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A Benign Institution?: Convict Health, Living Conditions, and Labour Management at Port Arthur Penal Station, 1868-1870

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On 5 October 1869, a small party of parliamentary members came ashore at the gloomy grounds of Port Arthur penal station to assess the future of this last institutional relic of Tasmania's convict era.¹ The prison that had become '*the emblem of the miseries of transportation*' was soon to be dismantled (1877), having proven itself too expensive for a colony with limited means.² For a newspaper reporter accompanying the visiting members, the term 'prison' no longer seemed appropriate to describe Port Arthur in any case. He regarded the prisoners as 'men of broken spirit ... who offered no difficulty' to penal administrators and lived in relative luxury: 'arrangements made for the physical comfort, and we may add, enjoyment of the penal inmates of Port Arthur; are more complete than will be found in any other institution in the colony'. Another visiting reporter in March 1870 claimed that the Port Arthur penitentiary 'better represents a mansion, than a house of correction for criminals'.³

Several historians agree that Port Arthur's last years featured a benign system of convict treatment. Ian Brand noted the 1871 claim of settlement Superintendent James Boyd that he sought to reform convicts not through a system of 'terror', but 'by inspiring them with a gradual and increasing desire to conduct themselves in a becoming manner'.⁴ Richard Tuffin described an ageing and infirm Port Arthur workforce, sheltered from heavy labour by administrators pursuing efficient industrial practice.⁵ Peter MacFie labelled the settlement 'an

¹ *Mercury*, 7 October 1869, pp. 2-3.

² R. Hughes, *The Fatal Shore: A History of the Transportation of Convicts to Australia, 1787-1868*, London, 1987, p. 400. Italics in original.

³ *Mercury*, 7 October 1869, p. 2, and 24 March 1870, p. 3.

⁴ Boyd, quoted in I. Brand, *Penal Peninsula: Port Arthur and its Outstations, 1827-1898*, Launceston, 1989 [1978], p. 192.

⁵ R. Tuffin, 'The Evolution of Convict Management in Van Diemen's Land: Placing the Penal Peninsula in a Colonial Context', *Tasmanian Historical Research Association Papers and Proceedings*, Vol. 54, No. 2, 2007, p. 76.

old men's home' and quoted Medical Officer George Dinham's 1871 statement that 'At the present time, Port Arthur is little else than a large hospital and infirmary, the number of able bodied men being merely nominal'.⁶

It is reasonable to describe Port Arthur's convicts in the late 1860s as an ageing population. The average prisoner age for 1869-1870 was 48.7 years (Table 1), compared to an average age of 25.6 (on departure from England) for male convicts transported to Van Diemen's Land between 1830 and 1840.⁷ However, claims that Port Arthur ceased to resemble a penal station in its later years are somewhat overdrawn. Morbidity data for this period demonstrates that incarceration and punishment were far from benign experiences for many Port Arthur convicts. This article will analyse daily 'Sick Reports' compiled at Port Arthur between October 1868 and October 1870 and examine what these reveal about convict health, living conditions and labour management at the penal settlement.⁸

	Age Group (Years)							Mean Age
	Under 20	20-29	30-39	40-49	50-59	60-69	70-79	
Average Percentage of Prisoners 1869-70	0.3	3.5	14.0	38.2	26.6	14.5	2.8	48.7

Calculated using 'Return of the Convicts under Sentence at Port Arthur on the 30th June, 1869', *Journals of the House of Assembly*, Vol. 18, No. 68, Hobart, 1869, pp. 3-5; Return of the Convicts at Port Arthur, *Journals of the House of Assembly*, Vol. 20, No. 128, Hobart, 1870, pp. 3-7.

The article also engages with a central question in convict scholarship: whether the primary aim of the convict system was punishment, or the effective utilisation of 'human capital'. Stephen Nicholas *et. al.* in the 1988 volume *Convict Workers*, controversially

⁶ P. MacFie and M. Bonet, *Convict Health at Port Arthur & Tasman Peninsula 1830-1877: The Relationship Between Diet, Work, Medical Care & Health*, Hobart, 1985, p. 23.

