

Sickness and Death on Male and Female Convict Voyages to Australia

Note: a much extended version of the arguments in this paper is available in Peter Baskerville and Kris Inwood (eds) *Lives In Transition: Longitudinal Research from Historical Sources* (McGill University Press, 2014).

Hamish Maxwell-Stewart, University of Tasmania

Rebecca Kippen, University of Melbourne

The passage taken by convict vessels *en route* to Australia was one of the longest that any unfree migrants have been subjected to—an average of four months at sea. Only French prisoners shipped to New Caledonia (1864-97) and Russian convicts sent from Odessa to Sakhalin (1879-1905) were moved greater distances.¹ Despite the length of the voyage, monthly mortality on Australian bound convict vessels was not excessive.

Between 1788 and 1868 a total of 825 convict vessels sailed from British and Irish ports to the Australian colonies. In the first half of the nineteenth century the thought of spending four or more months at sea was a daunting prospect for most landlubbers. Even free migrants were warned that the distance of Van Diemen's Land and New South Wales from British and Irish ports rendered the voyage a "terrible undertaking".² It is thus commonly assumed that the 141,000 male and 26,000 female convicts shipped to Britain's Australian penal colonies suffered great hardships at sea.

Perhaps surprisingly, however, death rates on the First Fleet, which sailed in May 1787, were remarkably low given the scale of the operation. In all, the scheme involved shipping 736 male and female prisoners a distance of some 14,000 miles. Although the voyage lasted 252 days, the monthly death rate of under seven convicts per 1000 embarked was benign by late-eighteenth century standards.

To be sure, the death rate on the Second Fleet, which left Britain's shores for Australia in January 1790, was much higher than that of its predecessor (49 per thousand per month). Moreover, arrival in New South Wales brought little relief. The survivors were landed in a very weakened condition and a further 16 per cent died shortly after disembarkation. As the Rev. Johnson memorably put it they arrived: "wretched, naked, filthy, dirty, lousy, and many of them utterly unable to stand, to creep, or even to stir hand or foot".³

Reports of inadequate provisions and the crowded conditions on board Second Fleet transports prompted greater government regulation. In the years 1792-5 a naval trained surgeon was appointed to 'superintend' every transport vessel. A further rise in death rates following the discontinuation of this experiment led to even tighter regulation. From 1800 bonus payments were made to masters for landing convicts in good health. Surgeons were reinstated and, after 1805, placed on the same ranking as army medical officers. As in the slave trade, ships' masters often pulled rank on surgeons countermanding their orders.⁴ In order to solve this problem, surgeons were given authority over all disciplinary and medical matters in 1815, including the ventilation and cleaning of the vessel.⁵

Following the introduction of the tightened 'surgeon superintendent system' monthly death rates fell decisively, averaging just 2.4 per thousand in the period 1815-1868.⁶ To put this achievement into perspective, the equivalent rate for males aged between 15 and 44 on emigrant ships sailing from Europe to the United States between 1836 and 1853 was 4.4 per 1,000. The discrepancy is especially noteworthy when one considers that, as well as being free, the trans-Atlantic migrants were embarked on a voyage that took an average of 45 days compared to 116 to Australia.⁷

The probability that a convict would die during the voyage to Australia might be influenced by many factors. A history of poor pre-voyage nutrition (perhaps exacerbated by a life of debauchery) might fatally weaken a passenger long before they were embarked. Experiences in prison could exacerbate these effects if punitive, but institutional diets, clothing and heating might also ameliorate the worst effects of pre-existing poverty. The use of appropriately trained medical professionals might improve the capacity for effective pre-voyage screening, as well as facilitate the management of disease and hygiene regimes. There might be little, however, that a surgeon could do to mitigate the impact of poor rations (lack of vitamin C springs to mind here), or contaminated water—other than persuading the ship's master to stop off in order to resupply. On a fully loaded vessel the surgeon might well be overwhelmed by the number of patients, or find himself powerless to stop infection spreading through crowded quarters. Poorly maintained vessels could also pose a threat. Poor ventilation and ship-board spaces contaminated by years of accumulated dirt might encourage the spread of infection. Failure to make good speed could put pressure on the available supplies (including drugs and other prophylactics)

while weather could play havoc with the best laid medical plans. Tropical heat might exacerbate some disorders while pitching seas and wave soaked decks would cut down exercise time and make it impossible to keep bedding and clothing dry. Finally, the behaviour of the convicts themselves could affect voyage outcomes. There was a world of difference between treating compliant, as opposed to unruly, patients.

