

# Grievances and the Genesis of Rebellion: Mutiny in the Royal Navy, 1740 to 1820

American Sociological Review  
1–25  
© American Sociological  
Association 2015  
DOI: 10.1177/0003122415618991  
<http://asr.sagepub.com>



Michael Hechter,<sup>a</sup> Steven Pfaff,<sup>b</sup>  
and Patrick Underwood<sup>b</sup>

## Abstract

Rebellious collective action is rare, but it can occur when subordinates are severely discontented and other circumstances are favorable. The possibility of rebellion is a check—sometimes the only check—on authoritarian rule. Although mutinies in which crews seized control of their vessels were rare events, they occurred throughout the Age of Sail. To explain the occurrence of this form of high-risk collective action, this article holds that shipboard grievances were the principal cause of mutiny. However, not all grievances are equal in this respect. We distinguish between structural grievances that flow from incumbency in a subordinate social position and incidental grievances that incumbents have no expectation of suffering. Based on a case-control analysis of incidents of mutiny compared with controls drawn from a unique database of Royal Navy voyages from 1740 to 1820, in addition to a wealth of qualitative evidence, we find that mutiny was most likely to occur when structural grievances were combined with incidental ones. This finding has implications for understanding the causes of rebellion and the attainment of legitimate social order more generally.

## Keywords

social movements, collective action, insurgency, conflict, military authority

Since the 1970s, grievances have had a roller coaster career in studies of insurgency and collective action. Once regarded as prime causes of conflict, grievances were subsequently shelved in favor of factors like resources, political opportunities, and state capacity. This article makes the case that the literature has thrown the baby out with the bath water. Based on an analysis of mutiny in the Royal Navy (hereafter, RN), which averts the selection bias that so often dooms studies of collective action, we reinstate the causal priority of shared grievances in explaining insurgency. At the same time, we contend that the concept of grievances is too capacious. Insurgency is best explained by incidental

grievances that are situational and unlikely to appear in standard datasets, together with the structural grievances traditionally regarded as causes of protest. This conclusion has important policy implications.

---

<sup>a</sup>Arizona State University and University of Copenhagen

<sup>b</sup>University of Washington

## Corresponding Author:

Michael Hechter, Arizona State University,  
School of Politics and Global Studies, PO Box  
873902, Tempe, AZ 85287  
E-mail: [michael.hechter@asu.edu](mailto:michael.hechter@asu.edu)

Before 1970, the major perspectives on collective action and social movements emphasized grievances as principal causes (McAdam, McCarthy, and Zald 1996; Pinard 2011). Whereas collective behavior was regarded as driven by emergent norms and values, later research emphasized the rationality of participants. Gurr (1970) famously argued that individuals who perceived they were disadvantaged relative to some reference group were motivated to take action as a result. He claimed that psychological tension was relieved by participation in protest and argued that survey research could be deployed to assess the theory. A host of studies tested the theory, but it received little empirical support (Brush 1996). Because individual grievances are idiosyncratic, it is unsurprising that one's attitudes about such things as career satisfaction, economic well-being, living conditions, and children's welfare do not turn out to be significant determinants of collective action. The focus of ensuing research therefore shifted from social psychological to more macro-sociological accounts.

Following Olson (1965), who claimed that grievances were insufficient to motivate collective action, resource mobilization and political process theorists argued that grievances essentially were constant and thus could not account for variations in collective action. Instead, resources and opportunities available to potential insurgents and their targets were what varied (Collier and Hoeffler 2004; Fearon and Laitin 2003). In this view, any small group combining collective identity with rudimentary forms of organization can potentially mobilize for collective action. This led to the expectation that prior ties to a movement member, membership in organizations, a history of prior activism, and low opportunity costs would foster participation in collective action.

Now the tide is turning once again. The revival of grievance-based explanations of collective action holds that people who *share* grievances due to their subordinate positions in class and political structures are more likely to mobilize to enhance their welfare

(Cederman, Gleditsch, and Buhaug 2013). Grievances cannot generate collective action on their own, however. The immediate impetus to collective action is cognitive. Successful collective action proceeds from a significant transformation in the collective consciousness of the actors involved (Gamson, Fireman, and Rytina 1982). Activists use extant grievances to construct legitimating accounts—or frames—to support their activism (Benford and Snow 2000; cf. Walder 2009).

How can shared grievances be measured? They can be measured *directly* in sample surveys, but most such studies are geographically and historically limited and liable to suffer from selection bias. *Indirect* measures—based on the assumption that grievances can be inferred from individuals' subordinate positions in a social structure—can be used to study grievances across greater geographic and temporal space. For example, one can assume that political and economic inequalities affecting entire groups are likely to fuel resentment and justify attempts to fight perceived injustice. Moreover, shared grievances likely have an emotional valence (Kemper 2001) that makes collective identities more salient (Hechter 1978; Østby 2008; Stewart 2008).

If it turns out that such structural variables fail to determine collective action, does this mean grievances can be ruled out as a cause? There is no warrant to believe that structural variables provide the *only* measures of grievances. Grievances can also emerge from a quite different source. Theorists as diverse as Weber, Durkheim, and Mead all held that incumbency in a social role entails a set of behaviors that individuals are obligated to enact. For Weber ([1918–21] 1978:227), patrimonial rulers were obliged not to exceed the traditional limits to their power. Serfs' existence was grim, but masters also had certain obligations toward serfs—providing access to the commons and sharing food during famines—and any lord who failed to do so courted trouble. Likewise, Durkheim ([1897] 1951:249–50) explained that individuals in nineteenth-century European societies had

little expectation that their fortunes could exceed those of their parents. In consequence, they accepted (with resignation) norms about their place in the stratification system. Finally, Mead (1934) insisted that social roles make individuals act as if they were characters in a play or athletic contest. Given a set of rules of the game, people's actions are normally oriented toward that of the other participants in predictable ways. The failure to honor these expectations is jarring: shortstops should not field a hit and throw it to the right fielder rather than the first baseman.

This classical insight has been elaborated in recent social psychological research. For social psychologists, no compelling causal account of mobilization can exclude grievances (Klandermans 1997). But there are at least two different kinds of grievances. *Structural* grievances derive from a group's disadvantaged position in a social structure, whereas *incidental* grievances arise from wholly unanticipated situations that put groups at risk. Unlike structural grievances, incidental ones—like unexpected disasters, major court decisions, and state repression—enhance a group's capacity to coordinate (Turner and Killian 1972; Useem 1998; Walsh 1981).

These two types of grievances have different psychological implications (Bergstrand 2014; Tausch et al. 2011; Van Stekelenburg and Klandermans 2013; Van Zomeren, Postmes, and Spears 2008). Incumbents confined to subordinate positions in a social structure tend to tolerate grievances like poor wages, difficult working conditions, and political exclusion *so long as they remain at routine and predictable levels*. If people understand that bearing such indignities is their lot in life, they are not likely to seek redress unless the magnitude of those grievances increases sharply. For example, graduate students suffer anxiety about their comprehensive exams but generally do not mount campaigns to abolish them. Under normal conditions, structural grievances foster stable expectations that tend to discourage protest. Moreover, because members of subordinated groups are

typically skeptical about their collective efficacy, they are difficult to mobilize: the fear and shame associated with subordination are demobilizing.

When incidental grievances are severe, they are manifest to all affected. It is thus easy for victims of these unforeseen events to develop a collective identity (Klandermans 1997). So long as the group has some shared conception of fairness, injustice framing is relatively straightforward. The simultaneous experience of the same threat, injury, or insult improves coordination by providing a common focal point among disparate actors, a substitute for formal organization that is especially powerful in socially dense settings. As Schelling (1960:90) notes, "The role of 'incidents' can thus be seen as a substitute for overt leadership and communication." For groups that lack many of the resources that enable collective action, incidental grievances help trigger spontaneous mobilization.

## MUTINY IN THE ROYAL NAVY

We argue that the combination of structural and incidental grievances better explains the genesis of insurgent collective action—in this case, mutiny in the RN in the Age of Sail. All seamen (that is, sailors and marines) in the RN were subject to harsh conditions—as Samuel Johnson (Boswell [1791] 1934–50:438) famously described their lot:

No man will be a sailor who has contrivance enough to get himself into jail; for being in a ship is being in a jail, with the chance of being drowned. . . . A ship is worse than a jail. There is, in a jail, better air, better company, better conveniency of every kind; and a ship has the additional disadvantage of being in danger.

Yet, most seamen never took part in a mutiny.

What distinguishes the fate of ships that experience mutinies from that of other ships? Although dozens of mutinies occurred over our study period, mutiny was a relatively rare event. The rarity of mutiny, we will show,

owes in part to individuals' tendency to tolerate structural grievances under normal conditions. Harsh as it was, life aboard ships ordinarily met seamen's expectations as determined by settled customs and predictable levels of reward and punishment. Such beliefs establish baseline expectations about the treatment that subordinates will encounter (Kahneman 2011). When these expectations are violated, individuals are more likely to seek redress.

Mutiny is the byproduct of a contest between the two principal collectivities onboard ship. On one side stands command (the captain and his officers); on the other side stands the crew. The contest is shaped by officers' ability to provide good governance, and by the crew's grievances and its capacity to coordinate collective action. Mutiny is thus the outcome of the conjunction of three sets of factors. The first two factors refer to the demand for mutiny: poor governance (the provision of insufficient collective goods like safety, health, and welfare, and the cultural inappropriateness of rule), and the crew's perception that the situation confronting them requires concerted action to avoid a worsening of their welfare.

The third refers to the supply side of mutiny, which varies with a crew's capacity to coordinate collective action in response to grievances. Although the crews of RN ships had varying capacities to launch a mutiny, coordination generally was enabled by threats to safety and welfare, for in these circumstances free riding does not pay (Goldstone and Useem 1999; Kalyvas and Kocher 2007).

To evaluate these ideas, we conducted the first systematic study of naval mutiny. Previous research on mutinies shares many of the limitations of studies of other kinds of rebellion. Most accounts focus on personalities and the idiosyncratic features of famous cases (e.g., the *Bounty*). Although scholars have surveyed commonalities among mutinies (Frykman 2009; Gilbert 1983; Guttridge 1992; Haine 1992; Hathaway 2001; Lammers 1969, 2003; Rediker 1987; Rose 1982; Woodman 2005) and produced detailed accounts of

notable examples (Denig 1992; Frykman 2010; Neale 1985; Pack 1964; Pope 1987), every previous study has selected on the dependent variable. This liability plagues analyses of protest generally (McAdam and Boudet 2012).

This study compares a sample of mutinies that occurred on RN ships from 1740 to 1820 with a random sample drawn from the much larger population of ships that had no such rebellion. Scholars of mutiny have endorsed such a design (Lammers 2003), but no previous study has adopted it. Fortunately, RN documentation was excellent, providing original records that allowed us to analyze systematic quantitative data as well as rich historical evidence about mutiny and its causes.