⁷ Figures for 1830-40 calculated from Founders and Survivors Project, Summary of Diagnoses on Convict Vessels Sailing to Van Diemen's Land, 1818-1853, unpublished database, 2011 (compiled from The National Archives, Kew (UK): ADM Series 101).

⁸ 'Port Arthur Penitentiary Sick Reports, 1868-1870', Tasmanian Papers (TP) 297-301, Mitchell Library, Sydney.

argued that the convict system was relatively benign (compared with slavery and bonded and indentured labour) because prisoners were seen as a productive asset. *Convict Workers* championed the size of the standard convict ration and the quality of prisoner accommodation, emphasising that convicts worked fewer hours per week than English workers and had free access to medical care.⁹ These benefits, Nicholas argued, stemmed from convicts' value as physically fit, generally skilled, productive workers. Transportees were assigned to jobs that largely matched their skills, and rewards, rather than the whip, were the standard device for extracting convict labour.¹⁰ This was a convict system designed chiefly for efficiency and economic productivity, rather than for punishment.

The most lucid critique of *Convict Workers*, by Raymond Evans and Bill Thorpe in 1992, argued that the perceptual framework of efficiency and productivity could not be applied to penal stations (which were marginalised in *Convict Workers*). They claimed that at the Moreton Bay penal station a significant body of 'peripheral' convicts were brutalised and terrorised 'as a potent warning to any convict who transgressed authority'.¹¹ 'Human capital' was not nurtured with a view to productivity, but worked to the limits of human endurance. Evans and Thorpe defined the concept of 'penal labour', in which punishment was central '*within* the labour process'. Convicts were often punished with some form of beating, most often whipping, while they worked, and deliberately inefficient methods of deploying the workforce (such as cultivating close land, not the best land, and using man power, rather than animal power) equated work with punishment.¹²

Hamish Maxwell-Stewart attempted to resolve the dichotomy in his 1997 study of Macquarie Harbour penal station, arguing that '*Convict Workers* and 'penal labour' worked (and work) side by side' at

⁹ S. Nicholas, 'The Care and Feeding of Convicts', in S. Nicholas (ed.), *Convict Workers: Reinterpreting Australia's Past*, Cambridge, 1988, pp. 184-92, 195-96.

¹⁰ S. Nicholas and P. Shergold, 'Unshackling the Past', in Nicholas (ed.), *Convict Workers*, pp. 8-11.

¹¹ R. Evans and B. Thorpe, 'Power, Punishment, and Penal Labour: *Convict Workers* and Moreton Bay', *Australian Historical Studies*, Vol. 25, No. 98, 1992, pp. 90, 100, 103-04.

¹² R. Evans and B. Thorpe, 'Freedom and Unfreedom at Moreton Bay: The Structures and Relations of Secondary Punishment', in B. Dyster (ed.), *Beyond Convict Workers*, Sydney, 1996, pp. 71-2. Italics in original. See L. Ford and D. A. Roberts, 'New South Wales penal settlements and the transformation of secondary punishment in the nineteenth-century British Empire', *Journal of Colonialism and Colonial History*, Vol. 15, No. 3, Winter 2014, DOI 10.1353/cch.2014.0038, for more recent views on how this system of 'penal labour' was brought into being in colonial New South Wales.

that settlement. Functioning essentially as a colonial shipyard, Macquarie Harbour supported skilled positions, such as ship construction crews, in which prisoners received numerous incentives including extra rations, separate living quarters, spirits and tobacco. Incentive-based management was also necessary for skilled work like shipbuilding because it reduced the risk of industrial sabotage. However, other aspects of convict management at Macquarie Harbour strongly exemplify 'penal labour', as defined by Evans and Thorpe. Ganged convicts in chains received insufficient rations, were frequently beaten and spent much time semi-submerged in water. Ganged labour at Macquarie Harbour was 'constructed to be a punishment in its own right'; maximising output was a lesser concern.¹³ Since their work required few skills, ganged convicts became 'barely more than instruments, and expendable ones at that'.¹⁴

