Star Captains: Frigate Command in the Napoleonic Wars" London: Chatham, (2001): p.16-17.

Clark, Cummins, Hao, and Vidal.[24] It relies on the simple fact that surnames are inherited, unchanged, through the patriline. This enables allows us to easily group the decedents of a common ancestor, without needing to know knowing the direct lineage. To make this assumption, the approach relies on the exclusive use of rare surnames. Rare surnames imply a small group of related individuals who we can assume to be family.

Due to the length of time that English surnames have existed (since around 1300), the most common show little variation in status. This confirms the need to only make use of rare surnames. I classify rare surnames as those, appearing in the Commissioned Officer ranks, which are not held by 300 or more people in 1881. Within my dataset, this generates 523 unique surnames held by commissioned officers appointed between 1650-1850. These rare surnames were held by 47,699 people in the UK in 1881.

To illustrate an example, I make the assumption that an officer bearing a rare surname, such as Beauclerk (held by 42 people in 1881), descended from an officer in the previous generation with the same surname. By doing so, we can compare the social status of the surname Beauclerk in an initial generation to those born in subsequent generations. This gives us a correlation in status which represents the rate of intergenerational social mobility.

The resulting correlation in status is, however, an imperfect measure. This is due to several factors. The specific interval used to split the period will inevitably not match the birth cycle of everyone exactly. Depending on how it is divided, some fathers may appear in the same generation as their children, or some may be absent altogether. There is also the potential for adopted children and officers who changed their surname at birth not to appear in subsequent generations. According to the above constraints, the ideal generation would be around 30-years. However, for this study, I have extended them to 50-year generations. This is due

[24] Clark, G., Cummins, N., Hao, Y., and Vidal, D. D. "Surnames: A New Source for the History of Social Mobility." Explorations in Economic History. Vol 55 (2015): pp. 3-24.

to imperfections in the available data, which I shall discuss in the next section (Source Discussion).

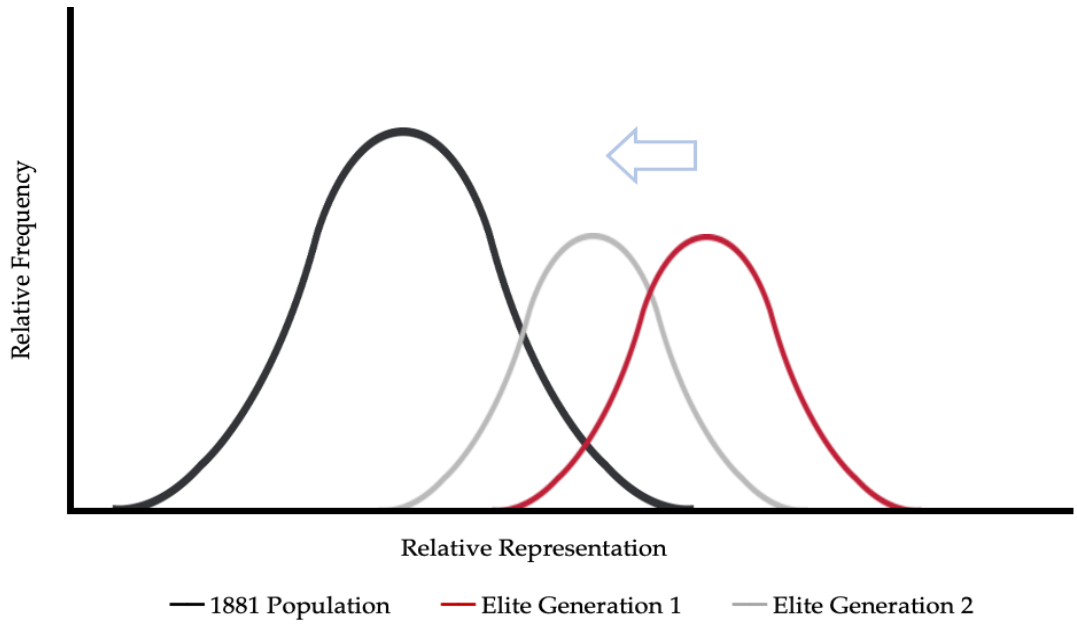
The indicator of the social status of a given surname is its frequency among an elite group, compared with its frequency in the general population. In other words, it is a surnames overrepresentation within an elite group. In this study, the measure of status is membership of the commissioned officer ranks of the Royal Navy. These include Lieutenants, Commanders, Captains, and various ranks of Admiral. Collectively, they represented the top of the Royal Navy hierarchy.

The simple statistic we focus on is the relative representation of a given surname or group of surnames:

$$\text{Relative Representation of Surname x} = \frac{\text{Share of Surname x in elite group}}{\text{Share of Surname x in general population}}$$

The average surname in any period will have a relative representation of 1. For high-status surnames, relative representation will exceed 1, and for low-status surnames, it will fall below 1. Once relative representation is calculated for a given surname group in an initial generation, it is then possible to calculate, for each subsequent generation, the correlation of status. Correlation values generally range from 0 to 1, with values closest to the latter signalling a higher level of status persistence and, therefore, less intergenerational social mobility. The general range of values from zero to one suggests that, over time, high-status families naturally regress towards the social average. This trend is illustrated in Figure 1.

Figure 1: Regression to the societal average



Note: The strength of intergenerational social mobility is measured by the declining overrepresentation of a surname among an elite group, over multiple generations, to the societal average.
Source: This diagram is based on Figure 1 in Clark and Cummins (2014).

I perform the same exercise for surname groups of differing initial status. Due to the rarity of the surnames in use, those with the highest status are the rarest. As such, I break up the broad surname group which includes all surnames with 300 or fewer holders in 1881.[25] This group is broken into four smaller cohorts of surnames with 0-40, 41-100, 101-200, 201-300 members in 1881. I also include a low-status group (surnames with 10,000 to 15,000 members in 1881).

Admiral of the Fleet persistence

I replicate the above methodology to test the status persistence of a specific group of commissioned officers, the families of the Admirals of the Fleet. I do so by isolating my search of surnames to those held by the Admirals of the Fleet (the highest-ranking commissioned officers) of the first generation, 1650-1700. Consistent with the surname approach, I extract only those with rare surnames

[25] Assuming recording error, I have removed all surnames appearing 3 or less times in the 1881 census.

(less than 300 in 1881). In doing so, I am left with 5 Admirals of the Fleet. These are *Montagu, Gambier, Aylmer, Codrington, and Berkeley*. As with the previous surname groups, I calculate their initial relative representation and its correlation with subsequent generations.

3.2 Explaining persistence

The second part of my analysis is concerned with the elite Admiral of the Fleet surname group, which maintains a higher rate of intergenerational status persistence. I aim to investigate the mechanisms behind such persistence; did Admiral of the Fleet families engage in nepotism or were they simply better-qualified candidates?

As the highest-ranking officers within the Royal Navy, Admirals of the Fleet had significant influence over recruitment. Their scope for patronage was, therefore, the widest of all commissioned officers. A slower rate of intergenerational social mobility among this group would suggest effective deployment of these powers and raise questions regarding nepotism.

However, the simple relative representation calculation shows only an aggregated image of a given generation's status. Admirals of the Fleet may have the power to recruit from within their family, but do the next generation achieve a similar rank? To solve this problem, I introduce a 'status score' for each rank of commissioned officer. Table 1 illustrates this.

Table 1: Status Scores for Commissioned Officer Ranks

Rank	Status Score
Admiral of the Fleet	20.0
Colour Admiral	4.5
Vice Admiral	3.0
Rear Admiral	1.8
Captain	0.3
Commander	0.2
Lieutenant	0.1

Note: The status score shows the seniority of a given rank. It is calculated using the inverse of each rank's population. For the sake of presentation, each score is multiplied by 1,000.
Source: Three Decks.

The rank-specific status score is calculated from the respective population of each Commissioned Officer rank. Predictably, as the seniority of a rank increases, its population declines. At the lowest rank, there were 9,113 Lieutenants whilst at the most senior level, there were only 50 Admirals of the Fleet. As such, I calculate the inverse of each population. This captures the increasing seniority of individual ranks.