Grievances motivate radical protest to the extent that they inspire indignation among group members and focus their discontent. We contend that the potential for radical protest should be greatest when governing authorities are seen as the immediate cause of grievances or as failing in their responses to challenging situations. Members of subordinated groups assess legitimacy in terms of the integrity of the authorities and the degree to which authorities address their interests (Carabine 2005; Useem and Kimball 1989). They expect authorities to act in ways they regard as reliable, reasonably effective, and culturally appropriate (Hechter 2013). Incidents that convince seamen that the authorities are insensitive to their security and welfare put commanders at risk. Indignation should be greatest where commanders are perceived as acting unfairly and in ways that violate the customs of the sea.

We expect structural grievances to increase the odds of mutiny. The testable hypothesis is straightforward:

*Hypothesis 1:* The greater the magnitude of structural grievances, the greater the odds of mutiny on an RN ship.

In addition to structural deprivation, we expect seamen will be sensitive to incidental grievances. If so, incidental grievances should help trigger mutiny:

*Hypothesis 2:* The greater the magnitude of incidental grievances, the greater the odds of mutiny on an RN ship.

Collective action tends to be led by individuals who are especially interested in the redress of shared grievances. In particular, ethnic heterogeneity among seamen would have facilitated a critical mass around which to mobilize rebellion (Centola 2013; Marwell and Oliver 1993). In the RN, the largest group of non-British seamen, the Irish, should have been most prone to rebellion. In the eighteenth and early-nineteenth centuries, Ireland was forcefully subordinated under a brutal colonial regime. Co-ethnicity not only facilitated coordination, but the Irish were particularly disaffected and had a preexisting politicized group identity that made them, on average, primed for grievance interpretation. Ethnically diverse ships also might have lacked the organizational cohesion that made for obedient and satisfied crews (Costa and Kahn 2008).

*Hypothesis 3:* The greater the ethnic diversity of a ship's crew, the greater the odds of mutiny.

## GOVERNANCE, COMPLIANCE, AND CONFLICT IN THE ROYAL NAVY

Conditions onboard RN ships were notoriously hard. A standard warship of 74 guns (about 160 feet in length) bore up to 500 men, resulting in crowding, privation, and the risk of accident and disease. Officers were lords of the ship, and many infractions were punishable by summary flogging or by a blow from a knotted rope or cane. The quality and supply of food and drink often deteriorated during long voyages. Many seamen died from illness or shipwrecks. Seamen's pay was poor, and general rates had been set in the middle of the seventeenth century. Commanders frequently denied seamen customary shore-leave for fear they would abscond. During wartime, the Admiralty was compelled to rely on impressments to fill the ranks.

Naval labor relations have been painted in terms of naked exploitation and conflict (Frykman 2009; Neale 1985; Rediker 1987) and yet, although the ranks of officers were thin, rebellion was unusual and most seamen went about their duties most of the time. Why was rebellion so rare? Repression surely played its part. Historians characterize the sailing navy as an "authoritarian system based on the principles of dominance and domination" (Valle 1980:3). Naval law defined mutiny loosely and without regard to outcome, and it was punishable by death (Rodger 1982). Officers were armed and most ships carried a complement of marines providing extra security. Naval law, shipboard organization, and hierarchy thus combined to establish the dominance of commanders and the credibility of the threat of punishment for insubordination (Byrn 1989; Claver 1954).

Yet social order in the RN did not rest on repression alone. At the very least, the navy required a cadre of motivated and skilled men—not slaves—to sail the ship, ply its armament, and win battles. Obedience was premised on seamen's belief in the competence of the captain and his regard for their welfare (Lavery 1998). Whereas factory workers who evade their responsibilities may not suffer the consequences, shirking sailors endanger the welfare of all. Given the stakes, seamen preferred the maintenance of discipline and good order by a competent commander. Officers understood that morale was vital; they thus had to provide incentives for compliance, including the implicit commitment to safeguard seamen's interests and welfare (Rodger 1986, 2004).

The governance of a ship combined bureaucratic and patrimonial elements. Commanders held a non-purchasable royal commission, were installed by the Admiralty, and were subject to extensive regulations (Allen 2002). The RN sought to balance "political loyalty, social suitability and professional competence" in its officers (Rodger 2004:112). Patronage and privilege were not enough to secure a commission; every candidate was obliged to have spent several years at sea,

including one as a midshipman or master's mate, and pass a qualifying examination. This yielded an expectation among seamen that commanders would be competent in seamanship and navigation. Commanders had to keep careful records that were submitted to the Admiralty at the close of a mission. Their conduct was subject to review and the loss of their ship, for any reason, resulted in a compulsory court martial. The Admiralty tried to enact rules and incentives to discourage cruelty and arbitrary punishment (Byrn 1989; Claver 1954). Captains and masters maintained separate logs so that detailed records could be used to evaluate commanders. Officers could scarcely afford a bad reputation; there were always surplus post captains at the Admiralty's disposal who could replace them. Commanders themselves were required to recruit and retain the best seamen (Earle 1998). These measures yielded an expectation among seamen that officers would follow necessary regulations and customary procedures.

But this social order was fragile. For one thing, the RN failed to institutionalize the routine and effective use of voice by seamen. To make a complaint against officers, seamen had to submit a petition to these very same officers. Submitted petitions typically were disregarded, so this created an unintended incentive for mutiny. By necessity, naval authorities allowed commanders broad disciplinary discretion, and there was little direct regulation of summary punishment. As a result, seamen were sometimes treated very badly. Although tyrannical officers were the exception, flogging was poorly regulated and little was done officially to stop officers from flogging frequently and severely.

Another source of strain in the RN was the presence of many non-British seamen in the ranks—in particular Irishmen, who were heavily recruited and pressed. Although Ireland was ruled by the same king, British national identity excluded the Irish by dint of religion and colonialism (Colley 2003; Hechter 1998). Naval authorities were fearful that Irishmen were particularly prone to rebellion, but owing to shortages of maritime labor they

nevertheless comprised up to a fifth of the RN's total manpower (Frykman 2009).

Despite constituting about a third of the population of the British Isles, Irishmen comprised less than 12 percent of all commissioned officers of the RN—and these were only Protestants, as Catholics (at least 80 percent of the Irish population) were forbidden to hold a commission (Lewis 1960). Irish seamen were often poorly treated (Gill 1961). One advice manual counseled officers that when deciding upon summary punishment for disciplinary infractions, "if two men make complaints about each other, if one is known to be turbulent or an Irishman, flog him without further question and show the ship's company the value of a good character" (Pope 1981:250). Not surprisingly, officers commonly regarded Irishmen as troublemakers (Frykman 2009; Neale 1985). Irishmen's expectations concerning fair treatment must have been diminished.

Naval officers were at once all-powerful and extraordinarily constrained. At sea, their power had fewer effective limits than royal power ashore; this is especially conspicuous in a captain's power to inflict flogging at will. This system of command had enormous implications for the attribution of blame. By dint of their great power, captains were responsible for everything and liable to be the focus of a variety of incidental grievances.

Nevertheless, as deprived as seamen were, life aboard ship generally met their expectations in terms of compensation, conditions of service, and danger. Skilled and experienced seamen usually supported the status quo, siding with their officers against disorderly and incompetent men (Rodger 2004). Although today flogging is considered inhumane, seamen did not object to it in principle; rather, their ire resulted from its disproportionate application (Byrn 1989; Claver 1954; Lavery 2010; Pope 1981; Rodger 1986). Discipline was accepted so long as it was limited and directed to real troublemakers and shirkers. Most seamen did not spend an entire career in the navy; consequently, they could compare naval with merchant service. Whereas

discipline was more severe and pay lower in the RN than on civilian ships, the burden of work was lighter and food and drink were better regulated and more plentiful (Earle 1998). The experience of life at sea informed stable expectations that generally kept structural grievances—such as flogging—in check. But this equilibrium sometimes tipped toward rebellion.

## AN ANATOMY OF MUTINY IN THE ROYAL NAVY

Mutiny is an insurrection against the constituted order of a ship. The RN defined mutiny as any form of individual or collective defiance of command or any communication or planning to that effect. Historians have long recognized that the official definition lacks clarity (Gilbert 1983). We narrow our focus to mutinies that involved seizure of a ship by its crewmen, or a halt to a ship's operations by collective action because seamen wished to compel their commanders or the naval authorities to act in their interest. Full-fledged mutinies were rare and dangerous events. We identified 62 cases of mutiny meeting our definition during the period of study (details on sample selection given below).

In our sample, mutinies occurred on ships of all kinds, from ships-of-the-line to small armed vessels (the average mutinous ship in our sample was 1,000 tons, carrying about 295 men). Mutinies were not simply crimes of opportunity that occurred when a crew was remote from possible sanctions (e.g., the *Bounty*). The majority of our mutinies took place in the home waters of the British Isles, and most (about 65 percent) occurred in harbors and anchorages. They tended to happen on ships close to centers of naval authority. Mutinies occurred around the globe, including the Mediterranean (12 cases), the West Indies (7), Africa (4), North America (3), and in the East Indies and the Pacific (4). Nearly all (58) took place during wartime.

Our sample includes mutinies resembling armed strikes and work stoppages (45 cases), and also occasions when vessels were seized in

hopes of escaping RN service (17 cases). The evidence shows that, although audacious, mutineers' tactics generally were premised on the redress of grievances, and they achieved at least one of their stated goals in about half the cases. Mutineers often armed themselves, but they usually refrained from deadly violence because they sought to negotiate with naval authorities or wanted to avert lethal reprisals. Nevertheless, 25 mutinies (40 percent) did involve deadly conflict (more often initiated by the authorities than by the mutineers), and even when seamen refrained from violence and peacefully returned to duty, this did not indemnify them from trial and punishment. Hanging or severe corporal punishment (usually by hundreds of lashes) was inflicted on convicted mutineers in more than two-thirds of cases.

Our extensive collection of qualitative data on these mutinies, drawn from primary and secondary historical sources, allows us to dissect mutiny. Two general features characterize rebellion among RN seamen: the perception of grievances through the lens of "ill-usage," and the attainment of coordination through native leadership and commitment mechanisms.

### *Of Illness and Ill-Usage: The Understanding of Grievances*

Historians with very different orientations agree that at sea "the ship's company became an effective, efficient collectivity, bound together in skill, purpose, courage, and community" (Rediker 1987:134–35; see also Earle 1998; Lavery 2010; Neale 1985; Rodger 1986). All concur that sailors had a sense of collective identity, distinctive traditions, and belief in their rights and dignity (their "proper usage"). This occupational culture helped seamen assist one another and endure difficult conditions, but it also provided them with potent injustice frames. The forecabin, the portion of the ship reserved for their habitation, gave them the pockets of free space in which they could discuss their grievances and coordinate a response (Rao and Dutta 2012).

Certainly, seamen resented their low wages (general rates of pay remained unchanged from 1658 through 1797), the frequency of impressment, the indefinite periods of service during wartime, "starting" with blows from canes and ropes, and so on, but they seem rarely to have rebelled against these practices because they were considered to be the seaman's lot. Rather, particular incidents of poor governance sharpened and focused existing grievances.