In order to explore these issues in more detail we assembled data for 289 convict vessels that sailed from southern English or Irish ports to the British penal colony of Van Diemen's Land in the period 1818-1853 (39 voyages for which surgeons' journals could not be located were omitted). Together the vessels in our study carried a total of 48,215 male and 12,396 female convicts. As well as information on the tonnage, insurance rating and age of each vessel we calculated the number of days spent at sea and the amount of time that elapsed between the start of the embarkation process and the point at which each vessel actually sailed. We used the list of cases treated recorded in each surgeon superintendent's journal to determine the day each patient entered the ship's hospital, the day that they were discharged, the diagnosis and the outcome.⁸

While the surgeons' journals are a rich source of information they vary greatly in terms of the number of cases covered. Charles Henry Fuller on the *Blenheim*, for example, recorded 356 separate morbidity episodes while by contrast William Henderson on the *Bussorah Merchant* recorded just six.⁹ We found that the more experienced the surgeon (measured in terms of the number of times they had previously sailed to Australia on a convict vessel), the fewer the number of cases they were likely to record. There are two plausible explanations for this. First, it is possible that old hands were better at preventing

and treating disease than greenhorns. If this was the case it might provide powerful evidence that medical expertise could make a dramatic difference at sea. Second, surgeons who had previously made the voyage to Australia felt that they knew the ropes and as a result were more blasé about keeping detailed paperwork, only noting the most serious cases. As we could find no relationship between the number of recorded cases of sickness and the number of deaths, we suspect that second explanation is closer to the mark. In other words there was nothing to suggest that experienced surgeons were more successful at keeping their convict charges alive.

We also found another underlying trend in the data. The number of cases entered onto the sick list increased over time. A previous study of morbidity on female convict vessels sailing to New South Wales uncovered a similar trend. R. V. Jackson attributed this to the tendency for larger numbers of female convicts to be shipped on later sailing vessels.¹⁰ Thus, he reasoned that more crowded conditions at sea led to increased levels of sickness. We agree that there was a rise in reported morbidity over time, but note that this was not matched by a similar rise in mortality. Once more we suspect that the increase in cases reflects record keeping trends rather than deteriorating on board conditions.

These findings raise uncomfortable questions. Was it possible that our data might tell us something about shifts in record keeping practice but otherwise shed little light on the factors that impacted upon life and death at sea? Reassuringly, however, we did find a relationship between the amount of sickness on board (measured in terms of the total number of days convicts were recorded as being sufficiently unwell to require treatment) and deaths. Intriguingly we also found an even stronger relationship between sickness at sea

and post-voyage mortality. Convicts who arrived on sickly ships were less likely to survive their first year under sentence in Van Diemen's Land.

The death rate in profile

Convict monthly mortality rates for the period between embarkation and sailing, the voyage and the first 12 months of colonial servitude are provided in Fig. 1. These have been separated by sex. In all, 128 surgeon's journals recorded both the date when convicts were brought on board and the date of sailing. The embarkation process was slightly longer for female vessels, 17 days compared to 16 for male. The length of the voyage to Australia ranged from the 80-day voyage of the *Rodney* in 1853 to the 190-day passage of the *Jane* in 1831. Mean sailing time for both male and female voyages was just less than four months (116 days for male, 118 for female). In order to examine the timing of death across the entire cohort, we split each voyage into quartiles.

Several trends are discernable, of which perhaps the most notable is the increase in mortality over the course of the voyage. This is in sharp contrast to the profile of deaths on free migrant voyages sailing to South Australia in the second half of the nineteenth century. Migrants, particularly infants, died in their greatest numbers a third of the way into the passage.¹¹ Analysis of the timing of deaths in the Atlantic slave trade has also suggested that peak mortality occurred mid-voyage, although there was much variation.¹² It is possible that the larger vessels and faster sailing routes to Australia introduced mid-century were more successful in combating mortality amongst free migrants in the second half of the voyage, as opposed to the first. The large number of infants on board migrant

vessels may also have increased the risk of mortality from diarrhoeal diseases in the tropics (the equator was crossed a third of the way into the voyage).¹³ Yet, the difference in the timing of deaths on convict and migrant vessels is striking and remains largely unexplained.

Other historians have argued that mortality on male vessels was likely to be higher than that for female ships as they were more crowded. We can find no evidence to support this.¹⁴ Despite the greater numbers on board male vessels and the need for stricter levels of security that limited opportunities for exercise, female mortality was higher in port and remained high for the duration of the voyage. While the spike in the female death rate for the last quartile was accentuated by the peculiar experience of the *East London* (a vessel that had a particularly traumatic passage), the death rate remained significantly higher than that for male convicts even when data for this voyage was excluded.¹⁵ Second, mortality rates for male convicts remained high in the period immediately following disembarkation. Third, the female mortality record post-voyage fell to below that of men and remained consistently lower for the twelve months after disembarkation. While the female death rate in the first two months after landing was elevated, the trend was far less accentuated than it was for males. Finally, female convicts also spent significantly longer in sickbay during the voyage.