For each generation within the 'Admiral of the Fleet' surname group, I calculate the average rank score. Using this, we can visualise the rate of intergenerational social mobility from not only an aggregate (membership of elite group) level but also a micro (individual rank) level. This enables us to see a more complete image of how status regresses to the societal average and visualise a potentially more gradual dilution in status than would otherwise be shown.

Testing patronage for nepotism

There is a difference between nepotism and patronage which the existing literature has largely failed to grasp. For clarity, I refer to patronage as drawing on social and family networks in recruitment. Nepotism, on the other hand, is a

particular type of patronage. It gives little consideration to merit or a candidate's suitability to a role. Instead, it is motivated only by the private gain from a recruitment decision; the power and status gained. If officers within the Admiral of the Fleet group are seen to underperform, we can consider nepotism a factor in their persistence.

I am able to calculate the average performance of commissioned officers within the Admiral of the Fleet surname group. In doing so, I make use of the same measures of success identified by Voth and Xu in their recent paper. That is, the number of enemy ships captured and sunk by a given commissioned officer.[26] In doing so, I follow the same method of only using single-ship actions. As opposed to fleet actions, these enable us to isolate the commanding officer and attribute the result to him alone. Voth and Xu find that the average officer captured one enemy ship, whilst only 2% of officers were able to sink an enemy ship. I use these results as a comparator to evaluate the performance of officers within the 'Admiral of the Fleet' surname group.

Specific measures of performance will go some way to explaining the mechanisms of intergenerational social mobility and how some elite groups are able to maintain their status over time. Either status is maintained regardless of merit (due to nepotism or class bias) or it is maintained through merit, as abilities and traits are transmitted with over generations.

Despite making use of the same source, this study asks a different question to that of Voth and Xu. They investigate the effectiveness of patronage in promoting officers. Their results provide some important answers for the debate on naval social mobility. They suggest that patronage was widespread but, rather uniquely, they demonstrate, empirically, that once promoted, officers connected to the admiralty performed better than their unconnected peers.

[26] Voth, Hans-Joachim and Xu, Guo. (2019), "Patronage for Productivity: Selection and Performance in the Age of Sail", CEPR Discussion Paper 13963: p.46

Voth and Xu work at the individual level, concerned only with patronage and performance. By contrast, the unit of analysis in this study is the family, studied over the long run. These studies do, however, complement each other. This study looks to identify the long-term impact of persistence mechanisms on the rate of intergenerational social mobility. Whilst performance differentials and the widespread use of patronage, explained by Voth and Xu certainly explain part of this, the present study attempts to draw on a wider set of considerations. These include patronage and nepotism, social and cultural capital, as well as access to certain experiences in generating superior ability.

A qualitative explanation

To supplement the above performance measures, I draw on qualitative data within officer biographies produced by Marshall and O'Byrne. Specifically, I look for references to direct family appointments, preferential treatment, and access to advantageous experiences. Unlike Lewis, I do not use these to determine status. I employ them only to explain status persistence. This way, they serve to demystify the mechanisms of status transmission whilst not suffering the pitfalls of interpretation.

4. Source Discussion

4.1 Dataset Construction

My dataset is constructed primarily using Three Decks, a website compiling a vast array of information on specific ships, sailors, and naval actions. It is the most comprehensive source on the Royal Navy during the Age of Sail and the National Maritime Museum reference it as among their most trusted resources. It contains information on 26,745 ships, 40,525 seamen, 1,045 actions. It is maintained and regularly updated by naval enthusiasts. It compiles information from a multitude of sources including archival records, biographies, and authoritative books such as 'Commissioned Sea Officers of the Royal Navy' and 'British Warships in the Age of Sail 1714-1792'. In their paper, Voth and Xu make use of the same source. They

have conducted checks on the coverage of Three Decks information. They find that it is a highly representative source covering 95% of all rated Royal Navy vessels.[27]

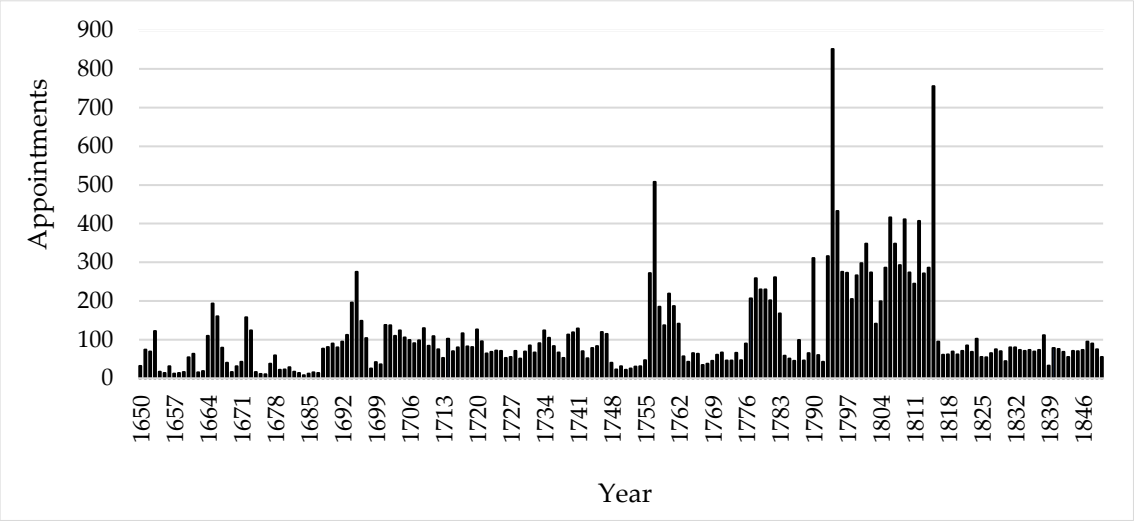
In constructing my dataset, I restrict my search to all Commissioned Officers of the Royal Navy, appointed between the years 1650-1850. My resulting dataset includes the name and rank of 15,510 officers; the ships they served on and their dates of service. I also make use of information on the actions of ships connected to the commissioned officers serving on board at any given time. This enables me to attribute the outcomes of battles and actions to the specific officers in command of the vessel. Most officers have a very complete profile, whilst some do not. A benefit of the surname approach, however, is that it only relies on two key data points: an officer's name and his dates of service. These are consistent across all records.

4.2 Distribution

The Age of Sail was an era of huge growth for the Royal Navy and, as such, appointments are not distributed evenly across the period. Appointments are weighted towards the latter half of the period. In the early decades of the selected period, some years have as few as 10 appointments recorded. Figure 2 illustrates the distribution of appointments throughout the entire period.

[27] Voth, Hans-Joachim and Xu, Guo. (2019), "Patronage for Productivity: Selection and Performance in the Age of Sail", CEPR Discussion Paper 13963: p.13

Figure 2: Yearly Appointments to the Commissioned Officer, 1650-1850



Note: This chart shows the number of appointments, per year, to the Commissioned Officer ranks. The first few decades contain too few appointments to identify rare surnames.
Source: Three Decks

This may be due to issues of early record keeping within the Admiralty, the source from which much of Three Decks data has been drawn. Until as late as World War Two, the Admiralty was divided into several semi-autonomous departments, each responsible for their own record keeping. Organisational reform was not uncommon and, as such, many departments fell out of the remit of the Admiralty Secretariat which enforced consistent procedures. Three Decks have mitigated this and any potential selection bias by drawing from a wide variety of sources.

Despite this, the issue of a lack of 'data depth' in the initial years of the period remains. This creates a problem when dividing the period into generations. As the surname approach requires the use of rare surnames, the selected interval needs to contain a substantial number of officer appointments for such names to appear. The initial years do not contain enough rare surnames to split the period into the ideal 30-year generations. Therefore, the generation length must be extended somewhat. As such, I have opted for 50-year intervals. Doing so provides enough depth to effectively identify elite groups and break the period into equally sized periods. In making this adjustment, one should be aware that the larger the

intervals used, the slower the estimated rate of social mobility.[28] I expand upon these limitations, later, in Section Six.

4.3 Population data

In calculating relative representation, I use the 1881 census to measure a given surnames share of the general population. The UK data service provides a digital transcription of the 1881 Census for England, Scotland, and Wales. The 1881 census was the most carefully indexed English census, as such, population counts are easily calculated for each surname. This makes it particularly convenient for my study.