Seamen strongly opposed what they called "ill-usage." Proper usage meant order, routine, and deference to customary practices that protected seamen from cruel and capricious treatment, allowed them their small comforts of regular food and grog, and ensured reasonable standards of health and welfare. Tyranny, overwork, and disregard for seamen's welfare all constituted ill-usage. For example, in 1799, seamen on the battleship *Impeteux* rioted and refused to go to sea until they could deliver a letter of grievances to Admiral Bridport. The letter reads, in part,

My Lord, we the Ship's Company of the *Impeteux* would wish to make known to your Lordship the usage we have received since Sir Edward Pellew commanded us is such we have never been used to in this war by any other Captain we have sailed under it is unacceptable. Sir Edward has punished different people in the ship to the amount of nine dozen and upwards for very frivolous crimes since we left Cawsand Bay [and] . . . we never deserved the barbarous usage we now experience at the hands of Sir Edward . . . and his humanity to the sick is little better than to the well.<sup>1</sup>

In framing ill-usage, brutality and contempt for seamen loomed large. On the *Beau-lieu* in 1797, mutiny was justified in terms of "ill-use" and cruelty, with mutineers especially condemning their officers for punishing them for trivial offenses.<sup>2</sup> A captain's reputation for ill-usage prompted an uprising on the *Blanche* before he could even assume his commission (Dann 1988:208–09). On the

*Ferret* in 1806, mutineers rebelled against "ill-usage," taking particular exception to a captain who excessively beat his crew.<sup>3</sup>

Ill-usage violated the seaman's understanding of what was morally and culturally appropriate. Thus, mutineers on the *Kingfisher* declared that "[m]en on this ship are treated like Turks and not as Christians."<sup>4</sup> Seamen frequently employed the concept of ill-usage to describe disregard for their health and welfare. At trial in 1764, mutineers on the *Panther* were able to prove ill-usage, including being served spoiled and irregular food, fatal neglect of sickened seamen, corruption, and delinquent wages.<sup>5</sup> A similar set of grievances was framed as ill-usage by seamen aboard the *Tremendous* at Table Bay in 1797 (Theal 1898:161–85). On the *Santa Monica* in 1781, mutineers cited a tyrannical captain, the irregular service of meals, the denial of grog, and the shortage of drinking water as proof of ill-usage.<sup>6</sup> On the *Culloden* in 1794, seamen mutinied because their ship, having been run aground, required more extensive repairs than their captain would pursue.<sup>7</sup>

In the minds of seamen, illness flourished with ill-usage, hence illness sharply increased grievances in a ship's company. The more seamen who were debilitated by illness, the more work had to be done by the remaining portion of the crew. Unchecked sickness was a lethal and immediate threat to the well-being of a ship's company. Authority could collapse when health was severely compromised, as on the *Wager* in 1741 (Pack 1964). Yellow fever overwhelmed officers' capacity to care for the sick on the *Camilla*, and seamen mutinied on the grounds that the epidemic had left the ship severely undermanned. Beyond the lethal threat of the illness itself, sickness created an undue burden on the survivors and increased the danger that the ship would founder if beset by a tropical squall.<sup>8</sup>

Captains were expected to be advocates for their men in dealings with naval authorities. The impending cessation of hostilities increased grievances because seamen were eager to be released after long mandatory terms of service. A delay in mustering out



**Table 1.** Primary and Secondary Motives Cited in 62 Cases of Mutiny

Motive	1st Cited	2nd Cited	Total (%)
Cruelty/Excessive Discipline	15	10	25 (27%)
Wage Issues	13	2	15 (16%)
Victuals: Food/Water/Spirits	8	4	12 (13%)
Violation of Naval Customs	4	6	10 (11%)
Denial of Shore-Leave	4	4	8 (9%)
Impressments	5	2	7 (7%)
Safety of Ship/Competence of Command	5	2	7 (7%)
Service in Foreign Waters	4	2	6 (6%)
Demand for Dismissal from Service	0	2	2 (2%)
Piracy	2	0	2 (2%)
			Total = 94

Source: Documentation found in the Admiralty papers, National Archives (UK), Public Records Office (TNA: PRO ADM).

meant skilled seamen might not find a berth in a merchant ship. In addition, seamen were angered because wages were frequently in arrears as hostilities ended. Captains who failed to secure their release, payment of wages, or prize-monies thus violated an implicit pact between a commander and his followers.

Content analysis of the thousands of pages of official documents, court-martial transcripts, and witness accounts assembled for this study reveal that both structural and incidental grievances were implicated in mutiny (see Table 1). Governance failures loomed large, with seamen citing shortages of food and water and spoiled rations (often linked to illness), and commanders violating accustomed naval conventions and failing to address their concerns about the safety or navigational competence following an accident. Incidents like these were not understood in isolation and appear to have aggravated existing structural grievances; over 40 percent of all primary and secondary motives given for a mutiny cite excessive discipline or wage issues. However, mutineers rarely claimed to be motivated by other sources of structural deprivation usually regarded as causes of mutiny, such as impressments, service in foreign waters, and long periods of obligatory service. Whereas all of these seem especially grievous and were frequently

lamented by the contemporary British public, they may have been taken-for-granted hardships deemed inescapable.

### *One and All: Coordination and Credible Commitments among Seamen*

If seamen were most likely to rebel when grievances violated their expectations about proper usage, how did they manage to act collectively? Given our expectations about the causal linkage between grievances and mobilization, if severe, widely shared grievances were imposed on seamen, then the initial hurdle in organizing a mutiny consists not of overcoming free riding but in attaining credible commitments to rebel (Hardin 1982; Taylor 1997).

There was little anonymity aboard a ship; seamen were reasonably well informed about one another, facilitating monitoring behavior and assessing loyalties. The confidence that one's shipmates were reliable allowed would-be mutineers to overcome free riding, making coordination the greater hurdle to collective action (Hechter 1987; Lichbach 1995). Coordination, in turn, grew out of the capacity of some seamen to provide leadership, and some mechanism by which shipmates made credible commitments to support a prospective mutiny.

Formal organizations and associations did not propel mutinies (Pfaff, Hechter, and Corcoran forthcoming) or other protests in this era (Calhoun 1982). Historical accounts are united in depicting a maritime world knit by bonds of interdependence and shared occupational culture (Earle 1998; Lavery 2010; Rediker 1987).

Documents reveal that when grievances mounted and command was perceived as incompetent or ineffective, seamen turned to experienced shipmates accustomed to providing everyday leadership. In our sample of the 199 men described by the authorities as “ring-leaders” and “principal” mutineers, about 30 percent were petty officers (who constituted just 13 percent of mutinous ships’ companies) and another 50 percent were able seamen (about 35 percent of mutinous ships’ companies). Experience and reputation conferred authority. As a key intermediate group, these seamen were vital to the maintenance of order and the genesis of mutiny (Lavery 1998).

Coordination also grew from the seamen’s own institutional innovations. Seamen developed two important commitment mechanisms (Schelling 1960): round-robin circular letters and the swearing of illegal oaths that facilitated mobilization by making commitments credible. Both practices created expectations that an adequate number of seamen would seize a ship (Heckathorn 1996). Although seamen had clear incentives to conceal conspiratorial activities after the collapse of a mutiny or after their arrest, protest letters and collective oaths occurred in more than half of our cases of mutiny, and they probably were clandestine in many others.

Protest letters stated the crew’s grievances and demands. Signatures provided leaders with information about how many and which of their comrades supported a prospective mutiny, and taking part invited a reputational investment in the endeavor (Chong 1991). Round robin letters (Leeson 2010), in which signatures were written radially, were an astute innovation to overcome the first-mover problem resulting from naval authorities’ tendency to prosecute “ringleaders” more zealously than mere followers (Gilbert

1983). Signatures were especially binding for a seaman, because he had to comply or explicitly break his commitment to his peers, thereby sullying his reputation.

Oath-taking, which was strictly forbidden and subject to hanging, was another coordination mechanism that reoccurred in our cases. The severity of naval sanctions enhanced the credibility of commitments by deterring defection from the cause. If seamen might be hanged for swearing an oath, defecting from a planned mutiny also posed substantial danger. In circumstances like these, indiscriminate retaliation by the authorities alters the logic of collective action, such that participation entails no collective action problem but non-participation does. On the *Culloden*, as many seamen as possible were sworn and a ring-leader declared, so as to deter “skulkers” from refusing to take sides. When the mutiny was staged, the great majority took part in seizing the ship and holding it for several days. At trial, seamen remained willing to stand by their oaths, even enduring punishment for withholding evidence.<sup>9</sup> That oaths would contain opportunism by achieving a norm of “one and all” was a common refrain in the mutinies we studied. A petty officer who helped plan the mutiny on the *Ferret* explained that without an oath, “we would not be able to stick to one another.”<sup>10</sup> Oath-takers had an incentive to uphold the mutiny in the hope it would prevail, and they would either escape the navy’s clutches or be offered amnesty as a result of successful negotiations.

The qualitative evidence is broadly supportive of our hypotheses concerning the importance of grievances and diversity among seamen in generating mutinies. However, the odds of mutiny might also have been influenced by social structural and contextual factors, such as ties among seamen, and periods of military mobilization that may have increased strains on officers and seamen alike. The odds of mutiny might also have been greater when seamen perceived an opportunity to rebel, win concessions, or escape punishment. To evaluate these possibilities, we now turn to multivariate analysis of mutiny in a larger-*N* study.

## A CASE-CONTROL ANALYSIS OF MUTINY

We test our explanation by analyzing ships that experienced mutiny and a larger set of randomly selected non-mutinous control cases. Because standard techniques for drawing samples and estimating probability do not efficiently handle the analysis of rare events (King and Zeng 2001), we used case-control methods for obtaining a retrospective sample. These methods are efficient with respect to sample size and provide analytic leverage that would be absent otherwise (Gail et al. 1976; Armenian 1994; Lasky and Stolley 1994; Newman 2001; Schlesselman 1982). Like epidemiologists analyzing a rare disease, we searched for factors that increase the risk that any given ship is predisposed to belonging in the case rather than the control group. Use of this method is growing in the social sciences, including in the study of rebellion (Goldstone et al. 2010).

We assembled a reliable set of completed mutinies from authoritative sources. Our sample includes all cases in which seamen fully halted the normal operations of the vessel (either by seizing it or by refusing to perform their duties) that we could identify in historical accounts (Gossett 1986; Haine 1992; Hepper 1994; Lyon 1993; Rodger 2004) and in an official Admiralty register of mutinies. Although we may not have captured every mutiny, our method does not require it. One of the obstacles confronting the systematic study of rebellions like mutiny is possible underreporting (Lammers 2003; Rodger 2004). Nevertheless, there are good reasons to suppose that many cases of full-fledged mutiny did not escape notice. Captains and masters kept separate logs of daily events, and the Admiralty was keen to have information about unrest. Because of the possibility of selective prosecution, we did not confine ourselves to court-martial transcripts; our sources also include official documents, correspondence, diaries, and memoirs. Our sample excludes ships taking part in the fleet-wide mutinies of 1797 at Spithead and the Nore, as those cases were not independent. In a separate article, we analyzed the dynamics driving

participation in those events (Pfaff et al. forthcoming).<sup>11</sup> For ships experiencing a mutiny, the relevant ship-year begins one year prior to the date of the mutiny event.