We found no evidence that the size of the vessel and the number of passengers on board impacted upon mortality rates. In all we were able to locate population data for 228 (79 per cent) of the voyages in our sample. We estimate that just over 10,000 seaman were employed to man the vessels that brought the 60,611 convicts in this study to Australia. While military detachments were not

employed on female vessels, a guard was present on all male voyages. We estimate that just over 7,400 soldiers also made the voyage bringing with them 1,300 wives and just under 1,800 children. A small number of free passengers were also present, most of whom arrived on board female vessels (considered to provide a safer passage). Many of these were the wives and dependents of male convicts who had already been transported and were considered have behaved well enough for the state to assist with family reunification.¹⁶ They also included small numbers of cabin class passengers, generally the wives and family of officials travelling to Australia. Together these amounted to 700 adults and around 750 children. Finally, the 12,396 female prisoners were accompanied into exile by 1,900 of their own children (a further 81 births occurred on the voyage to Australia). Thus, in total we estimate that in addition to convicts, the vessels in our sample carried a further 23,800 other passengers.

Our analysis reveals that male ships were more tightly packed than female. They carried 0.62 passengers per ton while female convict vessels carried 0.54. We failed find evidence of a relationship between loading and mortality and this remained true even when male and female ships were examined separately. Our results mirror findings for the slave trade and free migrant voyages. Contrary to expectations, the density with which vessels were packed does not appear to have significantly affected mortality levels.¹⁷ Comparative analysis with other voyages serves to illustrate the point. Although convict vessels were more crowded than those employed to carry free passengers across the Atlantic, their record of age specific mortality was noticeably better.

There is little evidence that the vessels used to ship female convicts to Australia were in other ways deficient. The ships employed in the male trade were on average 13 years old, while those used to transport female convicts had spent an average of just 11 years at sea. As this would imply, the latter were more likely to have better insurance ratings.

Neither was there a significant difference in voyage length. Female vessels took an average of 118 days to reach their destination compared to 116 for their male counterparts. In contrast to the slave trade where the monthly death rate was higher on longer voyages, we could find no such relationship.¹⁸ This is because, unlike their trans-Atlantic counterpart, convict transports often put in to port *en route* in order to resupply. While vessels that stopped generally took longer to reach Australia, stopping reduced mortality rates. Thus, while putting into port carried the risk of exposing those on board to new sources of infection, these dangers appear to have been outweighed by reductions in deficiency diseases resulting from the opportunity to purchase fresh rations.¹⁹

We could also find no difference in the age structure of male and female convicts except that fewer female convicts were transported in their early teens. The mean age of male and female patients recorded on admission to hospital on the passage to Australia was nearly identical (26.25 for men compared to 26.92 for women). Although we did find that surgeons on female convict vessels were less likely to have sailed as a surgeon superintendent to Australia before (they made on average 0.83 prior voyages compared to 1.63 for those on male ships), as noted earlier we found no evidence that prior experience was associated with a reduction in either morbidity or mortality.

That convict women were at greater risk of mortality at sea compared to men is in itself not surprising. Cohen's study of trans-Atlantic free migrants found a similar discrepancy in mortality outcomes for men and women.²⁰ A further study by Staniforth of assisted migrant voyages sailing to Australia in the years 1837-9 also suggested that women died at greater rates than men—a discrepancy he attributed to the comparatively poor pre-voyage nutrition of women and deaths in childbirth at sea.²¹ This is plausible.

If differences between the vessels used to ship male and female convicts to Australia, the number of passengers placed on board, and the relative experience of surgeon superintendents cannot explain variations in shipboard mortality and morbidity, it is possible that differing pre-voyage experiences might. Several surgeons on female vessels were concerned that the convicts they received were pre-disposed to sickness, especially deficiency diseases. Since the way in which male and female convicts were processed prior to embarkation differed, this is a distinct possibility. After they had been sentenced to transportation most male convicts were removed to hulks. These were dismasted vessels anchored in ports and used as mobile labour depots. The average amount of time that lapsed between sentencing and embarkation for Australia was seven months.²² This was nearly twice as long as the voyage itself. By contrast female convicts were forwarded to the transport vessel from regional prisons. As these two types of institution were characterised by different work and dietary regimes it is possible that this impacted upon male and female convict experience at sea.