Census data is imperfect because it only measures population at a specific moment in time. This can present an issue when dealing with rare surnames where a small change in population is proportionally large. This becomes evident when some rare surnames, found in the dataset, no longer exist by 1881. This problem is compounded by spelling errors. Obscure surnames have the potential to be misspelt and incorrectly recorded across service records or the census. Only by the late 18th century did spelling become standardised among English surnames. The modern Smith, for example, evolved from several medieval variants: Smith, Smithe, Smyth, and Smythe.[29] As spelling changes, some rare surnames are not accounted for.

Fortunately, unaccounted for surnames represent an insignificant proportion of my dataset and, as such, do not present an issue. The 1881 census is the earliest, most reliable, and consistent measure of the population available. Using this census for a long period is not without precedent. In the Clark and Cummins study of Oxbridge, the 1881 census is used to calculate relative representation for a 182-year period.

[28] Clark, Gregory, and Cummins, Neil. "Surnames and Social Mobility in England, 1170–2012." Human Nature (Hawthorne, N.Y.) 25, no. 4 (2014): p.12
[29] Clark and Cummins, "Surnames and Social Mobility in England" p.13

The main issue is that the 1881 census occurs after the period in question. However, as mentioned it is the earliest reliable measure available. We are left with few other options. When interpreting results, we should be aware, therefore, that with population growth a later census will generally underestimate the relative representation of a rare surname group.

4.4 Performance data

To determine the extent of meritocracy in appointments, I draw upon the naval action data. I use two measures of an officer's success: (1) the capture and (2) the sinking of enemy ships. Officers were required to keep detailed records of all engagements and report them in the ship's log. Such data is widely available within Three Decks. Voth and Xu provide a variety of summary statistics for the performance of Royal Navy officers. They find that the average officer captured one enemy vessel, whilst only 2% were ever able to sink one.[30] These provide a useful benchmark from which to evaluate the 'merit' of officers within the Admiral of the Fleet surname group.

4.5 Evidence of family ties

As the Admiral of the Fleet surname group comprises a smaller group of officers, it is feasible to identify explicit blood ties between them. Using the peerage database, I am able to connect all members directly to their respective, first-generation, Admiral of the Fleet. Rather than making an assumption, we can treat these groups like families. This also confirms the safety of making the same assumption for the previous surname groups.

4.6 Qualitative evidence

The Naval biographies, produced by Marshall and O'Byrne, provide anecdotal evidence in entries detailing the careers of commissioned officers. These will help to demystify the mechanisms of intergenerational status transmission. As I have

[30] The performance of 'Average Commissioned Officer' is taken from: Voth, Hans-Joachim and Xu, Guo. (2019), "Patronage for Productivity: Selection and Performance in the Age of Sail", CEPR Discussion Paper 13963: Table 1, p.39.

mentioned previously, however, these cannot be used to measure status. This is because officers supplied much of the material themselves and were, therefore, likely to exaggerate their family's wealth and status. Unlike Lewis, I do not rely on these biographies as a measure of status. I use them only to identify certain benefits conferred to subsequent generations. Therefore, these serve to complement the quantitative performance measures.

5. Findings

5.1 Intergenerational social mobility

I define elite surname groups in 1650-1700 by selecting rare surnames found within the commissioned officer ranks between 1650-1700.[31] Depending on the rarity of a given surname, I find progressively more elite surnames. Therefore, the most elite group used was surnames appearing 40 or fewer times in the 1881 census, and the least elite used was the surnames appearing 201-300 times in the 1881 census.

Table 2: Calculating Intergenerational Correlation for the 0-300 Rare Surnames

Period	Sample Size	Share of Officers*	Share of 1881 Population	Relative Representation	Intergenerational Correlation
1650-1700	3,156	0.195	0.002	106.74	-
1700-1750	4,329	0.027	0.002	15.03	0.14
1750-1800	8,025	0.012	0.002	6.81	0.45
1800-1850	5,448	0.002	0.002	6.32	0.93

Note: This table illustrates how the intergenerational status correlation (rate of social mobility) is calculated for a broad group of rare surnames (those with 0-300 members in 1881). The intergenerational correlation is the correlation of relative representation from one generation to the next. [* refers to commissioned officers].
Source: Three Decks

Table 2 illustrates how the correlation of status was calculated for the broadest surname group. It tracks the correlation in the relative representation of

[31] Assuming recording error, I have removed all surnames with <3 iterations in the 1881 census.

surnames appearing within the commissioned officer ranks between 1650-1700, where 300 or fewer had the same surname in the 1881 census, over four periods spanning 200 years. Using the ratio of the surnames share of commissioned officers to their share of the general population, I can calculate their relative representation within the naval elite.

There is no consistent intergenerational correlation across the period. It is not a linear pattern. It appears that the rate of decline in relative representation reduces as it nears the societal average. Thus, the intergenerational correlation appears to increase as relative representation declines. The first generation sees the greatest relative decline, with a correlation coefficient from the first generation to the next of 0.14. As relative representation nears the societal mean, the correlation from the second to the third generation increases to 0.45. By the fourth generation, it appears that the elite surnames have achieved much of their decline. The correlation coefficient from generation three to four is 0.93. They remain overrepresented by a factor of 6.3 but this is, to some extent, expected due to how rare the surnames are.

Clark and Cummins argue that there is a rather constant underlying rate of regression. They would, instead, interpret the initial decline as simply the *appearance* of rapid regression, driven by the removal of randomness in subsequent generations. They suggest that an initial generation contains a positive random component, in terms of specific naval status. As latter generations are increasingly selected into the elite group, the prevalence of random components (driven by an individual's (1) luck in status attainment and (2) their sacrifice of one specific aspect of status for another) inevitably declines.[32] It is argued, therefore, that later generations reveal a more accurate measure of the underlying rate of regression.

This study is less concerned with calculating an underlying rate of social mobility and more with a specific institutional measure. However, taking the average of

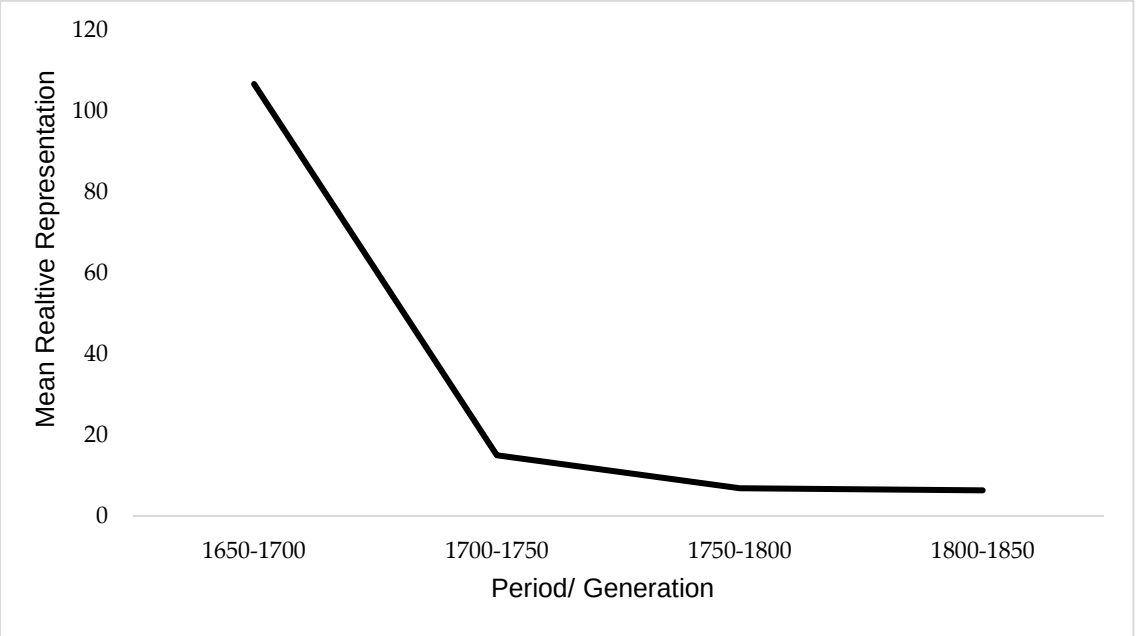
[32] Clark and Cummins. "Surnames and Social Mobility", p.3

the last two correlation estimates would provide a more accurate measure of the underlying rate. Doing so gives us a correlation of 0.69. This is lower but somewhat similar to Clark and Cummins estimate of 0.78.[33]

Either way, this study shows a lower intergenerational correlation in status. Some of this rate will be lower due to longer generations used. Meritocratic recruitment practices may also reduce the correlation, by removing the influence of artificial/ direct persistence mechanisms such as nepotism and patronage. Throughout the period in question, the Royal Navy increasingly engaged in conflict. The second period (1700-1750) saw a dramatic increase in conflict, with the Royal Navy undertaking, alongside the Dutch, wars with the French and Spanish between 1707-1748. In such a climate, the imperative for meritocratic recruitment would have increased. This, therefore, likely played a role in reducing the intergenerational correlation. The effect of increased meritocratic recruitment in times of conflict is likely masked as surname groups near the societal average status. The third period, for example, saw the most conflict; the French and American Revolutionary Wars and the Seven Years War. However, with a relative representation of 6.8, the surname is already close to the societal average (which is one) and has little scope to decline much faster.