During Port Arthur's early years (the station opened in 1830), a similar gulf in convict treatment emerged. Maxwell-Stewart has demonstrated a considerable discrepancy in death rates at Port Arthur between ganged prisoners (48 deaths per thousand men per year) and the non-ganged (13 deaths per thousand per year) for the period 1832-1843. Also, convict management at early Port Arthur was far from consistent. The penal station oscillated between phases emphasising 'penal labour and the extraction of pain regardless of cost', and 'more lenient interludes' which focussed on 'industrial output through effective utilisation of labour skills'.¹⁵ According to Tuffin, the latter form of management became dominant in Port Arthur's later years. From around 1840, Van Diemen's Land came under increasing pressure from the Imperial Government to make convict enterprises sustainable. This was particularly the case from the 1850s, when the convict system withdrew to a handful of Imperially-maintained institutions, required to operate at peak efficiency. In the words of Deputy Commissary General George Maclean (in 1849), 'Every practicable means ought to be adopted to render the labour of the

¹³ H. Maxwell-Stewart, 'Convict Workers, "Penal Labour" and Sarah Island: Life at Macquarie Harbour, 1822-1834', in J. Bradley and I. Duffield (eds), *Representing Convicts: New Perspectives on Convict Forced Labour Migration*, London, 1997, pp. 148-57.

¹⁴ Evans and Thorpe, 'Freedom and Unfreedom', p. 72.

¹⁵ H. Maxwell-Stewart, 'The Rise and Fall of John Longworth: Work and Punishment in Early Port Arthur', *Tasmanian Historical Studies*, Vol. 6, No. 2, 1999, pp. 104, 108. See also L. Marshall, 'A Benign Institution?: Convict Health, Living Conditions, and Labour Management at Port Arthur Penal Station, 1868-1870', BA Hons Thesis, University of Tasmania, 2013, pp. 16-17.

convicts productive, so as to diminish as much as possible the heavy expenditure [of] the British Treasury'.¹⁶

This quest for 'efficiency' resulted in a gradual shift towards more efficient labour practices and the adoption of labour-saving techniques. Tuffin has demonstrated this transformation for the timber industry at Port Arthur, which featured 'unmistakably punishment-oriented use of labour' until the late 1840s.¹⁷ In the timber-carrying gangs, for example, groups of unfortunate prisoners were commanded to lift great logs on to their collective shoulders, stumbling in chains for several miles to their destination.¹⁸ By 1856, an iron-milled tramway, log slides and a steam-powered sawmill had streamlined timber-harvesting operations, marking a clear transition from 'penal labour', to a labour-saving scheme prioritising economic productivity. For convicts in the later carrying gangs, the task of manhandling logs to the tramway bore little resemblance to the miles trekked by their forebears.¹⁹

A similar change took place in agricultural labour. For most of Port Arthur's history, draught animals were banned from the settlement, prisoners instead being harnessed to carts and ploughs. This focus on punishment labour through inefficient practices was epitomised by the 'punishment fork'. Named for the excessive weight and width of its tines, this implement was intended to be difficult to use efficiently in turning soil or harvesting crops.²⁰ By 1860, iron ploughs and other implements 'of the best description' were in use at Safety Cove, a nearby farm at which many Port Arthur convicts worked, and in 1864, bullocks were finally introduced at Port Arthur.²¹ The decline of punishment labour was necessary in order to drive higher rates of productivity, but the colonial government remained concerned about maintaining Port Arthur's reputation as a place of 'terror'. As late as 1863, a Joint Committee of Parliament complained

¹⁶ Tuffin, 'Evolution of Convict Management', pp. 71, 74.

¹⁷ *Ibid.*, pp. 71, 76, 78-9.

¹⁸ C. Pybus and H. Maxwell-Stewart, *American Citizens, British Slaves: Yankee Political Prisoners in an Australian Penal Colony, 1839-1850*, Melbourne, 2002, p. 156; M. Cash, *Martin Cash, the Bushranger of Van Diemen's Land in 1843-4: A Personal Narrative of his Exploits in the Bush and his Experiences at Port Arthur and Norfolk Island*, Hobart, 1929 [1870], p. 52. See also L. Miller, *Notes of an Exile to Van Diemen's Land, Fredonia, 1846*, pp. 332-9; W. Derrincourt, *Old Convict Days*, L. Becke (ed.), London, 1899, pp. 45-46.