To select the control group, we drew a population-based sample from the risk-set of ship-years selected at random (without replacement) from the entire list of RN ships active during the period 1740 to 1820. Our sampling frame is Lyon's (1993) *Sailing Navy List*. This contains every ship (about 4,400 in total) and its years of service, permitting us to condition a ship's chance of being selected on the number of years it was in service. We sampled *ship-years*: each potential control appears as a particular ship in a particular year (e.g., *Crescent*-1805). A ship-year is defined as the period one year prior to the occurrence of mutiny in a positive case and a given calendar year in a control case. Limiting the observation to one year thus provides a conservative estimate of the effect of incidents. Theoretically, incidents that occurred far in the past are not expected to trigger contemporary incidental grievances.

Aiming to achieve a 4 to 1 ratio of controls to positive cases, we selected 284 ship-years from the resulting list of all valid ship-years. However, archival records proved too incomplete to allow reliable coding for 104 of these ship-years, resulting in a sample of 179 ship-years (a 63 percent response rate) in our control group. Although this introduces the possibility of a biased sample because records of smaller ships might be less likely to be preserved than those of large, important warships, the resulting sample does not appear to be biased. Our controls have an average rating of 5.43 (on a scale of 1 to 7 by class of ship) and weigh an average of 710 tons; the selected ships whose records were missing/incomplete have an average rating of 5.48 and a weight of 699 tons. The two groups are indistinguishable by class and size of ship, suggesting that absent records are missing at random.

### *Data Sources and Variables*

The primary data for this study were obtained from documents collected in the Admiralty

**Table 2.** Mutiny Covariates Used in the Analysis

Variable	Mean	Median	SD	Interpretation	Expectation on Odds of Mutiny
Percent Irish	.13	.11	.07	Social structural	+
Rank Heterogeneity	1.65	1.76	.96	Social structural	+
Percent Prior Service	.31	.22	.03	Social structural	+
Marines	.15	.16	.02	Opportunity	-
Fleet or Squadron	.51		.03	Opportunity	-
Inflation-Adjusted Wages	353.67	335.36	47.49	Structural grievance	-
Crowding	28.56	26.00	24.64	Structural grievance	+
Percent Impressed	.07	.033	.02	Structural grievance	+
Foreign Deployment	.67		.03	Structural grievance	+
Per Capita Flogging Rate	2.99	1.72	3.90	Structural grievance	+
Percent Sick	.03	.0068	.01	Incidental grievance	+
Reduction in Rations	.09		.02	Incidental grievance	+
Accidents at Sea	.12		.02	Incidental grievance	+
Last Year of War	.12		.02	Incidental grievance	+
Years at War	4.69	4.00	2.93	Contextual variable	+
Wartime	.90		.02	Contextual variable	+

files of the Public Records Office deposited at the British National Archives (TNA: PRO ADM). We coded the variables listed in Table 2 through the systematic evaluation of the following:

1. *Captains' logs and masters' logs* containing daily entries for location, ship-board occurrences, accidents, provisions, disciplinary actions, and so on. These logs provide redundant information that reduces the hazards of reporting bias and missing data.
2. *Muster books* containing information about all the individuals aboard a ship for each voyage, including surname, place of birth, volunteer or impress, previous ship served (if any), rank, sickness, and nature of discharge. Musters were updated weekly. For ships experiencing mutiny, we coded the last muster taken before the date of mutiny. For control cases, we coded the muster taken in the middle of the month of June.
3. *Courts-martial records* detailing prosecution of mutiny or inquiry into the loss of a ship. These records are verbatim trial transcripts, including witness testimony, depositions, and verdicts.

4. *Physical characteristics* as provided by Lyon (1993) for all RN ships.

The dependent variable is measured as 0 or 1 depending on whether we could document a mutiny meeting our definition aboard that ship during a given year.

#### *Indicators of Incidental Grievances*

*Percent sick* is measured as the proportion of the ship's company reported as "sick" in the muster book. The sick were judged incapacitated for service by the ship's surgeon; hence this probably provides a conservative estimate that does not indicate malingering or trivial complaints. Mortality would be of obvious interest, but it cannot be reliably measured, because the seriously ill were often transferred to naval hospitals or other sites prior to their death.

*Reduced rations* measures whether a ship's crew had been placed on reduced or restricted rations of food or drink by a ship's commander for a period greater than one day over the course of a relevant ship-year, as reported in ships' logs. Seamen generally received less than their statutory rations because of shortages or spoilage of provisions.

*Sailing accident* measures whether ships' logs reported an accident that endangered the operation of the ship or the crew (e.g., grounding, a collision, a lost mast, or a drowning) over the course of a relevant ship-year. By custom as well as naval law, a ship's commander was considered responsible for all failures of navigation and ship-handling.

*Last year of a war* measures whether a relevant ship-year was during the disruptive period of demobilization of fleets at the conclusion of Britain's wars. Seamen tended to blame officers for delays in mustering out and receiving their back pay. The wars in our period of study are the Austrian Succession (1740 to 1748), the Seven Years War (1756 to 1763), the American War of Independence (1775 to 1783), and the wars of the French Revolution (1793 to 1802) ending with the Treaty of Amiens, followed shortly by the Napoleonic Wars (1803 to 1815).

### *Indicators of Structural Grievances*

We measure *punishment* as a per capita rate of floggings for each of our cases and controls by taking the total number of lashes inflicted on a crew over the course of a given ship-year and dividing it by the number of seamen in the ship's company. Punishment reports were missing for 22 ships; to ensure missing data have not biased our estimates, we attributed missing values by multiple imputations in our final model.

We measure *crowding* by dividing a ship's company as reported in the muster book by the ship's total tonnage as reported by Lyon (1993).

*Inflation-adjusted wages* is a dynamic measure of the value of seamen's wages; we adjusted the nominal monthly wage of an able seaman by the previous year's change in the buying power of the pound (consumer price index). Inflation could substantially erode the value of a seaman's wages, which were not regularly adjusted and remained basically fixed at seventeenth-century levels until a general wage increase was granted by Parliament in 1797 and again in 1807. The monthly wage of an able seaman was 320 pence until 1797, when wages increased to 354 pence.

Wages rose to 402 pence in 1807. The historical CPI data for Britain from 1750 is reported in Twigger (1999). For the preceding years we use the London grain price as a proxy. Rodger (2004) reports wage levels.

*Impressments* are the share of a ship's company reported as being pressed into service as recorded in ships' muster books. If an entry read "see former books," we matched the members of our mustered company to the last preceding book that noted recruitment.

*Foreign station* is a variable measuring whether a ship served in foreign waters for all or part of a relevant ship-year, as reported in ships' logs. Foreign deployments were typically lengthier, more dangerous, and more arduous than local deployments. For coding purposes, foreign stations include operations anywhere outside the English Channel, the eastern North Atlantic (excluding the Americas), and the North and Baltic Seas.

In addition to our grievance measures, we include variables that measure the social-structural characteristics of ships, and variables that might have influenced the opportunity for and context of mutiny. Table 2 provides summary statistics for the variables included in the model.

### *Social Structural Indicators*

*Irish* is the proportion of seamen born in Ireland. In cases in which place of birth was not reported in the muster book, it is inferred from the seaman's last name based on Neafsey's (2002) surname dictionary. In the event that a surname's origin is indeterminate ethnically (e.g., the surname Green), we coded the name as English. Inferring ethnicity from surnames has been used in other studies of military organization (see, e.g., Costa and Kahn 2008). Other non-British seamen were in RN ships, but they were generally a small proportion of the ship's company.

*Prior service* is the share of the ship's company reported as having served with at least one other seaman on another ship prior to transfer to the current vessel. If the entry read "see former books," we matched the members of our mustered company to the last preceding

book that noted recruitment. Our measure is a proxy for social network structures, as these social ties may have facilitated participation in mutiny (Diani and McAdam 2003).

*Rank heterogeneity* measures the stratification of the ship by rank and qualities as reported in muster books and calculated according to a Shannon entropy measure. We calculated the score for each ship's company using the following groups by rank/quality: officers, warrant officers, petty officers, able seamen, ordinary seaman, landsmen, marines, and other (e.g., servants). Lower scores indicate less rank diversity.

### Opportunity Variables

*Marines* is the share of a ship's company composed of marine soldiers, if any, as reported in ships' muster books. Marines were supposed to engage the enemy in battle and serve as an onboard security force.

*Fleet or detached service* is a variable measuring whether a ship was assigned to a fleet or squadron or engaged in detached service over the course of a relevant ship-year as reported in ships' logs.

### Contextual Variables

*Wartime* is a variable measuring whether Britain was at war during a given ship-year. The danger of mutiny could have been greater during wartime. *Number of years at war* is a continuous variable measuring the number of years Britain had been at war in a given ship-year. Long periods of uninterrupted warfare could have increased burdens on seamen, increased tensions and fatigue, and made the command of warships harder. For each ship-year, we calculated the corresponding number of years of hostilities in which the RN was engaged.<sup>12</sup>

## FINDINGS

Given a dichotomous dependent measure, we estimated logistic regression models (Long 1997). Table 3 reports model coefficients and measures of fit. In Model 1, we regress several social structural variables as proxies for

the social heterogeneity among seamen expected to increase their capacity to coordinate collective action. Only the share of a ship's company that is Irish is positively and significantly associated with the risk of mutiny. In Model 2, we add variables as proxies for opportunities that could have increased the odds of mutiny by increasing its perceived efficacy or lowering expected costs. Although the presence of marines did not deter mutiny, ships that were part of a fleet or squadron had significantly greater odds of mutiny than did solitary ships. This finding concurs with the qualitative evidence that seamen often seized ships to negotiate with senior naval authorities to redress their grievances.