Mark Staniforth argued that female assisted-migrants were more at risk than their male counterparts because of their comparatively poor pre-voyage record of nutrition. There are a growing number of studies that suggest that intra-household distribution of calories favoured men at the expense of women as working class families attempted to protect the wage earning potential of male bread winners. There is evidence, for example, that female prisoners gained weight in gaol in contrast to men.²³ Thus, while women received significantly fewer calories while in prison awaiting transportation, it is possible that this represented an improvement in recent nutritional circumstances. Institutional work regimes that subjected men to greater physical labour may have also served to effectively close the gap. While it is difficult to assess the impact that institutional diets had on voyage morbidity and mortality rates we found no evidence of elevated mortality on male and female convict vessels departing Ireland after the outbreak of the Irish potato famine, a sharp contrast to the rate of “ship fever”, probably typhus, recorded on post-famine migrant voyages to the United States.²⁴ This suggests that, while institutional pre-voyage diets may have been meagre by modern standards, they were sufficiently high to mitigate the effects of chronic under nutrition.

Several surgeons commented on the fatigued state of their female charges. While those embarked from prisons in the greater London area appeared healthy, others who had travelled from county gaols were not as fit. David Thomson, on board the *Eliza*, expressed concern for the wellbeing of Elizabeth Fielding who fell seriously ill the day after she was embarked. He discovered from a companion that she had suffered from dysentery in Stafford gaol and had subsequently been moved to London on the outside of a coach

“exposed to the weather”.²⁵ Joseph Street on the *Edward* remarked that “the prisoners come on board in small numbers—at different times, and as some come from considerable distances (York for example) they are often much fatigued and not infrequently have catarrhs.” Nevertheless he added that these were rarely severe.²⁶ When diarrhoea accompanied by fever broke out amongst the women on board the *William Bryan* the surgeon, Thomas Robertson, reported that it appeared “chiefly amongst the country women”.²⁷ Morgan Price on the *Hector* reported that the considerable number of women forwarded from Scotland “had suffered severely from a very tedious voyage ... in a small sloop and were consequently very crowded and their health had suffered greatly.”²⁸

We found that there was a relationship between the distance travelled prior to embarkation and female convict morbidity rates at sea. Women who travelled from prisons located in Northern England, Western Wales and Devon and Cornwall spent longer in hospital than women who had been transferred from the Midlands. Those convicted in London and the South-East had an even lower morbidity record. Women convicted in Scotland were at the least risk, suggesting that a voyage on a mail packet was less demanding than being transferred overland, or that institutional diets in Scotland were superior, or possibly that Scottish women were in better shape prior to conviction than their English and Welsh counterparts. Nevertheless the overall differences were small. The mortality risk for a woman convicted in northern England was only 1.14 times greater than that of a woman convicted in London.

If the distance travelled to the convict vessel impacted upon morbidity and mortality at sea one would expect this to be particularly so during the winter months when temperatures were colder and travel by road more difficult. Like

Jackson we found that female convict vessels departing England and Ireland in December, January and February had longer sick lists than those that departed in other months.²⁹ This difference was not statistically significant, however, nor did it result in a greater number of deaths.

The distance travelled to the vessel may have impacted upon voyage morbidity and mortality in other ways however. Female convicts were nearly four-times more likely to die in port than their male counter-parts. In part this reflects the differing embarkation procedures. Because their charges were loaded in divisions from hulks located near to the transport vessel, surgeons on male ships were able to conduct pre-voyage screening checks, a task in which they were assisted by the hulk surgeon. The relatively low rate of death on male transports prior to embarkation suggests that these measures were at least partially successful.³⁰ It was more difficult for a surgeon on a female transport to reject a woman who had been transferred from a gaol outside of London, since returning her from whence she had come was logistically more complicated. This was especially the case if the woman was accompanied by one or more children. Indeed the presence of children almost certainly restricted the ability of the surgeon to prevent the introduction of pernicious disorders since it was logistically impossible to reject a sick child without also rejecting the mother, regardless of the latter's state of health. Under such circumstances it seems likely that surgeons were pressured into embarking passengers on female vessels that they would have otherwise rejected.

Morbidity and Mortality at Sea

While differences in pre-voyage experiences can explain some of the elevated risk that female convicts were exposed to on the voyage to Australia, it is noticeable that the risk of death increased as the vessel neared its destination. A feature of both male and female voyages was that some conditions were more likely to be diagnosed in the first half of the voyage and others in the second. Disorders that tended to decline over the course of the voyage included diseases of the digestive system (largely constipation), fevers and headaches. Those that rose included scurvy, accidents, diarrhoea and dysentery, and diseases of the respiratory and musculoskeletal systems. Although deaths related to pregnancy, childbirth and the puerperium accounted for less than 2 per cent of all female mortality, other disorders appear to have posed a significant risk. This was particularly true of diarrhoea and dysentery, listed as a cause in 47.6 per cent of female deaths but just 27.1 male.