¹⁹ Tuffin, 'Evolution of Convict Management', p. 81; Brand, *op. cit.*, p. 135.

²⁰ E. Cave, 'Pleasure or Punishment?: The Importance of Food Gardens to Secondary Penal Settlements', BA Hons Thesis, University of Tasmania, 2007, pp. 58, 61.

²¹ *Hobart Town Advertiser*, 23 August 1860, p. 2; Brand, *op. cit.*, p. 159.

that 'the comfort of the Convicts [at Port Arthur] has for many years been so much studied [by the criminal classes] as to deprive a sentence of penal servitude of its legitimate terrors'. This had apparently caused numbers in colonial gaols to rise disturbingly.²²

Port Arthur's lack of 'corporal coercion' in its later years may have contributed to government anxieties.²³ Flogging was abolished at the penal station in 1848. From 1852, incorrigibles would instead face confinement in Port Arthur's 'separate prison', a facility adhering to the 'separate system' of prison discipline, in which almost total prisoner isolation was broken only by a chaplain's Christian message.²⁴ Solitary confinement had been employed as a punishment since Port Arthur's early days,²⁵ but a highly-regulated system of separate treatment marked a change in the settlement's penal philosophies. Despite its bid to reform men through 'the reasoning mind and not the beaten body', the separate prison remained a severe punishment facility. As Miles Ogborn notes, the separate system did not 'substitute reformation for deterrence', but bound 'them both together in the terrifying transformation of the soul of the criminal through solitude and prayer'.²⁶ In 1875, Port Arthur Commandant Dr John Coverdale observed that long periods of separate confinement could be 'very hurtful to the mental powers, especially with young men'.²⁷ Sometimes the isolation proved too much. Two suicide attempts (one successful) are documented within the separate prison, and Lynette Ross suggests the actual number was probably higher.²⁸

22 'Prison Labour. Report from the Joint Committee', *Journals of the House of Assembly (JHA)*, Vol. 10, No. 82, Hobart, 1863, pp. 3-4.

23 The phrase 'corporal coercion' was used by Commandant James Boyd as a euphemism for flagellation. See for example Report of the Civil Commandant and Superintendent, Port Arthur, 19 January 1854, in 'Further Correspondence on the Subject of Convict Discipline and Transportation', *British Parliamentary Papers: Crime and Punishment, Transportation, 1854-1855*, Vol. 13, Shannon, 1969, p. 41.

24 M. Weidenhofer, *Port Arthur: A Place of Misery*, Port Arthur, 1990, p. 67; R. McGowen, 'The Well-Ordered Prison: England 1780-1865', in N. Morris and D. J. Rothman (eds), *The Oxford History of the Prison: The Practice of Punishment in Western Society*, New York, 1995, p. 100.

25 See for example, Lieutenant Governor to Colonial Secretary, 5 May 1834, in 'The Brand Papers', Vol. 5 (held at Port Arthur Historic Site), p. 127.

26 M. Ogborn, 'Discipline, Government and Law: Separate Confinement in the Prisons of England and Wales, 1830-1877', *Transactions of the Institute of British Geographers*, Vol. 20, No. 3, 1995, p. 302.

27 Quoted in Weidenhofer, *op. cit.*, p. 88.

28 L. Ross, 'The Final Escape: An Analysis of Suicide at the Penal Settlement of Port Arthur', *Journal of Australian Colonial History*, Vol. 7, 2005, p. 197-99; Weidenhofer, *op. cit.*, p. 87.