In Model 3, we include proxies for structural grievances. Many of the factors usually considered to be onerous to seamen—impressments, crowding, and foreign deployments—are not significantly associated with mutiny. However, the value of inflation-adjusted wages significantly decreased the odds of mutiny, and high per capita flogging rates significantly increased the odds. These associations are consistent with the qualitative evidence, which shows that rebellious seamen frequently cited low wages and excessive discipline as motivating grievances.<sup>13</sup>

Model 4 includes proxies for incidental grievances. All the indicators of incidental grievances are positively and significantly associated with the odds of mutiny. Whereas reduced rations, seafaring accidents, and the last year of a war are all highly significant predictors of mutiny, the association between mutiny and sickness is especially strong. Contextual variables related to the pressures of warfare and the duration of conflicts included in Model 5 are not significantly associated with the risk of mutiny.<sup>14</sup>

In Model 6, we add terms to explore possible interaction and nonlinear effects. Although we see no significant interaction effects between classes of grievances, we do find an interaction between the share of Irishmen in a ship's crew and the share of the crew that had previously served together.<sup>15</sup> More specifically, when holding all other variables in the model at their means, on a ship with a

**Table 3.** Logistic Regression Models Predicting Mutiny

	Social Structural	Opportunity	Structural Grievance	Incidental Grievance	Contextual Variable	Interaction Terms
Percent Irish	5.730** (2.040)	5.578** (2.126)	6.438** (2.310)	7.756** (2.695)	7.680** (2.716)	15.938*** (4.655)
Percent Prior Service	.093 (.563)	-.047 (.578)	-.577 (.700)	-1.119 (.816)	-1.137 (.818)	2.226 (1.682)
Rank Heterogeneity	-.465 (.359)	-.398 (.417)	-.300 (.332)	-.137 (.274)	-.120 (.274)	-.101 (.294)
Share Marines		-1.628 (1.756)	-.553 (1.982)	.411 (2.153)	.416 (2.164)	-.157 (2.296)
Fleet or Squadron		1.159*** (.330)	1.575*** (.396)	1.804*** (.469)	1.789*** (.483)	1.785*** (.492)
Inflation Adjusted Wage			-.012* (.005)	-.014* (.006)	-.014* (.006)	-.013* (.006)
Population Density			.017 (.013)	.012 (.013)	.011 (.012)	.012 (.012)
Percent Impressed			.234 (1.653)	.683 (1.833)	.745 (1.839)	1.907 (2.222)
Foreign Deployment			-.319 (.373)	-.802 (.447)	-.814 (.449)	-.717 (.462)
Per Capita Floggings			.117* (.053)	.172** (.060)	.173** (.061)	-.216 (.196)
Percent Sick				20.917*** (5.400)	20.858*** (5.382)	19.484*** (5.405)
Reduction in Rations				2.004** (.676)	2.034** (.682)	2.017** (.687)
Accidents at Sea				1.654** (.614)	1.640** (.620)	1.800** (.641)
Last Year at War				1.751** (.661)	1.916* (.817)	1.776* (.873)
Years at War					-.040 (.105)	.021 (.113)
Wartime					.344 (.819)	-.159 (.850)
Per Capita Flogging <sup>2</sup>						.022 (.012)
Percent Irish × Percent Prior Service						-21.802* (9.848)
Intercept	-1.070 (.621)	-1.556* (.661)	1.244 (1.706)	.567 (1.917)	.348 (1.999)	-.213 (2.070)
AIC	270.651	260.911	229.964	194.448	198.228	192.547
Log Likelihood	-131.325	-124.455	-103.982	-82.224	-82.114	-77.273
LR Test( $X^2$ )	10.977*	13.740**	12.495*	43.378***	.220	9.681**
N	239	239	220	219	219	219

Note: Likelihood ratio tests for significance of interaction effects were  $X^2 = 3.521, p = .061$  for percent Irish x percent prior service and  $X^2 = 4.897, p = .027$  for per capita flogging<sup>2</sup> (both tests single tailed). \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (two-tailed tests).

mean level of sailors who previously served together, increasing the proportion of Irish seamen one standard deviation above the mean is associated with an 8.1 percent increase in the probability of mutiny.<sup>16</sup> On ships one standard deviation below the mean level of sailors previously serving together, the same change in the proportion of Irish seamen is associated with a 15 percent increase in the probability of mutiny. Finally, on ships one standard deviation above the mean level of sailors previously serving together, the same change in proportion of Irish seamen is associated with only a 3 percent increase in the probability of mutiny.

This sheds light on an interesting issue of wider scope than our study. Our findings suggest that well-integrated crews were less prone to mutiny than poorly integrated ones. Ships with high shares of Irishmen and seamen who were not closely tied to one another through previous experience were at greater risk of mutiny. Research generally emphasizes how social capital enhances the capacity of protest groups to engage in collective action (Kitts 2000), but our finding points to a different relationship—one related to the problem of command. On ships with less integrated crews, captains probably found it harder to perform well and provide accustomed levels of security and welfare. Previous studies have also found that military unit cohesion is enhanced by ethnic similarity and longstanding ties (Costa and Kahn 2008; Shils and Janowitz 1948).

Consistent with our argument that structural grievances motivate rebellion when experienced at higher magnitudes that violate expectations about proper treatment, there is a non-monotonic effect of flogging on the probability of mutiny. Analysis of a semi-parametric regression model replacing the traditional parametric estimate with a smoothing spline for per capita flogging supports our expectation of an increasingly positive effect on the probability of mutiny at successively higher levels. Model 6 includes a squared term for per capita flogging that significantly improves the fit of the model ( $X^2 = 4.90$ ,  $p = .027$ ). Because flogging was an expected part of

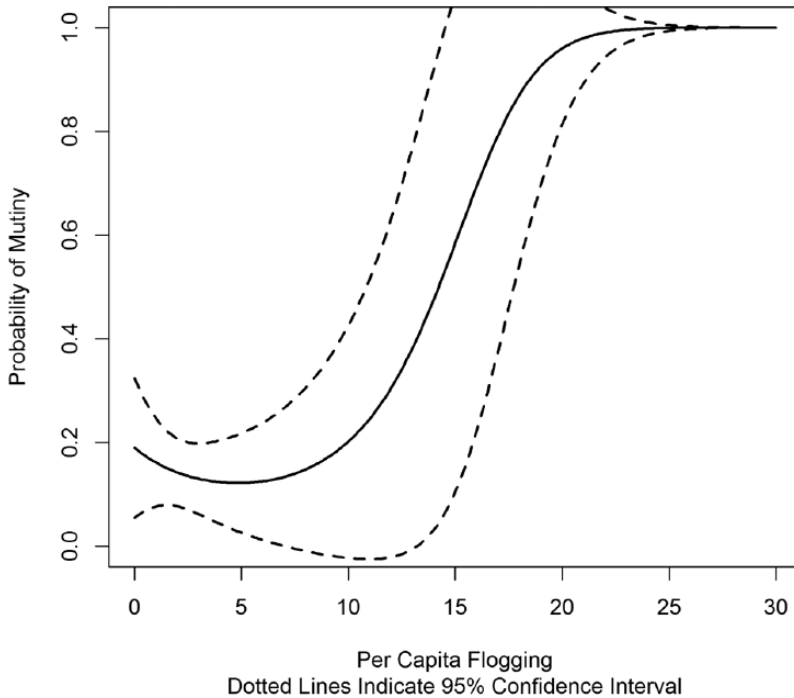
maintaining order at sea, at very low levels increasing flogging decreases the probability of mutiny. Holding all other variables in the final model at their means, increasing the instances of flogging per capita from 0 to 3 reduces the probability of mutiny by 5.9 percent. Near the mean levels of per capita flogging (2.99), the effect of a one-unit increase in flogging is essentially zero. Seamen expected discipline and tolerated moderate levels of flogging. However, at one standard deviation above average flogging levels (approximately seven floggings per capita), the effect is positive: for instance, going from seven to eight per capita floggings raises the probability of mutiny by 1.5 percent. The effect continuously increases: at two standard deviations above average (approximately 11 floggings), increasing per capita flogging by one point raises the expected probability of mutiny by 5.9 percent. At three standard deviations above average, raising per capita flogging by one point (from 15 to 16) increases the probability of mutiny by 10.9 percent. Figure 1 graphically illustrates this relationship, displaying the estimated probability of mutiny across a range of hypothetical values of per capita flogging, with all other predictors in the model held at their respective means.

Because there are missing data for some ships on some variables, we also estimate a final grievance model using multiple imputations. After checking that data were missing at random, we used the Multivariate Imputation with Chained Equations approach, because it allows for separate probability models to be used in the imputation of different missing variables and utilizes the full likelihood for estimation (Van Buuren and Oudshoorn 1999). The results of the analysis are reported in Table 4 and are nearly identical to those reported in Model 5, indicating that our findings are not biased by missing data.

## DISCUSSION

This article presents strong evidence for the causal role of grievances in high-risk collective action. Unlike many studies of rebellion that treat grievances as a constant or use a





**Figure 1.** Simulated Probability of Mutiny by Per Capita Rate of Flogging

single indicator, we used multiple indicators of structural and incidental grievances. Unlike all previous comparative studies of mutiny, we used case-control methods to draw the sample, systematically including positive occurrences of mutinies as well as controls.

The main finding is the support for our structural and incidental grievance hypotheses. Wage and punishment grievances were important factors in generating the demand for mutiny, a pattern also conspicuous in the qualitative data. This accords with most intuitive understandings of rebellion and reinforces the claim that models of collective action and contentious politics should not minimize the causal role of grievances.

Structural grievances raise the odds of mutiny. In particular, wage depreciation and severe flogging increase the baseline propensity of seamen to mutiny by violating expectations about their treatment. More broadly, our theory contends that the disadvantaged tend to tolerate structural grievances so long as they remain at routine and predictable levels. Our findings concerning rates of flogging

are consistent with this argument. Seamen tolerated flogging so long as it was fair and necessary for the maintenance of order. When the rate of flogging grew too high, it was perceived as cruel, arbitrary, and indiscriminate. Moreover, because flogging was imposed by captains as discretionary summary punishment, excessive flogging called their authority into question, whereas other structural grievances (e.g., wage levels) could less readily be laid at the captain's door.

It is instructive to compare the combined effects of structural and incidental grievances. Comparing Model 3 to previous models, the set of structural grievance variables improves the model's predictive ability. Adding incidental grievance indicators improves predictive ability. Consistent with Hypothesis 2, all our measures of incidental grievances achieve statistical significance in the expected directions. Adding them to a model already containing structural grievances provides a further jump in explanatory power, particularly as a result of the strong association between sickness and mutiny.

**Table 4.** Final Model with Imputation

	$\hat{\beta}$	Number Missing	F.M.I.
Percent Irish	15.740*** (4.165)	0	.025
Percent Prior Service	2.875* (1.370)	2	.022
Rank Heterogeneity	-.129 (.297)	0	.013
Share Marines	-.625 (2.063)	0	.017
Fleet or Squadron	1.274** (.425)	0	.014
Inflation Adjusted Wage	-.009 (.005)	0	.043
Population Density	.012 (.009)	0	.010
Percent Impressed	2.533 (1.833)	1	.031
Foreign Deployment	-.742 (.418)	0	.024
Per Capita Floggings	-.125 (.177)	21	.208
Percent Sick	12.862** (4.042)	2	.020
Reduction in Rations	1.608** (.588)	0	.011
Accidents at Sea	1.723** (.531)	0	.012
Last Year at War	1.330 (.725)	0	.039
Years at War	.030 (.102)	0	.027
Wartime	-.092 (.797)	0	.020
Percent Irish $\times$ Percent Prior Service	-21.879** (8.159)		.024
Per Capita Flogging <sup>2</sup>	.015 (.010)		.150
Intercept	-1.527 (1.881)		.040

*Note:* Number missing refers to number of missing values for each covariate. F.M.I. is fraction of missing information and indicates what proportion of information used to estimate each coefficient was imputed.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (two-tailed tests).