This discrepancy suggests that female convict vessels were less hygienic than male. This poses something of a puzzle since similar hygiene regimes were imposed on all vessels. Surgeons were able to ensure that their charges were regularly washed (usually twice a week), as were their clothes, while bedding was aired and decks dry scrubbed.³¹ Indeed others have assumed that death rates on female vessels would be lower than those for men, not just because of the additional space allocated to each prisoner, but because the ratio of surgeon to convict patient was lower thus leading to a better ordered voyage.³² If the introduction of trained surgeons made an impact it is natural to assume that this would be particularly noticeable on voyages where there were fewer potential patients. It was also the case that female convicts spent longer on deck since they

were considered to present less of a security risk and that therefore there was little need to exercise them by division as was common practice on male ships.³³

It is possible that the water placed on board the vessel at the start of the voyage was a source of contamination. Thames water was notoriously offensive. Waterborne infectious agents were not isolated until the second half of the nineteenth century—Dr John Snow published his famous map showing the relationship between London water sources and cholera rates in 1854, the year after the last vessel in our study sailed.³⁴ Despite this, the common assumption that “all smell is disease” undoubtedly provided some protection to convicts. River water was filtered (presumably by passing it through beds of sand or gravel) before it was placed in casks.³⁵ From the 1820s on all convict vessels were also fitted with charcoal water filters.

Contamination is likely to have been a far worse problem during summer although we could find no evidence that summer departures presented additional dangers for those on board. Neither could we find anything to suggest that female convict vessels were more likely to depart at a particular season compared to male, or any reason that the water supply on female vessels would be any worse than that provided for male convicts.

While the evidence that season of departure could impact on voyage outcomes was weak, the same could not be said for season of arrival. Convict vessels that reached their destination during the Antipodean winter had a higher rate of on-board morbidity and post-voyage mortality. The Southern Ocean was a wild place. Indeed, it is noticeable that after convict vessels moved into the South Atlantic, the accident rate increased as wind speed and wave height picked up. Sailing vessels in these latitudes made rapid progress, but they did so at added

risk to the well-being of their passengers. The impact on conditions on board is vividly illustrated through the rise in accidents. Convicts, crew and passengers were hurled across decks and down companionways. As the accident rate increased so did the risk of infection on female convict ships.

Bad weather put excessive strain on the use of water closets. Men were encouraged to relieve themselves on deck using the heads that were also used to service the needs of the crew and military detachment. Tubs were provided for female convicts. On all convict vessels, prisons were also fitted with water closets. It was not just that heavy seas put greater strain on these facilities. Pitching decks and poor light impeded cleaning, a problem which surgeons thought was particularly the case on female vessels.³⁶ One reason for this was the number of children who accompanied their convicted mothers on the journey to Australia.

While the military detachments placed on board male vessels were accompanied by significant numbers of wives and children, these were quartered in a separate sections of the vessel away from the areas set aside for prisoners. Thus, there is no reason why male prisoners would have come into contact with young children. By contrast, children were present on every female convict vessel and were housed in the prison where their presence almost certainly increased the risk of faecal oral transmission, particularly when rough seas compromised routine sanitation and messing arrangements.

Post-voyage experience

Despite their greater record of mortality at sea, female death rates declined more quickly than male following disembarkation in Van Diemen's Land. Post-voyage mortality was undoubtedly influenced by the experience of being at sea for nearly four months. The number of deaths that occurred during the passage and the average number of days spent per convict in sickbay were both correlated with post voyage mortality. The comparatively quick adjustment made by women to colonial conditions compared to men, however, suggests that factors other than voyage knock-on effects were also at play.

Upon disembarkation women were sent to the Cascades Female Factory while men were marched to the Penitentiary in Campbell Street. The principal use to which female convicts were put was as domestic servants, demand for their services often outstripping supply.³⁷ After landing, mothers were separated from children who had been weaned and, while the children were institutionalised, the women were assigned to colonial settler households. Many of these households were located in Hobart and therefore the distribution of women to their places of colonial employment did not take long to organise.³⁸ By contrast male convicts were either employed in road gangs or assigned to farms in the interior. The logistics of allocating male convict labour was thus more complicated and delays were the inevitable consequence. As a result it is likely that female convicts spent less time in institutions in the months immediately following disembarkation than their male counterparts and thus had a comparatively lower exposure to infection.