Another important aspect of convict treatment in Port Arthur's final years was the convict diet. Consisting only of salt meat and flour in 1830, the daily ration soon evolved to include fresh meat, green vegetables and potatoes. However, the vegetable ration was subject to availability and production lagged behind the settlement's requirements. As late as 1855, convicts were receiving vegetables only one to three times per week.²⁹ By 1868, fruit and vegetables were 'produced in abundance' in Port Arthur's gardens, and bacon, barley, vinegar, pepper, suet, oatmeal, molasses, peas and other vegetables were added to the diet.³⁰ The 1868 diet was also the first to grade rations for 'effective' convicts according to the difficulty of their labour.³¹

While these 'improvements' more adequately provided for the convicts' vitamin and mineral needs, recent estimates indicate that the calorie content of convict rations actually decreased from nearly 4,600 kilocalories per day in 1830, to approximately 3,500 kilocalories (for those at hard labour) in 1868 (Table 2). As demonstrated above, the reduction in calories was matched to some degree by a decrease in the difficulty of convict labour. But even so, many convicts in 1868-70 were not equipped with enough energy to fulfil their labour requirements. Using figures provided by Richard Sutch, a convict weighing 65 kilograms, employed in 'heavy' labour such as felling trees and manhandling logs (typical labour for the settlement's 'wood gangs'), could expend between 7.5 and 9.9 kilocalories per minute. Other time spent resting, sleeping, eating and dressing would consume approximately 1.4 kilocalories per minute. In 1868, Port Arthur convicts worked 53 hours per week on average, so for those in the wood gangs the ration provided only 73 per cent of their daily energy requirements (assuming a calorie consumption of 7.5 kilocalories per minute).³²

²⁹ Brand, *op. cit.*, pp. 4, 140; Cave, *op. cit.*, pp. 33, 40, 44; MacFie and Bonet, *op. cit.*, p. 6. The 'green vegetables' mostly consisted of turnips, Swedish turnips, and cabbages.

³⁰ Tasmania Convict Department, *Rules and Regulations for the Penal Settlement at Port Arthur*, Hobart, 1868, pp. 56-63; *Mercury*, 25 March 1870, p. 3.

³¹ Tasmania Convict Department, *op. cit.*, pp. 56-66; Port Arthur 1866: Present Rations, Dietary, Proposed Rations, transcribed by Historical Documentation Project from Tasmanian Archive and Heritage Office (TAHO), CO 280/370/1967 (held at Port Arthur historic site), pp. 2-9.

³² R. Sutch, 'The Care and Feeding of Slaves', in P.A. David (ed.), *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery*, New York, 1976, pp. 266-7. On the Port Arthur wood gangs in the later years of the settlement, see Jeffrey, *op. cit.*, p. 116; 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *British Parliamentary Papers: Crime and Punishment*,

Table 2. Estimated energy and vitamin content of convict rations, together with adequacy of energy provided.

Year	Energy Provided by Convict Ration (kcal)	Vitamin A (µg)(Retinol Equivalent)	Vitamin in C (mg)	Weekly Hours Worked	Energy Required (for hard labour) (kcal)	Percentage of Energy Requirements Provided by Ration
1830	4566	27	0	53.75	5978	76
1833	4081	18	0	57	6218	66
1836	4247	54	62	57	6218	68
1840	4072	59	62	57	6218	65
1868#	3473	1093	61	53	4787	73

The 1868 standard rations were separated into those for men at 'hard labour' and men at 'light labour'. The figures shown are for hard labour. Prisoners employed in light labour were provided with 3,134 kilocalories per day, which would have met their energy requirements, using Sutch's calorie consumption range for light work

Note that all values are approximations. The poorest cuts of meat were used in all calculations and it is assumed that all meat and vegetables were boiled. It is assumed that convicts received their rations in full, as per the settlement regulations, without any substitution of foods. This was seldom the case at early Port Arthur. See M. Cash, *Martin Cash, the Bushranger of Van Diemen's Land in 1843-4: A Personal Narrative of his Exploits in the Bush and his Experiences at Port Arthur and Norfolk Island*, Hobart, 1929 [1870], p. 50; M. Jeffrey, *A Burglars Life, or, The Stirring Adventures of the Great English Burglar Mark Jeffrey: A Thrilling History of the Dark Days of Convictism in Australia*, W. Heiner and J. E. Heiner (eds), Sydney, 1968, pp. 117, 119, 169.