Our findings clearly implicate the problem of authority. The target of a given grievance appears to matter for the propensity to mutiny. The genesis of mutiny is most likely in the temporal conjunction of existing structural grievances and incidents of poor governance

that could be framed as ill-usage. As the qualitative evidence indicates, incidental grievances trigger rebellion by connecting proximate discontents with a long chain of previously tolerated structural grievances (Beissinger 2011; Horowitz 2001). This

modified interpretation of the causal role of grievances can shed light on the outbreak of rebellion in a variety of settings, from prisons to authoritarian states, to ethnically divided societies in which incidental grievances boost the capacity of previously aggrieved populations to mobilize (Bates 2008; Cederman et al. 2013; Goodwin 2001; Pfaff 2006; Useem and Goldstone 2002; Useem and Kimball 1989).

We also find support for Hypothesis 3. Ethnic diversity is significantly associated with mutiny. As a consequence of their experiences on land as well as at sea, Irishmen were more prone to a grievance interpretation than their British counterparts, and they had weaker loyalty to the Crown to boot. Given the advantages of co-ethnicity for coordination and, on average, their greater preference for rebellion, Irishmen helped constitute a critical mass. RN commanders found that achieving social order was more difficult in the context of ethnic heterogeneity and weak social capital among subordinates unable to regulate themselves.

The proportion of the crew coded as “sick” is the most important predictor of mutiny. Sickness and its attendant threats exemplify the dilemma facing commanders. Compared with disease, battle was infrequent and a comparatively trivial cause of death (Earle 1998; Rodger 2004). During the Seven Years War, the RN lost more than 100,000 men to disease, whereas somewhat fewer than 200 were killed in combat (Allen 2002). Between 1793 and 1815, 82 percent of RN mortality resulted from disease—versus just 2.1 percent from battle (Pope 1981). Annual mortality rates in the RN could approach 15 percent as a consequence of disease outbreaks (Dull 2009; Gill 1961; Rodger 2004). Were unchecked sickness to threaten the lives of the crew, the potential costs of engaging in mutiny might seem small compared with inaction.

The association between sickness and mutiny occurs far below the level of general debilitation. The rate of sickness aboard mutinous ships was, on average, about three times greater than in controls, with the risk of mutiny increasing sharply after sickness crossed the 10 percent threshold of a ship’s company. An outbreak of sickness that

severely affected a tenth or more of a ship’s company would have been highly destabilizing, both by creating anxiety among seamen and by imposing a daunting test of a commander’s abilities. Although one could argue that sickness is operating through an opportunity mechanism, officers were not prone to a higher rate of sickness than seamen. Rather, widespread sickness and unchecked contagion operated primarily on the demand side by increasing grievances among seamen.

If sickness were seen as inevitable and invariable across ships in similar circumstances, it would be surprising that it motivated mutiny. However, keeping seamen healthy and avoiding the spread of infectious disease were challenges that naval authorities could meet. For instance, Horatio Nelson was a scrupulous administrator who ensured the ships under his command were sanitary and well-supplied with fresh foods (Rodger 2004). Health maintained shipboard order, and the remarkable operational effectiveness of the RN came about, in large part, because commanders generally worked hard to avert health crises (Bowden-Dan 2004; MacDonald 2006). By contrast, the health and welfare of seamen in the French, Spanish, and Dutch navies were far worse, as was the problem of mutiny (Dull 2009; Frykman 2009). The health of a population is a major challenge for effective governance, and future research should explore the link between health and social order in other settings.

This study presents a corrective to prevailing ideas about mutiny. Mutinies were not simply crimes of opportunity. Rather, mutinies occurred in all settings and were especially likely where seamen thought they could get redress of grievances from senior naval authorities. Some historians maintain that the risk of mutiny increased from the 1790s on because of the diffusion of revolutionary ideologies and the “proletarianization” of seamen (Frykman 2009, 2010; Neale 1985; Rediker 1987), but our findings call this conclusion into question. Although the absolute number of mutinies increased during the 1790s, so too did the number of ships in the population at risk. In exploratory analysis, we

found no association between year and risk of mutiny net of controls. If the risk of mutiny increased over time, it did so because of the amplification of structural and incidental grievances, not because of a period effect or widespread ideological diffusion. Undoubtedly some seamen were influenced by revolutionary ideas, but in the 1790s, grievances appear to have intensified and ethnic heterogeneity increased in ways captured in our measures (Pfaff et al. forthcoming).

### *Limitations of the Study*

Are eighteenth- and nineteenth-century mutinies an exceptional type of insurgency? It is well-known that premodern forms of collective action differed from modern forms (Rudé 1964). Whereas premodern collective action tended to be localized, reactive, and small-scale (Tilly 1984), modern movements are national and large-scale. Does this limit this study's generalizability? Not necessarily. Although most collective action prior to the late-eighteenth century was local in nature, this was not the case for war-connected struggles such as mutiny, which confronted state authority and had national implications (Tilly 1993).

Mutinies are distinctive in at least three ways. Evidently, *shipboard social structure* provided some advantages for seamen's collective action. Seamen shared an occupational culture, social segregation, and a community of fate—all circumstances shown to facilitate coordination (Gould 1995; Kerr and Siegal 1954; Tilly 1978). If members of subordinate groups have common grievances and an elementary capacity to coordinate, they can mobilize in response to incidents that heighten collective identification and perceptions of injustice. In oppressed, deprived populations, loosely structured groups are likely to emerge as vehicles of mobilization (Pfaff 1996).

But in other respects, seamen face greater obstacles to collective action than many other kinds of insurgents. Mutineers, who serve alongside officers in relatively small ships in which there is no anonymity, are much more *visible* than most other insurgents. Insurgency is aided when individuals are difficult for authorities to

observe; for example, civil wars are more likely to occur in mountainous terrain than in lowlands (Fearon and Laitin 2003). Mobility is extremely restricted onboard ship, however, and the authorities are cheek by jowl with the seamen.

Finally, unlike most other insurgents, mutineers cannot profit from *selective recruitment*. Mutiny occurs among a set of individuals who are selected by the RN rather than by the insurgents themselves. Save in limited instances—conspiracies to seize ships and turn them over to the enemy—mutineers cannot exclude loyalist seamen opposed to insurgency, and hence they must involve others who have widely varying dispositions. This constraint undercuts insurgent solidarity. These last two features also hold for slave rebellions and prison riots, among other kinds of insurrections (Carrabine 2005; Goldstone and Useem 1999; Useem and Kimball 1989). On balance, mutinies are probably more difficult to mount than most other kinds of collective action.<sup>17</sup>

Our model allows for a substantial element of contingency in the episodes generating grievances while avoiding case-specific and ad hoc explanations. We can specify the factors that ought to increase the risk of mutiny, but we cannot predict when incidents that can be ascribed to poor governance will occur. Another limitation is that the causal interpretation of grievances is based partly on individual-level mechanisms. Although our qualitative data provide insight into subjective understandings and the motives of seamen, and these mechanisms have been demonstrated in a host of psychological studies, our unit of analysis is the ship's crew.

Perhaps officers were not the true cause of seamen's grievances (e.g., officers may not have been responsible for the outbreak of disease aboard a ship, spoiled provisions, or running aground) and thus should not have been blamed by seamen. However, what matters for the genesis of rebellion is the *belief* that commanders cause losses, not the reality. Cognitive bias should be influential precisely in situations in which actors seek to make a causal attribution of blame but lack sufficient information (e.g., on the scientific etiology of disease) to determine the objective truth (Kahneman 2011).

## CONCLUSIONS AND IMPLICATIONS

William Bligh, commander of *H.M.S. Bounty*, published an account of the famous mutiny on his ship. Bligh ([1792] 1962:140) wrote, "It will very naturally be asked, what could be the reason for such a revolt?" He argued that, led by the vain and unsteady officer Fletcher Christian, and besotted by "female connexions" made during several months on Tahiti, the mutineers "flattered themselves with the hopes of a more happy life among the Otaheiteans, than they could possibly enjoy in England" (p. 140). His readers may have assumed the mutineers were driven by the strongest of grievances. But Bligh assured them otherwise: "Had their mutiny been occasioned by any grievances, either real or imaginary, I must have discovered symptoms of their discontent" (p. 141). Musing as to whether the mutiny could have been averted, Bligh pointed solely to the fact that his command included no marines, who could have come to his aid.

Bligh had good reason to discount the causal importance of grievances. He did not wish his governance to be scrutinized, lest his relatively heavy hand with the lash, his "frugal economy" with rations, and his demeaning treatment of inferiors be blamed for the mutiny (Denning 1992). As self-serving as Bligh's account is, it has something in common with the dominant theoretical understanding of rebellion since the 1970s. Like Olson (1965), Bligh emphasized private incentives in motivating collective action ("female connexions" and life on Tahiti). Like resource mobilization and political opportunity theorists, Bligh emphasized elite divisions (a rift between the officers) and favorable opportunities (the ship lacked marines and it was alone in the South Seas).

This article contends that grievances have been unduly neglected in much of the literature on social movements and collective action. If grievances are omnipresent and organization and opportunity are really what counts, then there can be few policy implications. If grievances are irrelevant, the amelioration of discontent will not avert conflict.

There would be no case for institutional reforms that might improve organizational performance, make governance more responsive, or alleviate deprivation.

Resource mobilization and rational action theorists broke with classical grievance models for good reasons. However, they overreacted. The grievances that matter for rebellion are shared and come in different types. The structural grievances that were a large focus of prior research do not exhaust the category. We show that the combination of shared incidental and structural grievances provides a superior explanation of mutiny. Future research should determine if this conclusion holds for other forms of insurgency.

The major conclusion of this study is that incidental grievances are more prominent than structural ones as causes of high-risk collective action. This implies that governments ought to take grievances into account if they seek to mitigate unrest. Beyond this nostrum, however, what implications does this lesson have for policymakers? Urban unrest in Ferguson in 2014 and Baltimore in 2015 was informed by longstanding structural grievances but triggered by specific incidents of police brutality. Even if those incidents could not have been predicted, better policing in these cities, and the impression that authorities were respectful and mindful of residents' welfare, might have reduced the odds that such incidents would spark violence.

Undoubtedly, it is easier to create policies aimed at mitigating structural rather than incidental grievances, because the former tend to be more stable—and thus predictable—than the latter. This is even true of structural grievances that occur with some risk, and hence can be estimated with a known probability. Because incidental grievances are by definition unpredictable, authorities cannot readily design and enact plans to forestall their effects. Even so, planning may mitigate their consequences. An analogy can be drawn to earthquake preparedness. Although policymakers cannot know when a fault will slip, they do know where the fault lines are; they can enact policies to minimize loss of life (e.g., through building codes), and they can

ensure an appropriate emergency response in areas most at risk. In the absence of triggering incidents, however, there is often too little political will to make sufficient investments in future security. In social life, policies to redress structural grievances tend to be considered only in the wake of unrest: authorities often find themselves shutting the stable door after the horse has bolted. This was also true in the RN, which did not act to improve seamen's structural grievances—such as inflationary pressure on their wages or arbitrary and excessive punishment—until after a spate of mutinies in the 1790s.