Colonial labour extraction processes also appear to have taken their toll. The labour that male convicts under sentence performed was dangerous. While the standard punishment reserved for female convicts, working at the washtubs,

may have been physically demanding (and demeaning), it carried less risk of death than quarrying or stone breaking. While medical causes of death were only sporadically recorded in the records maintained by the convict department, accidents were always reported. Male convicts were run over by loaded carts, killed in quarry explosions and landslides and even asphyxiated by carbonic gas. Many were employed in timber felling and significant numbers were killed by falling trees. Others were drowned, often in rivers while attempting to cool off in the summer months. There were also a considerable number of violent deaths connected with other aspects of the convict system. Several male prisoners were shot attempting to abscond. The execution rate was also far higher than in England and Wales—a bloody code was certainly in operation in the penal colonies. In all nearly nineteen per cent of male convict deaths can be attributed to violent causes. This was 6.7 times more than that for their female counterparts.

Conclusion

There was a significant reduction in mortality on Australian bound convict vessels after the introduction of the surgeon superintendent system. There is little evidence that the state of medical knowledge prior to the second half of the nineteenth century was sufficient to affect a change in morbidity and mortality outcomes. Before the post-Crimean War Nightingale reforms, for examples, hospitals are generally considered to have done more harm than good.³⁹ Shipboard experience, however, suggests that this was not necessarily the case.

The majority of surgeon superintendents were anti-contagionists who attributed disease to a combination of 'pre-existing' and 'exciting' causes. In their view the chief amongst the latter was exposure to 'miasmas' (emissions emanating from damp environments and decaying and fetid matter). While their patients may have brought many 'pre-existing' causes on board—the effects of living life at the sharp end of the industrial revolution—surgeon superintendents had one advantage not shared by their shore-based medical colleagues. As their charges were unfree they could impose their authority, punishing those who refused to obey medical instructions. For much of the nineteenth century respect for privacy was seen as an English virtue and this meant that state attempts to regulate domestic environments remained unpopular.⁴⁰ By contrast all space on a convict vessel (apart from the officers' quarters) was public space.

Although miasma theory was based on a poor understanding of disease transmission processes, the authority vested in surgeon superintendents meant that the measures they put in place were largely effective.⁴¹ Such processes included deck scrubbing and scraping and regular washing of both convicts and their clothing and bedding. While, like slavers, surgeon superintendents were quick to blame deaths at sea on pre-existing causes outside of their control, longitudinal analysis suggests that the power that they exercised over both their charges and shipboard space was effective.

We could find no evidence that the density with which vessels were packed affected morality outcomes. While more passengers were embarked per ton on some voyages than others, this did not jeopardise the welfare of convicts. Heavily loaded vessels would have kept the surgeon busy, yet, higher patient to medical practitioner ratios were unlikely to make any difference as—once

patients fell sick—medical intervention did little to affect the outcome (with notable exception of scurvy where an effective remedy was available). If medical intervention had made a difference we would have expected to find a relationship between the prior experience of the surgeon and reductions in shipboard mortality. We did not.

The other principal benefit of employing medically trained officials was that they were able to conduct pre-voyage health checks. As on free passenger voyages, they were less effective, however, at reducing death rates amongst women. Longitudinal analysis suggests that some of the difference in these outcomes can be attributed to the ways in which male and female convicts were processed prior to embarkation. Women were supplied with less calories than their institutionalised male counter-parts and some were moved long distances in the days immediately proceeding embarkation.

It is also possible that the lives led by convict women prior to arrest were characterised by extreme disadvantage, putting them at greater long-term risk than their male counterparts. While working-class nineteenth century women may have been nutritionally disadvantaged as a result of intra-household food distribution strategies, there is little evidence that this put them at risk during the voyage to Australia. If this had been the case we would have expected to see rising morbidity and mortality amongst post-famine convicts shipped from Ireland. That we did not suggests to us that prison and hulk diets were sufficient to offset the most pernicious effects of pre-arrest malnutrition.

Analysis of the diagnoses provided for female convicts *en route* to Australia indicates that they were at greater risk of diarrhoeal disorders. The most likely reason for this was the presence of infant children in the prison

where female convicts were quartered. High seas in southern latitudes, particularly in winter, appear to have further compromised shipboard hygiene. The presence of children also impacted on the ability of the surgeon to conduct effective pre-board screening.

In marked contrast to shipboard experience, female convicts were at less risk of death in the first year in the colony. Post-disembarkation death rates for both sexes were elevated as a result of the knock-on effects of a long voyage at sea. Women, however, were able to make a swifter transition to lower mortality rates because their experience of post-voyage institutionalisation was benign compared to men and, perhaps ironically, because the coercive practices of the state separated them from their children.