[33] Ibid.

Figure 3: The Mean Relative Representation of 0-300 Rare Surnames, 1650-1850

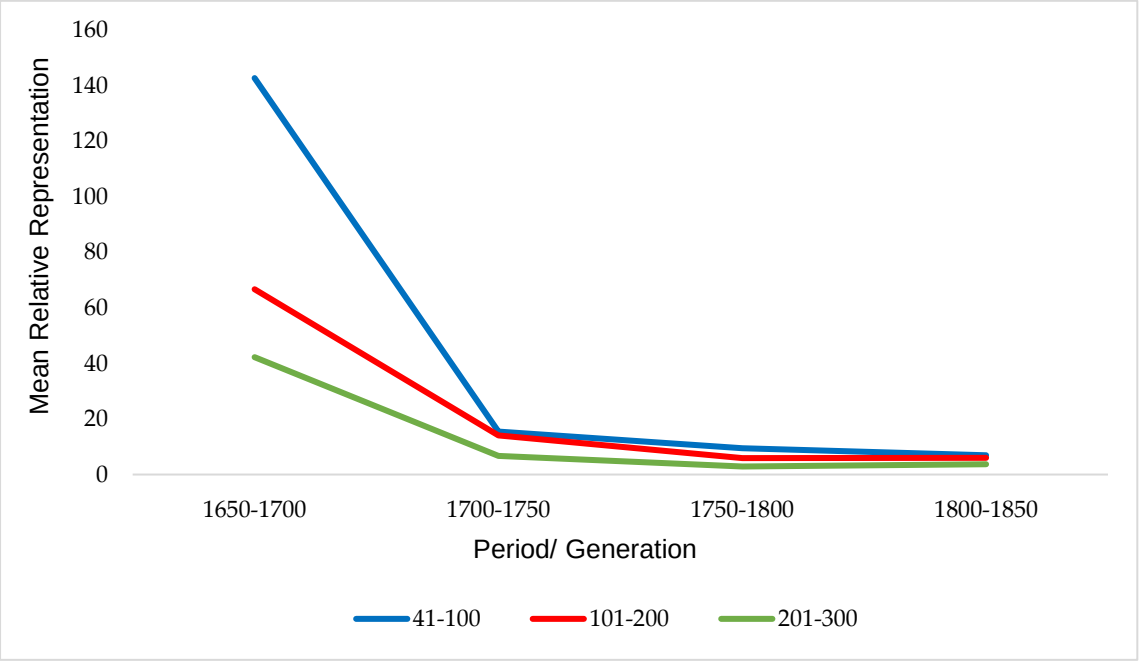


Note: This graph illustrates the decline in overrepresentation experienced by a broad group of rare surnames (those with 0-300 members according to the 1881 census). Initially overrepresented by a factor of 107, this group of surnames regress, over several generations, towards the societal average (1).
Source: Three Decks

Figure 3 illustrates this decline in relative representation. This is, however, a very broad group of rare surnames. Some surnames will begin as extremely overrepresented whilst others are only slightly overrepresented. This raises the question as to whether the pattern of social mobility is consistent across different levels of status (overrepresentation within an elite group). Is this pattern of a decelerating decline confirmed by surname groups of varying initial status? To confirm this, I separate rare surnames into those found 0-40, 41-100, 101-200, 201-300 times in 1881. The rarest surname group demonstrating the largest overrepresentation.

Figure 4 illustrates the mean relative representation across the four generations. All surname groups demonstrate the same pattern of a decelerating decline to the societal average. However, as expected, those with a higher initial overrepresentation see a greater fall from the first to the second generation. Some overrepresentation persists in the second generation but much of the difference between groups has disappeared.

Figure 4: Mean Relative Representation of Elite Surname Groupings, 1650-1850



Note: This graph illustrates the decline in overrepresentation experienced by three groups of surnames (those with 41-100, 101-200, 201-300 members according to the 1881 census). Initially overrepresented to different extents, all three surname groups regress, over several generations, towards the societal average (1).
Source: Three Decks

Table 3: Mean Relative Representation, 1650-1850

Surname Group	1650-1700	1700-1750	1750-1800	1800-1850
High Status				
0-40 (1881)	584.18	64.81	25.97	20.60
41-100 (1881)	142.80	15.45	9.42	6.94
101-200 (1881)	66.74	14.05	5.91	5.99
201-300 (1881)	42.27	6.70	2.89	3.73
Low Status				
10000-15000 (1881)	0.63	0.82	0.78	0.78

Note: This table illustrates the decline in over/ underrepresentation experienced by four groups of overrepresented surnames (those with 0-40, 41-100, 101-200, 201-300 members according to the 1881 census) and a group of underrepresented surnames. Initially over/underrepresented to different extents, all surname groups, over several generations, gravitate towards the societal average (1).
Source: Three Decks

This breakdown confirms the pattern as seen in the broad 0-300 surname group; an initially large decline to the average followed by a further, more gradual decline. However, we do see that higher status groups experience a faster regression to the societal average. These findings suggest that, within the commissioned officer ranks, initially high-status individual confer relatively little status to their subsequent generations.[34] In other words, the Navy appears to be a rather socially mobile institution.

An interesting feature of the data in Table 3 is that the 'low status' surname group experiences an increase in relative representation towards the societal average. This group is formed using surnames held by 10000-15000 people in 1881, which were initially underrepresented within the commissioned officer ranks. In 1650-1700, these surnames had a relative representation of around two-thirds of the societal average. As with the high-status groups, there is a large movement towards the societal average in the first to the second generation. By the later generations, it appears that much of the increase has already occurred. These findings add weight to the interpretation of the Royal Navy as a relatively mobile institution. Both initially high and low-status groups confer a relatively small impact on the following generations.

However, can we say the same for those surname groups identified as being both initially high-status and having significant control over recruitment?

5.2 Admiral of the Fleet Group

This section aims to identify and explain the rate of persistence of 'Admiral of the Fleet' surnames. This approach differs from the previous section in that I have selected a specific characteristic for the initial generation to fulfil. In isolating the Admirals of Fleet and taking only those with rare surnames (less than 300 in 1881), I am left with a group of five surnames: *Montagu, Gambier, Aylmer, Codrington, and Berkeley*. By performing checks on the blood ties of this surname

[34] The societal average is one. See method for explanation; underrepresentation is less than one, overrepresentation is above one.