### Acknowledgments

The authors are grateful for the invaluable consultation of N.A.M. Rodger and the expert research services rendered by Moira Bracknell. We would like to thank Eliana Hechter, Charles Causey, Edgar Kiser, Charles Seguin, David Siroky, Ross Matsueda, Luis Fernando Medina, John Wilkerson, and the *ASR* editors and reviewers for their comments and suggestions. Research assistance was provided by University of Washington students Lindsey Beach, Jayleen Bowman, Elizabeth Cady, Dale Coleman, Lauren Ho, Christopher Prather, Sarah Reinecke, Heather Reyes, Jocelyn Sayler, Kristin Smith, Samuel Stabler, Thomas Stanton, Timothy Thomas, Meral Tunador, and Rachel Tweet.

### Funding

This research was supported by grants from the Air Force Office of Scientific Research (FA9550-09-1-0502) and the Harry Frank Guggenheim Foundation.

### Notes

1. Court-martial trial transcript of mutineers (CM), *Impeteux*, 6/19-20/1799, the British National Archive (TNA), Public Records Office (PRO) Admiralty Papers (ADM): 1/5349.
2. CM, *Beaulieu*, 7/3-17/1797, in TNA: PRO ADM 1/5340.
3. CM, *Ferret*, 10/8/1806, in TNA: PRO ADM 1/5375.
4. CM, *Kingfisher*, 7/10-11/1797, in TNA: PRO ADM 1/5340.
5. CM, *Panther*, 6/27-7/1/1765, in TNA: PRO ADM 1/5503.
6. CM, *Santa Monica*, 7/21-24-730/1781 in TNA: PRO ADM 1/5318.
7. CM, *Culloden*, 12/14-20/1794, in TNA: PRO ADM 1/5331.
8. CM, *Camilla*, 8/28/1783, in TNA: PRO ADM 1/5523.
9. CM, *Culloden*, 12/14-20/1794, in TNA: PRO ADM 1/5331.
10. CM, *Ferret*, 10/8/1806, in TNA: PRO ADM 1/5375.

11. Besides the other contextual variables, we also estimated models with an indicator for the post-1797 period to explore the association between our cases and the fleet-wide mutinies that occurred at Spithead and the Nore in 1797. Because this variable fails to achieve significance and is highly correlated with our wage measure and years at war, we do not include it in the reported models.
12. The Peace of Amiens (March 1802 to May 1803) separating the French revolutionary wars from the Napoleonic War might be portrayed as a brief interlude that does not indicate a real cessation of hostilities. However, this argument strikes us as retrospectively biased. The motives for the peace were driven by a real desire to end the war that, on the British side, derived from "financial, political and strategic exhaustion" (Rodger 2004:472). In fact, the peace was marked by substantial naval demobilization, in terms of both manpower and expenditure (Rodger 2004).
13. Although one could argue that flogging is endogenous to mutiny (i.e., flogging occurs because ships' companies are unruly), the data do not seem to indicate this. We coded all ships (cases and controls) for whether they had experienced events recorded as collective defiance by their commanders during the relevant ship-year (for positive cases, these incidents did not include the mutiny). Correlation between our punishment measure and general collective defiance is very small (.13). The correlation remains small and is insignificant even when we divide the sample between cases and controls.
14. As a robustness check, we also estimated models predicting mutiny using non-parametric random-forest modeling (Siroky 2009). These models also prominently indicate an association between our grievance measures and our outcome measure.
15. Adding this interaction effect significantly improves the predictive ability of the model (likelihood ratio  $\chi^2 = 3.52, p = .06$ ).
16. Note that, because we have specified a logistic model, the effects of the predictor variables on the outcome are inherently nonlinear, which is why we specify the marginal effects at specific levels of the interacting variables.
17. Even so, mutinies have not vanished from the contemporary world (Guttridge 1992). For example, a 2009 mutiny in the Bangladesh Border Guards left more than 70 dead and resulted in thousands of arrests and hundreds of capital sentences (<http://www.bbc.com/news/world-south-asia-12123651>).

### References

- Allen, Douglas W. 2002. "The British Navy Rules: Monitoring and Incompatible Incentives in the Age of Fighting Sail." *Explorations in Economic History* 39(2):204–231.
- Armenian, Haroutune K., ed. 1994. "Applications of the Case-Control Method." *Epidemiologic Reviews* 16(1):1–164.

- Bates, Robert H. 2008. *When Things Fell Apart: State Failure in Late-Century Africa*. New York: Cambridge University Press.
- Beissinger, Mark R. 2011. "Mechanisms of *Maidan*: The Structure of Contingency in the Making of the Orange Revolution." *Mobilization* 16(1):25–43.
- Benford, Robert, and David Snow. 2000. "Framing Processes and Social Movements." *Annual Review of Sociology* 26:611–39.
- Bergstrand, Kelly. 2014. "The Mobilizing Power of Grievances: Applying Loss-Aversion and Omission Biases to Social Movements." *Mobilization* 19(2):123–42.
- Bligh, William. [1792] 1962. *An Account of the Mutiny on Board H.M.S. Bounty*. New York: Signet.
- Boswell, James. [1791] 1934–1950. *Boswell's Life of Johnson*. Oxford, UK: Clarendon Press.
- Bowden-Dan, Jane. 2004. "Diet, Dirt and Discipline: Medical Developments in Nelson's Navy." *Mariner's Mirror* 90(3):260–72.
- Brush, Stephen G. 1996. "Dynamics of Theory Change in the Social Sciences: Relative Deprivation and Collective Violence." *Journal of Conflict Resolution* 40(4):523–45.
- Byrn, John. 1989. *Crime and Punishment in the Royal Navy: Discipline on the Leeward Islands Station, 1784–1812*. Aldershot, UK: Scolar Press.
- Calhoun, Craig. 1982. *The Question of Class Struggle: Social Foundations of Popular Radicalism during the Industrial Revolution*. Chicago: University of Chicago Press.
- Carrabine, Eamonn. 2005. "Prison Riots, Social Order and the Problem of Legitimacy." *British Journal of Criminology* 45(6):896–913.
- Cederman, Lars-Erik, Kristian Skrede Gleditsch, and Halvard Buhaug. 2013. *Inequality, Grievances and Civil War*. New York: Cambridge University Press.
- Centola, Damon. 2013. "Homophily, Networks, and Critical Mass: Solving the Start-up Problem in Large Group Collective Action." *Rationality and Society* 25(1):3–40.
- Chong, Dennis. 1991. *Collective Action and the Civil Rights Movement*. Chicago: University of Chicago Press.
- Claver, Scott. 1954. *Under the Lash: A History of Corporal Punishment in the British Armed Forces*. London, UK: Torchstream.
- Colley, Linda. 2003. *Britons: Forging the Nation, 1707–1837*, 2nd ed. London, UK: Pimlico.
- Collier, Paul, and Anke Hoeffler. 2004. "Greed and Grievance in Civil War." *Oxford Economic Papers* 56(4):563–95.
- Costa, Dora, and Matthew Kahn. 2008. *Heroes and Cowards: The Social Face of War*. Princeton, NJ: Princeton University Press.
- Dann, John, ed. 1988. *A Diary of the Life of Jacob Nagle, Sailor, from the Year 1775 to 1841*. London, UK: Weidenfeld & Nicholson.
- Denning, Greg. 1992. *Mr. Bligh's Bad Language: Passion, Power and Theatre on the Bounty*. New York: Cambridge University Press.
- Diani, Mario, and Doug McAdam, eds. 2003. *Social Movements and Networks: Relational Approaches to Collective Action*. New York: Oxford University Press.
- Dull, Jonathan. 2009. *The Age of the Ship of the Line*. Lincoln: University of Nebraska Press.
- Durkheim, Emile. [1897] 1951. *Suicide*. Glencoe, IL: Free Press.
- Earle, Peter. 1998. *Sailors: English Merchant Seamen, 1656–1775*. London, UK: Meuthen.
- Fearon, James, and David Laitin. 2003. "Ethnicity, Insurgency, and Civil War." *American Political Science Review* 97(1):75–90.
- Frykman, Niklas. 2009. "Seamen on Late Eighteenth-Century European Warships." *International Review of Social History* 54(1):67–93.
- Frykman, Niklas. 2010. "The Mutiny on the *Hermione*: Warfare, Revolution and Treason in the Royal Navy." *Journal of Social History* 44(1):159–87.
- Gail, Mitchell, Roger Williams, David P. Byar, and Charles Brown. 1976. "How Many Controls?" *Journal of Chronic Disease* 29(11):723–31.
- Gamson, William, Bruce Fireman, and Steven Rytina. 1982. *Encounters with Unjust Authority*. Belmont, CA: Dorsey.
- Gilbert, Arthur. 1983. "The Nature of Mutiny in the British Navy in the Eighteenth Century." Pp. 111–20 in *Naval History*, edited by D. Masterson. Wilmington, DE: Scholarly Resources.
- Gill, Conrad. 1961. *Merchants and Mariners of the 18th Century*. London, UK: Arnold.
- Goldstone, Jack A., Robert H. Bates, David L. Epstein, Ted Robert Gurr, Michael B. Lustick, Monty G. Marshall, Jay Ulfelder, and Mark Woodward. 2010. "A Global Model for Forecasting Political Instability." *American Journal of Political Science* 54(1):190–208.
- Goldstone, Jack A., and Bert Useem. 1999. "Prison Riots as Micro-Revolutions: An Extension of State-Centered Theories of Revolution." *American Journal of Sociology* 104(4):985–1029.
- Goodwin, Jeff. 2001. *No Other Way Out: States and Revolutionary Movements, 1945–1991*. New York: Cambridge University Press.
- Gossett, William P. 1986. *The Lost Ships of the Royal Navy, 1793–1900*. London, UK: Mansell.
- Gould, Roger. 1995. *Insurgent Identities: Class, Community and Protest in Paris from 1848 to the Commune*. Chicago: University of Chicago Press.
- Gurr, Ted Robert. 1970. *Why Men Rebel*. Princeton, NJ: Princeton University Press.
- Guttridge, Leonard F. 1992. *Mutiny: A History of Naval Insurrection*. Annapolis, MD: Naval Institute Press.
- Haine, Edgar. 1992. *Mutiny on the High Seas*. New York and London: Cornwall.
- Hardin, Russell. 1982. *Collective Action*. Baltimore, MD: Johns Hopkins University Press.
- Hathaway, Jane, ed. 2001. *Rebellion, Repression and Reinvention: Mutiny in Comparative Perspective*. Westport, CT: Praeger.