The manner in which the colonial state policed the private lives of convict women also resulted in lower fertility, thereby reducing the risk of death in childbirth. By contrast, the work undertaken by male convicts carried significantly higher risk of accidental death and this was especially true of those undergoing punishment labour. Thus, exploitive labour practices had diametrically opposed impacts on male and female death rates. In general, however, state surveillance (and the increased regulation that came with it) lowered rather than raised mortality rates. While transportation may have conferred physical benefits this does not mean, however, that it was psychologically beneficial. Indeed, it was precisely because the prisoners shipped to Australia were placed in a situation where they were relatively powerless that the state was able to improve morbidity and mortality outcomes.

¹ Alice Bullard, *Exile to Paradise: Savagery and Civilization in Paris and the South Pacific* (Stanford, Stanford University Press, 2000) and Vlas Doroshevich, *Russia's Penal Colony in the Far East* (London, Anthem Press, 2011).

² William Cobbett, *The Emigrant's Guide; in Ten Letters Addressed to the Tax-payers of England* (London, 1826), 40.

³ Emma Christopher, "'The Slave Trade is Merciful Compared to [This]': Slave Traders, Convict Transportation and the Abolitionists," in Emma Christopher, Marcus Rediker (eds) *Many Middle Passages: Forced Migration and the Making of the Modern World* (Berkeley, University of California Press, 2007), 107-28.

⁴ Robin Haines and Ralph Shlomowitz, "Explaining the Mortality Decline in the Eighteenth-Century British Slave Trade," *Economic History Review*, 53, no. 2 (2000): 273.

⁵ Charles Bateson, *The Convict Ships* (Sydney, Library of Australian History, 2004), 38-49.

⁶ John McDonald and Ralph Shlomowitz, "Mortality on Convict Voyages to Australia, 1788-1868," *Social Science History*, 13, no. 3 (1989): 291.

⁷ Raymond L. Cohen, "The Determinants of Individual Immigrant Mortality on Sailing Ships, 1836-1853," *Explorations in Economic History* 24 (1987): 378. Note that 94 per cent of male convicts landed in Australia were aged between 15 and 44, Tasmanian Archives and Heritage Office (henceforth TAHO), Con 23/1 and 2.

⁸ The National Archive, Great Britain (henceforth TNA), ADM 101 series.

⁹ TNA, ADM101/12/7 & ADM101/14/5.

¹⁰ R. V. Jackson, "Sickness and Health on Australia's Female Convict Ships, 1821-1840," *International Journal of Maritime History*, 18, no. 2 (2006): 72, 76-7.

¹¹ Robin Haines & Ralph Shlomowitz, "Causes of Death of British Emigrants on Voyages to South Australia, 1848-1885," *Social History of Medicine*, 16, no.2 (2003): 201-207

¹² Haines, McDonald and Shlomowitz, "Mortality and Voyage Length in the Middle Passage," 503-33.

¹³ Haines & Shlomowitz, "Causes of Death", 207

¹⁴ Jackson, "Sickness and health on Australia's female convict ships", 80 and Mark Staniforth, "Diet, Disease and Death at Sea on the Voyage to Australia, 1837-1839," *International Journal of Maritime History*, 8, no. 2 (1996), 122.

¹⁵ The *East London* left Dublin for Van Diemen's Land in April 1844 with 133 female convicts and 50 of their children on board. Of these 19 women and 12 children perished at sea. With the exception of shipwrecks this was by far the highest mortality rate encountered on any voyage to Van Diemen's Land. TNA, ADM 101/22/1.

¹⁶ Perry McIntyre, *Free Passage: The Reunion of Irish Convicts and their Families in Australia 1788-1852* (Dublin, Irish Academic Press, 2011) and Ian Brand and Mark Staniforth, "Care and Control: Female Convict Transportation Voyages to Van Diemen's Land", *Great Circle*, 16, no. 1 (1994): 34

¹⁷ James Rawley and Stephen D. Behrendt, *The Transatlantic Slave Trade: A History* (Lincoln, University of Nebraska Press, 2005), 258-9.

¹⁸ Haines and Shlomowitz, "Explaining the Mortality Decline," 259.