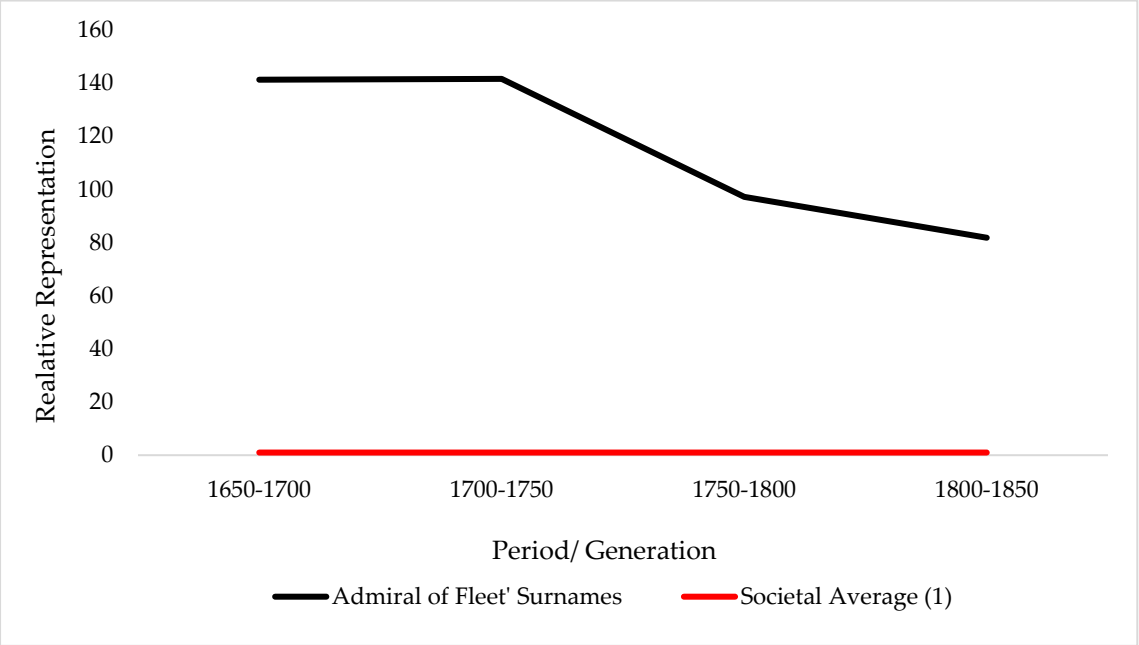
group, I find that every commissioned officer bearing the same surname are related. Unlike the previous section, where we need to assume family links (albeit safely, considering how rare these surnames are), thanks to the Peerage, we can confidently treat these surname groups like families.

As demonstrated by Figure 5, the Admiral of the Fleet surname group demonstrates a higher rate of intergenerational status persistence. Regression to the societal average is still evident, but at a much slower rate than compared with the elite surnames of the previous section. Despite an initial relative representation resembling that of the 41-100 elite surname group, the correlation between the first and second generation is 1. This implies complete maintenance in status. Clearly, the Admirals of the Fleet are in a unique position to maintain their family status compared with lower-ranking commissioned officers.

Potentially, some of the slower regression can be explained by this group having less of a random status element in the first generation. As Clark and Cummins point out, a single aspect of status (e.g., membership of the Commissioned Officer ranks) can be driven by a random element. This random element can be explained, firstly, by luck in the status attained by individuals and, secondly, by the trade-off sometimes experienced between different aspects of status. Clark and Cummins point to the example of careers where income may be sacrificed at the expense of educational or occupational prestige.[35] However, with this surname group, the initial generation contains Admirals of the Fleet, the most senior officer rank with only 50 members throughout 1650-1850. At such an exclusive level, the luck element is likely minimised. Therefore, a lower level of initial random status may be behind the part of the slower decline.

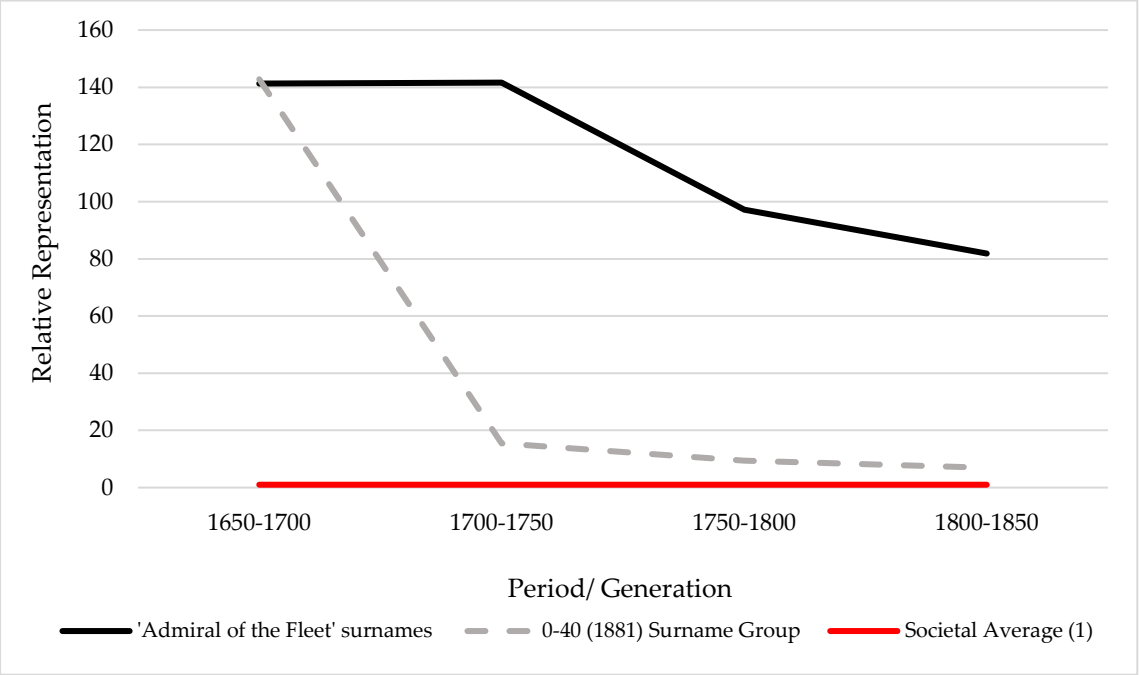
[35] Clark and Cummins. "Surnames and Social Mobility", p.5

Figure 5: Mean Relative Representation of 'Admiral of the Fleet Surnames, 1650-1850



Note: This graph illustrates the decline in overrepresentation experienced by a group of surnames held by the Admirals of the Fleet of the first period. Initially overrepresented by a factor 141, this surname group regresses, albeit slowly, towards the societal average, illustrated by the red line.
Source: Three Decks

Figure 6: Comparison of Mean Relative Representation. 'Admiral of the Fleet' surnames vs Surnames appearing 41-100 times in 1881



Note: This graph compares the decline in overrepresentation experienced by a group of surnames held specifically by the Admirals of the Fleet compared with a broad group of surnames (those held by 0-40 people according to the 1881 census). Initially overrepresented to a similar extent, the Admiral of the Fleet surname group demonstrates a slower regression to the societal average, illustrated by the red line.
Source: Three Decks

Consistent with this interpretation, officers in this surname group were on average more likely to reach the highest ranks. Voth and Xu find that 53% of commissioned officers reached the rank of Post-Captain, whilst only made 3% became Admirals.[36] Within this surname group, 80% of the subsequent generations of commissioned officers were made Post-Captain, whilst 43% became Admirals. Officers found within the 'Admiral of the Fleet' surname group experience a significantly higher than average chance of promotion.

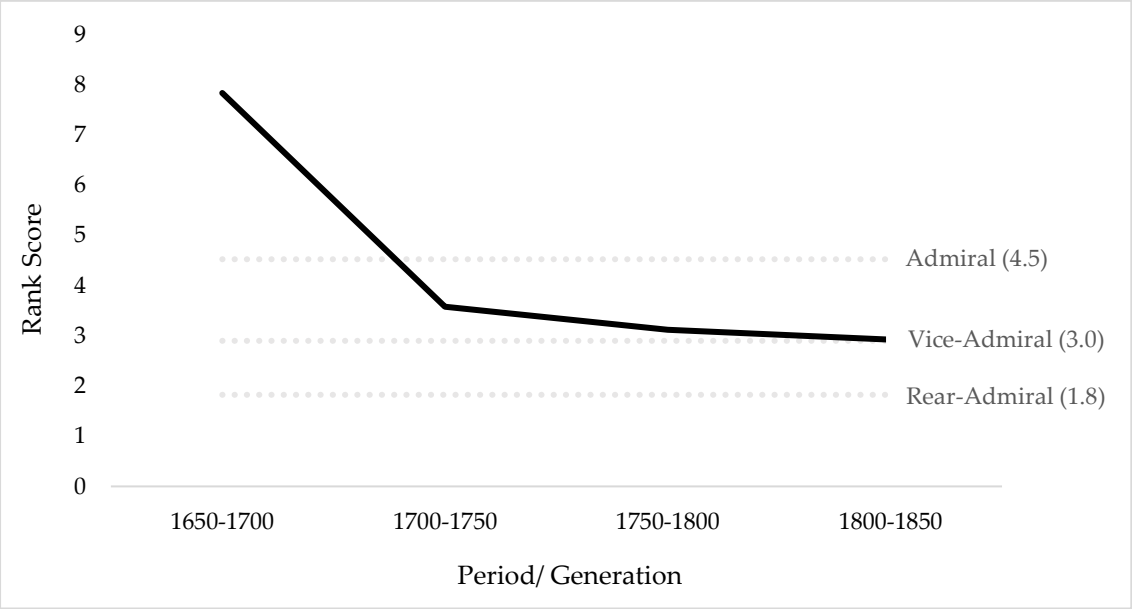
Because I am now looking at the mobility of a small group of surnames and at a less aggregated level, it makes sense to take a more specific measure of status. Using the rank score outlined in the methodology, I calculate an average for each