Estimates were calculated using United States Department of Agriculture, *National Nutrient Database for Standard Reference, Release 26, 2013*, <<http://ndb.nal.usda.gov/ndb/search/list>> (30 September 2013); Tasmania Convict Department, *Rules and Regulations for the Penal Settlement at Port Arthur*, Hobart, 1868, pp. 47, 56-66; 'Orders & Regulations for the Government & Management of the Settlement at Port Arthur, 12 May 1831', in 'The Brand Papers', Vol. 5 (held at Port Arthur Historic Site), p. 30; I. Brand, *Penal Peninsula: Port Arthur and its Outstations, 1827-1898*, Launceston, 1989 [1978], pp. 4, 15, 24, 34, 45; Undated 1836 Rations, in 'The Brand Papers', Vol. 5 (held at Port Arthur Historic Site), p. 144; Settlement Order, 30 April 1840, in 'The Brand Papers', Vol. 7 (held at Port Arthur Historic Site), pp. 142-3; *Regulations of the Penal Settlement at Port Arthur*, Melbourne, [1845] 1966; R. Sutch, 'The Care and Feeding of Slaves', in P.A. David (ed.), *Reckoning with Slavery: A Critical Study in the Quantitative History of American Negro Slavery*, New York, 1976, pp. 266-77; E. Cave, 'Pleasure or Punishment?: The Importance of Food Gardens to Secondary Penal Settlements', BA Hons Thesis, University of Tasmania, 2007, pp. 40-44.

Transportation, 1864-1859, Vol. 16, Shannon, Vol. 16, p. 21; Brand, *op. cit.*, p. 178. Such detailed descriptions are absent for most other types of labour at Port Arthur in this period.

Transformations in prisoner accommodation were equally dramatic over Port Arthur's lifetime. From 1833, convicts were housed in wooden barracks, each room containing two long tables for meals, surrounded by numerous sleeping berths.³³ Human waste was collected in a privy adjoining the barracks, as well as in waste buckets kept within the sleeping accommodation overnight.³⁴ Despite stringent regulations for maintaining cleanliness in the barracks, these living arrangements were hygienically inferior to the 'well lighted and ventilated dormitory' and separate 'spacious dining hall' of the new brick penitentiary completed in 1857.³⁵ Convicts of this later era no longer ate where they slept (or where waste buckets were kept). 'Privies' were installed in the new dormitory for night use, and only convicts in the separate prison continued to use 'slops buckets'.³⁶ Barracks which, in 1847, had been 'in a very dilapidated state, overrun with vermin, and so incommensurable from the want of mess-rooms, and other conveniences', were replaced in the penitentiary by 'burnished banisters', 'snowy white floors', 'well ventilated dormitories', a 'magnificent dining-room', a 'well appointed kitchen', 'hot and cold bath-rooms' and a 'smoking salon'.³⁷

Analysing space within the penitentiary dormitory reveals a rather less luxurious situation. Using conservative estimates of the 1868 dormitory population, the amount of space available per convict was around 440 cubic feet, a figure well below standards of 600-1000 cubic feet per man set for British army barracks at the time.³⁸ When

³³ Brand, *op. cit.*, p. 9; D. Denholm, 'The Administration of Port Arthur Penal Settlement, 1830-1844', BA Hons Thesis, University of Adelaide, 1968, p. 141; T. J. Lempriere, *The Penal Settlements of Early Van Diemen's Land*, Launceston, 1954, p. 109.

³⁴ Plan, Tasman Peninsula, Port Arthur - Prisoners Barracks, additions, Public Works Department 266/1/1805, TAHO.

³⁵ For an example of stringent hygiene regulations pertaining to the barracks, see Lieutenant Governor to Colonial Secretary, 5 May 1834, p. 127. Quotations relating to the new penitentiary in Brand, *op. cit.*, pp. 139-40.

³⁶ R. Tuffin, 'Penitentiary Ablutions Block: Archaeological Report', Port Arthur Historic Site Management Authority, Port Arthur, 2004, p. 43.

³⁷ Comptroller-General to Lieutenant-Governor, 27 April 1847, in 'The Brand Papers', Vol. 16 (held at Port Arthur Historic Site), p. 125; *Mercury*, 24 March 1870, p. 3.