-
- ¹⁹ McDonald and Shlomowitz, "Mortality on Convict Voyages to Australia," 290.
- ²⁰ Raymond L. Cohen, "Mortality on Immigrant Voyages to New York, 1836–1853," *Journal of Economic History*, 44 no. 2 (1984): 289-300.
- ²¹ Staniforth, "Diet, Disease and Death at Sea", 127.
- ²² Calculated using data from TAHO, Con 31 series and TNA, ADM 101 and HO 8 series.
- ²³ Sara Horrell, David Meredith and Deborah Oxley, "Measuring Misery: Body Mass, Ageing and Gender Equality in Victorian London," *Explorations in Economic History*, 46 (2009): 93-119.
- ²⁴ "Diet, Disease and Death at Sea," 132.
- ²⁵ ADM101/23/6. Fielding did not survive the voyage. She died 21 days after the ship had put to sea. TAHO, Con 40/3 p.39.
- ²⁶ ADM101/22/8
- ²⁷ ADM 101/74/06
- ²⁸ ADM 101/32/9
- ²⁹ Jackson, "Sickness and Health," 77.
- ³⁰ Stephen Nicholas, "Unshackling the Past", in S. Nicholas (ed.) *Convict Workers: Reinterpreting Australia's Past* (Cambridge, Cambridge University Press, 1988), 9.
- ³¹ Kim Humphery, "A New Era of Existence: Convict Transportation and the Authority of the Surgeon in Colonial Australia," *Labour History*, 59 (1990): 59–72; Katherine Foxhall, "From Convicts to Colonists: The Health of Prisoners and the Voyage to Australia, 1823-53," *The Journal of Imperial and Commonwealth History*, 39, no. 1 (2011): 1-19.
- ³² Brand and Staniforth, "Care and Control", 24.
- ³³ Jackson, "Sickness and Health," 84.
- ³⁴ Steven Johnson, *The Ghost Map* (London, Penguin, 2006) and P. D. Curtin, *Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century* (Cambridge, Cambridge University Press, 1989), 50-6.
- ³⁵ Bateson, *Convict Ships*, 68.
- ³⁶ Brand and Staniforth, "Care and Control", 31 and TAHO, CSO 22/88/1859, Edward Caldwell, Surgeon R.N to Sir William Burnett, Hobart Town, 1843.
- ³⁷ Kirsty Reid, "Setting Women to Work: The Assignment System and Female Convict Labour in Van Diemen's Land, 1820-1839," *Australian Historical Studies*, 34, no. 121 (2003): 4-9.
- ³⁸ Lucy Frost, *Abandoned Women: Scottish Convicts Exiled Beyond the Seas* (Sydney, Allen and Unwin, 2012), 46-65
- ³⁹ See for example McKeown, *Modern Rise*, 150
- ⁴⁰ Simon Szreter, "The Importance of Social Intervention in Britain's Mortality Decline c. 1850-1914: A Reinterpretation of the Role of Public Health", *Social History of Medicine*, 1, no 1 (1988):, p.32.
- ⁴¹ James Colgrove, "The McKeown Thesis: A Historical Controversy and Its Enduring Influence," *American Journal of Public Health*, 95, no. 5 (2002): 725–729 and Szreter, "The Importance of Social Intervention, 1-38.

Considering convicts came out to Australia and New Zealand over 230 years ago and considering that the ships (in those days) were not very large and did not have the luxury of stabilisers, they probably spent a good deal of time trying to cope with acute seasickness as well as being forced to scrub the decks and do all the cleaning, cooking, mending, and repair work on board on the long journey out to Australia. A few good looking females may have travelled in Officers Quarters. It also varied with ship. The authorities only tended to transport the young and fit and mostly males in a ratio of 7:1 to females. Of course, this is only an example, and other convicts would have had different experiences (I have two other convict ancestors, both Irish, one male and one female)... Volume 13 Issue 3. Mortality on Convict Voyages to Australia, 1788-1868. English Français. Social Science History. and Queensland, Australia, during the late nineteenth and early twentieth centuries (see Riley, 1981; Eltis, 1983; Cohn, 1984, 1985, 1987, 1988; Grubb, 1987; Ekirch, 1987; Morgan, 1985; Shlomowitz, 1986, 1987, 1989; McDonald and Shlomowitz, 1988, forthcoming). Type. Research Article. Cohn, R. L. (1985) "Deaths of slaves in the middle passage." Journal of Economic History 45 (September): 685-692. CrossRef Google Scholar. Cohn, R. L. (1987) "The determinants of individual immigrant mortality on sailing ships, 1836-1853." The invasion of Australia by the British, both convict and free, has tragic dimensions to it pertinent to the title of this book. On the one hand there were the convicts who were. 17. Those transported for life could not, under any circumstance whatsoever, return to Britain on pain of death. Very few convicts returned at all, the reason being that they would have to pay for their ticket or it is more probable that the majority felt that Australia offered them opportunities they were unlikely to have if they returned home. On arrival in Australia each convict was registered, asked his/her place of origin, religion, whether they could read and write, their previous job and they were also physically inspected for any outstanding marks which could be used to identify them should...