[36] Performance of 'Average Commissioned Officer' is taken from Voth, Hans-Joachim and Xu, Guo. (2019), "Patronage for Productivity: Selection and Performance in the Age of Sail", CEPR Discussion Paper 13963: Table 1.

generation. This is illustrated in Table 1. The first generation has an average rank score of 9.1, implying that the average rank is somewhere between that of a Vice Admiral and Colour Admiral. By the last generation, 1800-1850, these surnames remain significantly overrepresented (Figure 5) but with an average rank slightly above that of Captain (6.7). It seems that the 'Admiral of the Fleet' families have maintained overrepresentation (broad status) by recruiting the next generation. However, this appears to have diluted the subsequent generations average rank (their specific, within-elite-group status).

According to Figure 7, the decline of the average rank score is reminiscent of the broad decline in relative representation. There is an initial decline from the first to the second generation, followed by a significant deceleration. Much of this initial decline will be driven by the seniority and rarity of the Admiral of the Fleet rank. After the initial decline, the second, third and fourth generations retain a remarkably stable status score. By the last generation, the average rank score is equivalent to that of Vice-Admiral. According to this specific status measure, Admiral of the Fleet surname groups level off at a rank far above that of the average rank (Lieutenant).

Figure 7: Mean Rank Score of 'Admiral of the Fleet Surnames', 1650-1850



Note: This graph demonstrates the decline, over several generations, in the average rank of commissioned officers belonging to the Admiral of the Fleet surname group. The light-coloured dashed lines illustrate the rank scores of the Admiral, Vice-Admiral and Rear-Admiral. An initial score of 7.8 implies that the average officer was comfortably within Admiral rank (score of 4.5). Subsequent generations experience a decline in average rank towards that of Vice-Admiral (score of 3.0).
Source: Three Decks

Despite their gradual regression towards the societal average (Figure 5). These elite 'Admiral of the Fleet' families are able to protract the cycle through self-recruitment. However, with a lower average rank, the power of subsequent generations to do so is reduced.

5.3 Explaining status persistence

The quantitative evidence shown so far demonstrates that Admiral of the Fleet surnames enjoyed above-average status persistence. Officers related to Admirals of the Fleet clearly had had advantages when it came to their recruitment and promotion prospects. This can be visualised as the area between the solid and dashed line in Figure 6. This section aims to explain, using a broad survey of qualitative and quantitative sources, the mechanism that lays behind this persistence.

As discussed in the literature review, two main interpretations exist in the historical debate. The first seeks to explain persistence in the context of indirect and unconscious mechanisms. It emphasises the practice of 'self-recruitment', whereby the Royal Navy sought after traits disproportionately embodied by members of the existing elite families.[37] The second explains persistence as the result of conscious and direct actions, emphasising the use of nepotistic strategies.[38] Whilst these interpretations are often pitted against each other, the findings discussed below paint a more nuanced picture.

Historians who argue in favour of indirect and unconscious factors stress the importance of social capital. Social capital refers to the impact of social networks on a person. It is the cumulative effect of social interactions that become embodied in one's conduct. Today, a candidate's 'polish' is used as a byword for their stock of social capital. The Royal Navy highly valued social capital and commissioned officers were 'expected to be gentlemen'.[39] Naval historians such as Consolvo have argued that this desire to 'self-recruit' based on class is the cause of elite persistence.[40] It is argued that as family networks reproduce social capital, elite naval families produced candidates best positioned for the specific social demands of the commissioned officer ranks.

All our families could, as far as possible, be considered gentlemen. Especially the sons of the Aylmer and Berkeley families, both of which were courtiers to various English and British monarchs. Many members, including Admiral Sir George Cranfield Berkeley, were also educated at prestigious schools like Eton.[41] Whilst the persistence of elite Admiral of the Fleet families would certainly lend weight to this interpretation, it is not enough to explain why the persistence of specific

[37] See: Bell, "Class, Social Mobility, and Democratization in the British Naval Officer Corps."
[38] See: Consolvo, "The Prospects and Promotion of British Naval Officers"; Clark, Hack-Polay and Bal "Meritocracy or Class Ceiling."
[39] Wilson, "Social Background and Promotion Prospects", abstract (p.ii)
[40] Consolvo, "The Prospects and Promotion of British Naval Officers"
[41] Three Decks: https://threedecks.org/index.php?display_type=show_crewman&id=3373#ref:616 'Sir George Cranfield Berkeley (1753-1818)'. (last accessed: 21/03/2021)

lineages. There must have been something specific to the Admiral of the Fleet families beyond their social attributes that ensured status persistence.

Historians who emphasise the direct and conscious means of persistence often point to nepotistic recruitment practices. The direct influence of family certainly played a role in recruitment and promotion decisions and there is anecdotal evidence within the officer biographies to support this. Admiral John Montagu is a primary example. He directly promoted two of his sons to senior ranks. He promoted his first son (future Admiral) Sir George Montagu to Commander and later Captain, and his second son (future Captain) James Montagu to Commander.[42] The direct promotion of two sons to the commissioned officer ranks certainly appears a rather conscious effort at ensuring status persistence. Furthermore, the twice-promotion of a son is completely unprecedented within my dataset. Whilst, we cannot say that direct, family-orchestrated promotions were rare, within the Admiral of the Fleet families only 7.5% of officers were explicitly appointed by family members. Whilst not accounting for most experiences, this case certainly confirms the existence of conscious and concerted efforts at ensuring status persistence.

Direct efforts were not limited to recruitment decisions. Admiral of the Fleet families were able to leverage their superior knowledge and influence to ensure preferential access and treatment for their kin. The case of Admiral John William Montagu demonstrates such an example. Aged 12, his admission to the Naval Academy in Portsmouth would almost certainly have been decided by his father, the previously mentioned Admiral Sir George Montagu. Naval Academies were elite institutions with high attendance fees.[43] The specialist education would have served him well in his future naval career. But that was not the extent of his father's influence. In 1809, regulations regarding the amount of experience required to sit the lieutenant's exam changed. Deemed ineligible to sit the required

[42] Three Decks 'John Montagu (1719-1795)' https://threedecks.org/index.php?display_type=show_crewman&id=733 (last accessed: 21/03/2021).
[43] Bell, "Class, Social Mobility, and Democratization in the British Naval Officer Corps" p.697

exam, young John Montagu suffered a setback. However, his father took a keen interest and twice took the case to the Admiralty counsellor who eventually made an exception for his son.[44] The fact that the Admiralty counsellor initially decided against young John Montagu suggests some aversion to nepotistic influence. Despite this, the direct influence of Admiral Sir George Montagu eventually prevailed. Again, this confirms the existence of direct and conscious mechanisms of persistence.

There is certainly evidence for each of these interpretations, however, the accounts below suggest that the traditionally interpreted direct-indirect dichotomy is inappropriate. Patronage, often seen as direct, was motivated mainly by indirect factors (ability). Similarly, whilst the characteristics and ability of an officer are often pointed to as indirect and unconscious, they may actually be the result of conscious and concerted efforts.