- Hechter, Michael. 1978. "Group Formation and the Cultural Division of Labor." *American Journal of Sociology* 84(2):293–318.
- Hechter, Michael. 1987. *Principles of Group Solidarity*. Berkeley: University of California Press.
- Hechter, Michael. 1998. *Internal Colonialism: The Celtic Fringe in British National Development*, rev. ed. New Brunswick, NJ: Transaction.
- Hechter, Michael. 2013. *Alien Rule*. New York: Cambridge University Press.
- Heckathorn, Douglas D. 1996. "The Dynamics and Dilemmas of Collective Action." *American Sociological Review* 61(2):250–77.
- Hepper, David J. 1994. *British Warship Losses in the Age of Sail, 1650–1859*. Rotherfield, UK: Boudriot.
- Horowitz, Donald. 2001. *The Deadly Ethnic Riot*. Berkeley: University of California Press.
- Kahneman, Daniel. 2011. *Thinking Fast and Slow*. New York: Farrar, Strauss & Giroux.
- Kalyvas, Stathis N., and Matthew A. Kocher. 2007. "How 'Free' is Free Riding in Civil Wars? Violence, Insurgency and the Collective Action Problem." *World Politics* 59(2):177–216.
- Kemper, Theodore. 2001. "A Structural Approach to Social Movement Emotions." Pp. 58–73 in *Passionate Politics*, edited by J. Goodwin, J. Jasper, and F. Polletta. Chicago: University of Chicago Press.
- Kerr, Clark, and Abraham Siegal. 1954. "The Interindustry Propensity to Strike." Pp. 189–212 in *Industrial Conflict*, edited by A. Kornhauser, R. Dugan, and A. Ross. New York: McGraw-Hill.
- King, Gary, and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9(2):137–63.
- Kitts, James A. 2000. "Mobilizing in Black Boxes: Social Networks and Participation in Social Movement Organizations." *Mobilization* 5(2):241–57.
- Klandermans, Bert. 1997. *The Social Psychology of Protest*. Oxford, UK: Blackwells.
- Lammers, Cornelis J. 1969. "Strikes and Mutinies: A Comparative Study of Organizational Conflicts between Rulers and Ruled." *Administrative Science Quarterly* 14(4):558–72.
- Lammers, Cornelis J. 2003. "Mutiny in Comparative Perspective." *International Review of Labor History* 48(3):473–82.
- Lasky, Tamar, and Paul D. Stolley. 1994. "Selection of Cases and Controls." *Epidemiologic Review* 16(1):6–17.
- Lavery, Brian. 1998. *Shipboard Life and Organisation, 1731–1815*. Aldershot, UK: Ashgate.
- Lavery, Brian. 2010. *Royal Tars: The Lower Deck of the Royal Navy, 875–1850*. Annapolis, MD: Naval Institute Press.
- Leeson, Peter. 2010. "Rational Choice, Round Robin, and Rebellion: An Institutional Solution to the Problem of Revolution." *Journal of Economic Behavior and Organization* 73(3):297–307.
- Lewis, Michael A. 1960. *A Social History of the Navy, 1793–1815*. London: Allen & Unwin.
- Lichbach, Mark. 1995. *The Rebel's Dilemma*. Ann Arbor: University of Michigan Press.
- Long, J. Scott. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage.
- Lyon, David. 1993. *The Sailing Navy List: All the Ships of the Royal Navy, Built, Purchased and Captured, 1688–1860*. London, UK: Conway Maritime Press.
- MacDonald, Janet. 2006. *Feeding Nelson's Navy: The True Story of Food at Sea during the Georgian Era*. London, UK: Chatham.
- Marwell, Gerald, and Pamela Oliver. 1993. *The Critical Mass in Collective Action*. New York: Cambridge University Press.
- McAdam, Doug, and Hilary Boudet. 2012. *Putting Social Movements in Their Place*. New York: Cambridge University Press.
- McAdam, Doug, John D. McCarthy, and Mayer N. Zald, eds. 1996. *Comparative Perspectives on Social Movements*. New York: Cambridge.
- Mead, George Herbert. 1934. *Mind, Self and Society*. Chicago: University of Chicago Press.
- Neafsey, Edward. 2002. *The All New Surnames of Ireland*. Kansas City, MO: Irish Genealogical Society.
- Neale, Jonathan. 1985. *The Cutlass and the Lash: Mutiny and Discipline in Nelson's Navy*. London, UK: Pluto.
- Newman, Stephen C. 2001. *Biostatistical Methods in Epidemiology*. New York: Wiley.
- Olson, Mancur. 1965. *The Logic of Collective Action*. Cambridge, MA: Harvard University Press.
- Østby, Gudrun. 2008. "Polarization, Horizontal Inequalities and Violent Civil Conflict." *Journal of Peace Research* 45(2):143–62.
- Pack, S.W.C. 1964. *The Wager Mutiny*. London, UK: Redman.
- Pfaff, Steven. 1996. "Collective Identity and Informal Groups in Revolutionary Mobilization." *Social Forces* 75(1):91–118.
- Pfaff, Steven. 2006. *Exit-Voice Dynamics and the Collapse of East Germany*. Durham, NC: Duke University Press.
- Pfaff, Steven, Michael Hechter, and Katie E. Corcoran. Forthcoming. "The Problem of Solidarity in Insurgent Collective Action: The Nore Mutiny of 1797." *Social Science History*.
- Pinard, Maurice. 2011. *Motivational Dimensions in Social Movements and Contentious Collective Action*. Montreal, Canada: McGill-Queen's University Press.
- Pope, Dudley. 1981. *Life in Nelson's Navy*. London, UK: Unwin Hyman.
- Pope, Dudley. 1987. *The Devil Himself: The Mutiny of 1800*. London, UK: Secker and Warburg.
- Rao, Hayagreeva, and Sunasir Dutta. 2012. "Free Spaces as Organizational Weapons of the Weak: Religious Festivals and Regimental Mutinies in the 1857 Bengal Native Army." *Administrative Science Quarterly* 57(4):625–68.
- Rediker, Marcus. 1987. *Between the Devil and the Deep Blue Sea: Merchant Seamen, Pirates and the*



- Anglo-American Maritime World, 1700–1750*. New York: Cambridge University Press.
- Rodger, N.A.M. 1982. *The Articles of War: The Statutes Which Governed Our Fighting Navies, 1661–1749 and 1866*. Havant, UK: Mason.
- Rodger, N.A.M. 1986. *The Wooden World: An Anatomy of the Georgian Navy*. New York: Norton.
- Rodger, N.A.M. 2004. *The Command of the Ocean: A Naval History of Britain, 1649–1815*. London, UK: Penguin.
- Rose, Elihu. 1982. “The Anatomy of Mutiny.” *Armed Forces and Society* 8(4):561–74.
- Rudé, George. 1964. *The Crowd in History: A Study of Popular Disturbances in France and England, 1730–1848*. New York: Wiley.
- Schelling, Thomas. 1960. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press.
- Schlesselman, James. 1982. *Case-Control Studies: Design, Conduct, Analysis*. New York: Oxford.
- Shils, Edward A., and Morris Janowitz. 1948. “Cohesion and Disintegration in the Wehrmacht in World War II.” *Public Opinion Quarterly* 12(2):280–315.
- Siroky, David S. 2009. “Navigating Random Forests and Advances in Algorithmic Modeling.” *Statistics Surveys* 3:147–63.
- Stewart, Frances. 2008. *Horizontal Inequalities and Conflict: Understanding Group Violence in Multiethnic Societies*. New York: Palgrave Macmillan.
- Tausch, Nicole, Julia Becker, Russell Spears, Oliver Christ, Rim Saab, Purnima Singh, and Roomana Siddiqui. 2011. “Explaining Radical Group Behavior: Developing Emotion and Efficacy Routes to Normative and Nonnormative Collective Action.” *Journal of Personality and Social Psychology* 101(1):129–48.
- Taylor, Michael. 1997. *The Possibility of Cooperation*. New York: Cambridge University Press.
- Theal, George McCall, ed. 1898. *The Records of the Cape Colony from December 1796 to December 1799*, Vol. II. London, UK: Clowes.
- Tilly, Charles. 1978. *From Mobilization to Revolution*. New York: McGraw-Hill.
- Tilly, Charles. 1984. “Social Movements and National Politics” Pp. 297–317 in *Statemaking and Social Movements*, edited by C. Bright and S. Harding. Ann Arbor: University of Michigan Press.
- Tilly, Charles. 1993. “Contentious Repertoires in Great Britain, 1758–1834.” *Social Science History* 17(2):253–80.
- Turner, Ralph, and Lewis Killian. 1972. *Collective Behavior*, 2nd ed. Englewood Cliffs, NJ: Prentice-Hall.
- Twigger, Robert. 1999. “Inflation: The Value of the Pound 1750–1998.” Research Paper 99/20, House of Commons Library.
- Useem, Bert. 1998. “Breakdown Theories of Collective Action.” *Annual Review of Sociology* 24:215–38.
- Useem, Bert, and Jack A. Goldstone. 2002. “Forging Social Order and Its Breakdown: Riot and Reform in U.S. Prisons.” *American Sociological Review* 67(4):499–525.
- Useem, Bert, and Peter Kimball. 1989. *States of Siege: U.S. Prison Riots, 1971–1986*. New York: Oxford University Press.
- Valle, James. 1980. *Rocks and Shoals: Naval Discipline in the Age of Fighting Sail*. Annapolis, MD: Naval Institute Press.
- Van Buuren, Stef, and C. G. Oudshoorn. 1999. *Flexible Multivariate Imputation by MICE*. Leiden, the Netherlands: TNO Prevention and Health, Report PG/VGZ/99.054.
- Van Stekelenburg, Jacquelin, and Bert Klandermans. 2013. “The Social Psychology of Protest.” *Current Sociology* 6(5–6):886–905.
- Van Zomeren, Martijn, Tom Postmes, and Russell Spears. 2008. “Toward an Integrative Social Identity Model of Collective Action.” *Psychological Bulletin* 134(4):504–535.
- Walder, Andrew. 2009. “Political Sociology and Social Movements.” *Annual Review of Sociology* 35:393–412.
- Walsh, Edward. 1981. “Resource Mobilization and Citizen Protest around Three Mile Island.” *Social Problems* 29(1):1–21.
- Weber, Max. [1918–21] 1978. *Economy and Society*. Berkeley: University of California Press.
- Woodman, Richard. 2005. *A Brief History of Mutiny*. London, UK: Robinson.
- Michael Hechter** is Foundation Professor in the School of Politics and Global Studies at Arizona State University and Professor of Sociology at the University of Copenhagen. A fellow of the American Academy of Arts and Sciences, he studies contentious collective action—principally in its nationalist and separatist forms—and its converse, social order. His most recent book is *Alien Rule* (2013), which argues that this widely denigrated form of governance may, under certain conditions, attain legitimacy.
- Steven Pfaff** is Professor of Sociology at the University of Washington. He conducts research in the fields of historical and comparative sociology, collective action and social movements, political sociology, and the sociology of religion. His book *Exit-Voice Dynamics and the Collapse of East Germany* (Duke 2006) was honored by the Social Science History Association and the European Academy of Sociology.
- Patrick Underwood** is a doctoral candidate in Sociology at the University of Washington. His areas of specialization are political sociology, comparative historical sociology, and quantitative research methodology. His dissertation project examines the effect of strategic implementation of neoliberal economic reforms on the risk of collective political unrest in urban populations.