Whilst patronage and direct influence certainly contributed to intergenerational status persistence, the data suggest that this process was not necessarily nepotistic (in the sense that it occurred regardless of merit). Officers within the Admiral of the Fleet surname group appear to have outperformed the average commissioned officer (Table 4). Whilst contributing to the intergenerational status persistence of these elite families, patronage doesn't appear to have been detrimental to the overall performance of the Royal Navy. This would suggest that the traditional characterisation of patronage is somewhat misplaced. In light of this evidence, we cannot rule out the interpretation of Voth and Xu that patronage was primarily employed as an efficient selection mechanism.[45] Rather than a direct and conscious effort, aimed at ensuring status persistence, patronage, for the most part, was employed on a meritocratic basis. In line with Voth and Xu, its primary purpose was to overcome asymmetric information in recruitment by

[44] Marshall, John William. 'Royal Navy Biography' (London: Longman, Hurst, Rees, and Brown, 1823). pp.228-230 'pp.228-230 'John William Monatgu'.
[45] Voth and Xu (2019), "Patronage for Productivity": p.1

drawing on the knowledge and trust within the family. To vouch for a specific candidate, one must be certain for the sake of one's own reputation, of their ability.

In rare a case that direct influence was explicitly nepotistic (not backed-up by merit) it was simply over-ruled. The case of Samuel Gambier demonstrates this. He was the son of Admiral James Gambier (1723-1789) but, despite this, he was dismissed for 'not going to his duty for a month'.[46] Therefore, whilst patronage was accepted within the Royal Navy, this was because, for the most part, it was an efficient means of recruitment.

Table 4: Comparison of Performance. Commissioned officers within the 'Admiral of the Fleet' surname group vs the average commissioned officer

		'Admiral of the Fleet' surname group	Average Commissioned Officer
Ships Captured	Mean:	1.50	1.04
	SD:	2.30	2.23
Ships Sunk	Mean:	0.10	0.02
	SD:	0.30	0.18

Note: This table illustrates a comparison in the performance of commissioned officers belonging to the Admiral of the Fleet surname group with the average commissioned officer. Performance is measured by two metrics; average the number of ships (1) captured and (2) sunk.
Source: Admiral of the Fleet performance was calculated from Three Decks. Performance of 'Average Commissioned Officer' is taken from Voth and Xu, 'Patronage for Productivity' p.39. (This too was calculated using Three Decks).

This leads to the conclusion that the persistence of elite families was largely driven by superior performance. As such, the proximate cause of persistence was an indirect factor (ability). However, as I will show, direct factors were fundamentally important. Whilst Admiral of the Fleet families were disproportionately recruited and promoted due to their superior performance and tacit knowledge. These were

[46] Three Decks: https://threedecks.org/index.php?display_type=show_crewman&id=30294 'Samuel Gambier (c.1726-?)'. (last accessed: 21/03/2021).

fostered through conscious and concerted efforts. Admiral of the Fleet officers overperformed because of their preferential access to midshipman experience and exposure to naval family life. Both of which were consciously employed by families to ensure that subsequent generations developed the necessary skills and well-understood the requirements of a navy career.

Officers from Admiral of the Fleet families gained tacit naval expertise which put them at a clear advantage. According to Janowitz, "the military profession is a complete style of life" and, therefore, it is important to become accustomed to it at an early age.[47] A particular advantage was being able to secure onboard midshipman experience. Sir Henry Codrington and Sir James Gambier gained midshipman experience at the hand of their father and uncle respectively.[48][49] This practice of sponsored mobility did not only occur at the very beginning of a sailor's career. John Aylmer (d.1849), for example, gained experience as a Lieutenant on his father's ship 'dragon'.[50] Cavell argues that such experience was vital to a successful naval career.[51] Gaining practical vocational experience at an early age is likely a driving force in the superior performance of these officers. In fact, Admiral Henry Oliver stated that early induction to navy life marked an "essential difference in training between [Royal Navy] Officers and French and German Officers". He argued that it enabled future officers to "[grow] up in sympathy with the men and imperceptibly imbibed sea conditions."[52] Clearly Admiral of the Fleet officers were aware of the benefits of such experience, as 14% were awarded this by their kin.

[47] Janowitz, M. "The Professional Soldier, A Social and Political Portrait."(United States, The Free Press, 1964). p.175
[48] O'Byrne, William Richard. 'A Naval Biographical Dictionary (London: John Murray, Publisher to the Admiralty, 1849). pp.208-209 'Codrington, Henry John'
[49] Three Decks: https://threedecks.org/index.php?display_type=show_crewman&id=6951 'Sir James Gambier (1756-1833)' (last accessed: 21/03/2021).
[50] Three Decks: https://threedecks.org/index.php?display_type=show_crewman&id=2901 'John Aylmer (d.1849)' (last accessed: 21/03/2021).
[51] Cavell, "Playing at Command".
[52] Minute by Vice-Admiral Henry Oliver, 24 April 1922, TNA: PRO ADM 167/86. (cited in: Bell, Christopher M. "The King's English and the Security of the Empire: Class, Social Mobility, and Democratization in the British Naval Officer Corps, 1918–1939." The Journal of British Studies 48, no. 3 (2009): 695-716.)

Senior commissioned officers would also have been well aware of the all-encompassing nature of their career. Diamond has claimed that, within the Royal Navy, "a lack of separation exists between work and home life that is not found in other occupations."[53] In support of this, I find that the household was at the core of the persistence mechanism; it both fostered the skills of subsequent generations and reserved access to preferential treatment. Because of this, the marriage market was of fundamental importance to status-conscious officers. The continued, undiluted, transmission of desirable traits relied upon an officer's marriage market decisions. One such status-conscious officer was Admiral Maurice Fitzhardinge Berkeley. As the illegitimate son of the 5th Earl of Berkeley, and despite several requests, he was prohibited from inheriting the Barony of Berkeley. His marriage to his cousin, Charlotte Lennox, daughter of the 4th Duke of Richmond can, to some extent, be seen in the context of his attempts to consolidate his status.[54] The case of Admiral John William Montagu is explicitly related to naval concerns. He married Isabella Beauclerk, a member of another prominent naval family, on 12th March 1840.[55] Interestingly, the Montagu and Beauclerk families are two of the most persistent high-status families within this study. Across the period 1650-1850, these two surnames have an average relative representation of 200 and 181 respectively. This marriage, therefore, represented a rather equal match in terms of status. According to Reinkober, 'military spouses and children informally carry the rank of their spouse or parent, which includes guidelines for behaviour and pressure to conform'.[56] The case of the Montagu-Beauclerk family supports this interpretation as George Edward Montagu (son of

[53] Diamond, "Habitus Clive and Other Struggles Associated with Promotion in the Royal Navy" p.161

[54] The Peerage: https://www.thepeerage.com/e307.htm 'Berkeley, Maurice Frederick Fitzhardinge' (last accessed: 21/03/2021).

[55] The Peerage: https://www.thepeerage.com/p7797.htm 'Admiral John William Montagu' (last accessed: 21/03/21)

[56] Reinkober, A, Coleman, M and Cable, S "Military Families under Stress: Implications for Family Life Education." Family Relations National Council on Family Relations: Vol.52, No.3 (2003): pp.279-287, **quoted in:** *Diamond, "Habitus Clive and Other Struggles Associated with Promotion in the Royal Navy" p.95*

Admiral John William Montagu) also became a Captain in the Royal Navy (this is, however, outside our selected period).[57]

It seems that social networks and the household are at the core of this process. Desirable traits are reproduced within social networks but also maintained and transmitted over multiple generations. Traditional interpretations of 'direct v. indirect' (conscious v. unconscious) factors appear to mischaracterise the mechanism of inheritance. Instead, these findings suggest that families intentionally sought to sponsor the upward mobility of their kin by investing in their abilities. Subsequent generations of officers succeeded based on merit. But that is not to say that they did not have an unfair advantage. Inevitably the effect of this will have been compounded by elements of social bias and nepotistic influence.

6. Limitations

Whilst I discussed some limitations in Section Three, I intended to keep that brief and focus, due to its novelty, on the mechanics of the surname approach. I expand upon and introduce additional limitations below.

6.1 Measuring intergenerational social mobility

Looking only at surnames we cannot account for family members of differing surnames. Therefore, I cannot account for the classic example of Naval patronage; that of Rear-Admiral Horatio Nelson who famously followed his uncle, Captain Maurice Suckling into the Royal Navy. We can make the assumption, however, that the majority of cases where family follow prior generations will be on a surname basis. Most will be father-son, and as we have seen many uncles share surnames with their nephews. It is an imperfect measure, but we capture most of the process. It would be arguably harder and less effective to identify such relationships across censuses.

[57] The Peerage: https://www.thepeerage.com/p7797.htm 'Admiral John William Montagu' (last accessed: 21/03/21)

Using only one census is imperfect. This is compounded by the fact that it measures population in 1881, 31-years after the end of the period in question. However, it is the earliest and best available measure of population. When interpreting these results, one should remain aware that for all surname groups, assuming population growth a later census will likely underestimate earlier measures status (overrepresentation) and thus reduce the rate of decline. I do not see this as a major problem, however, as we are mostly interested in the relative picture. The main finding that 'Admiral of the Fleet' surnames demonstrated higher levels of intergenerational persistence relative to other officers, remains.

Using time intervals of 50 years is also imperfect. They will inevitably be longer than the average birth cycle. Ultimately, the decision to use 50-year intervals was a reaction to the imperfect distribution of the data. The surname approach requires enough rare surnames in the initial period to form an elite surname group. The first 30-years of our data does not provide enough depth to do so. Because our chosen interval is longer than the real birth cycle, we cannot identify an exact 'father to son' transmission mechanism. Qualitative sources and anecdotal evidence are used to mitigate this.

However, our interval is only 1.5 times larger than what would be considered ideal. For Admiralty families, as they are smaller and often members of the aristocracy, we can identify direct links (particularly through the use of the Peerage database). As it is these families that demonstrate a unique level of intergenerational status persistence, it seems comparatively more important to identify their exact mechanism of transmission. I am able to do this.

Another potential issue resulting from the longer interval is that this will have an impact on the estimated rate of intergenerational mobility. Therefore, when interpreting these results, one should be aware that the estimate provided will be somewhat slower than the actual rate of social mobility.[58] Ultimately, however,

[58] Clark, Gregory, and Cummins, Neil. "Surnames and Social Mobility in England, 1170–2012." Human Nature (Hawthorne, N.Y.) 25, no. 4 (2014): p.12

our main concern is the relative picture: the difference in mobility exhibited generally compared with the Admiral of the Fleet group. As both are impacted equally by this adjustment, the relative picture remains valid.

6.2 Measuring performance

Only using 'single-ship' encounters is an imperfect measure of success. However, this enables me to isolate the captain responsible and attribute the result to him alone. Despite this, the number of captured and sunk enemy ships is not the only measure of success. This ignores much of the important administrative actions taken by commissioned officers. However, in using this approach I am following the method of Voth and Xu (2020). Doing so, allows me to compare the performance of the 'Admiral of the Fleet' surname group with what they calculate for the average commissioned officer. This comparison enables me to bring considerations of merit into the equation and provide a fuller answer to what drives the identified persistence.

The primary aim of this study has been to improve upon previous enquiries into naval social mobility. I do so by using a more reliable quantitative method and only employing qualitative data in a reproducible way. Whilst there are inevitably some pitfalls to my approach, the main findings of this study are reliable.

7. Conclusion

This dissertation has attempted to provide some answers to the debate on the rate of social mobility within the Royal Navy. I have studied a 200-year period and drawn on both qualitative and quantitative sources. In doing so, I have sought to provide as complete and reliable a picture as possible. The quantitative surname approach provides clear estimates for the rate of intergenerational social mobility, whilst also serving to focus our attention on a specific group of elite commissioned officers, the Admirals of the Fleet and their kin. Qualitative sources have been employed only to explain the mechanisms of inheritance, thus avoiding the traditional issues surrounding the interpretation of status. At the same time, they

provide a valuable insight not available through a strictly quantitative assessment.

This study has found two distinct patterns of intergenerational mobility occurring within the Royal Navy. For the vast majority of commissioned officers, it was a highly mobile institution. In support of this, we see high-status groups experiencing rapid downward mobility and low-status group experiencing upward mobility. For most surname groups, the largest loss in elite status was from the first to the second generation implying that status lasted no longer than one generation. On the other hand, there were the families of the Admirals of the Fleet. This group of commissioned officers demonstrate a significantly higher rate of intergenerational status persistence. These findings present a contrast to the findings of previous studies which characterise the Royal Navy as a rather monolithic institution.

A significant portion of this dissertation has been dedicated to explaining the persistence experienced by the families of the Admirals of the Fleet. I find that the traditional debate over direct and indirect explanations is misplaced. By stressing the role of nepotism and class bias, traditional enquiries place most emphasis on the recruiter and fail to acknowledge the extent of meritocracy in recruitment. Instead, my findings suggest that Royal Navy recruitment was efficient. I argue that persistence was generated, mostly, by the conscious and concerted efforts of 'Admiral of the Fleet' families to reproduce a high level of human capital and traits specifically desired by the Royal Navy. This was certainly compounded by, albeit less than traditionally emphasised, the direct mechanisms of nepotism and class bias.

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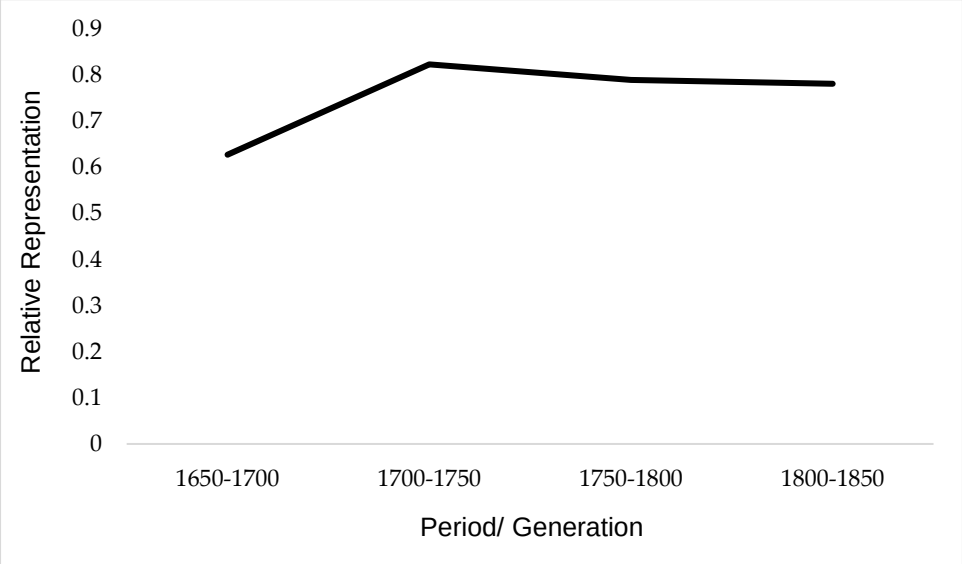
Appendix

Figure 8: Average Relative Representation. 'Low Status' Group (10,000-15,000 in 18881)



Note: This graph illustrates the increase in representation experienced by a broad group of relatively common surnames (those with 10,000-15,000 members according to the 1881 census). Being relatively common surnames and not appearing in an elite group implies lower than average status. Initially underrepresented by a factor of 0.62, these surnames quickly increase towards the societal average (1), before levelling off. This was initially illustrated in Table 3.
Source: Three Decks.

Table 5: 'Admiral of the Fleet' surname counts (1881)

Surname	1881 Count
Montagu	70
Gambier	83
Aylmer	181
Codrington	195
Berkeley	217

Note: This table demonstrates the respective 1881 population of each 'Admiral of the Fleet' surname.
Source: Woollard, M., Schurer, K. "1881 Census for England and Wales, the Channel Islands and the Ilse of Man (Enhanced Version). [data collection]. Federation of Family History Societies, Genealogical Society of Utah, Federation of Family History Societies: (2000) http://doi.org/10.5255/UKDA-SN-4177-1.

Table 6: Intergenerational Status Correlation: 'Admiral of the Fleet' surname group

Period/ Generation	1650-1700	1700-1750	1750-1800	1800-1850
Intergenerational Correlation	-	1.0	0.69	0.84

Note: This table illustrates the intergenerational correlation in status for successive generations of the 'Admiral of the Fleet' surname group. It is calculated in the same way as shown in Table 2. [Sample size: 1650-1700: 8; 1700-1750: 11; 1750-1800: 14; 1800-1850: 8].
Source: Three Decks.