³⁸ P. Curtin, *Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century*, Cambridge, 1989, p. 61. As well as 348 sleeping berths in the dormitory, the penitentiary contained 136 separate cells for prisoners under heavy sentences or of 'bad character'. See Brand, *op. cit.*, p. 139. Assuming that all separate cells were occupied, and given that the average number of convicts incarcerated in the separate prison during 1868-70 was 18, the lowest possible average dormitory population for 1868-1870 is 167 (out of an average settlement population of 321). This would have given each convict 438 cubic feet of space. Population information is

filled to maximum capacity (348 men), the dormitory would have provided only 210 cubic feet per prisoner – less than the space offered per slave by a 'typical slave log cabin' in nineteenth-century America.³⁹ It is reasonable to assume that a near-capacity penitentiary was the norm at Port Arthur until at least 1865.⁴⁰ Phillip Curtin acknowledges that the British barrack regulations helped reduce the transmission of respiratory diseases, contributing to a dramatic mid-century reduction in army mortality.⁴¹ Clearly, the same standards were not followed at Port Arthur.

Mortality trends over Port Arthur's history reflect the easing of work regimes and advancements in prisoner nutrition and living conditions so far discussed. Figure 1 shows a general decline in crude death rates for approximately the first thirty-five years of the settlement, reaching an all-time low in 1866. Mortality rates then rose sharply from 1868. Since little information is available on causes of death for this period, the reasons for the mortality increase are difficult to discern. Could it be that insufficient convict rations increased prisoner vulnerability to deadly disease, or that an undersized dormitory quickened the spread of lethal infections? The latter seems unlikely since overcrowding was more pronounced in the ten years preceding 1868.⁴² Or were rising death rates merely the consequence of an ageing population? To better understand the state of convict health at Port Arthur, this article turns to the station's 'Sick Reports' for 1868-1870, a more comprehensive set of records than those relating to convict deaths.

from 'Prisoners, Paupers, and Lunatics at Port Arthur and Hobart Town Establishments', *JHA*, Vol. 24, No. 15, Hobart, 1872, p. 14; 'Individual convict's employment records in the Separate Prison, October 1867 to July 1871', Convict Department (hereafter CON), B5, Mitchell Library, Sydney.

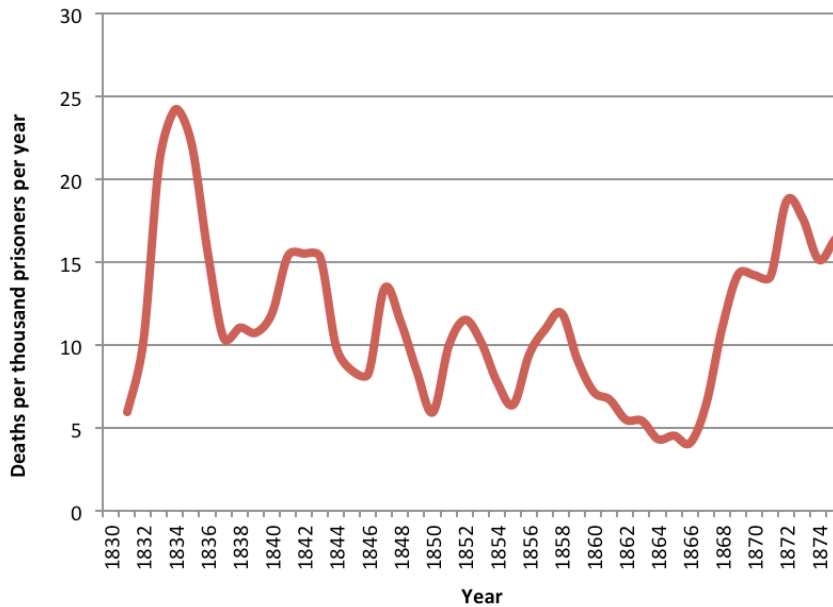
³⁹ Nicholas, 'Care and Feeding of Convicts', p. 191.

⁴⁰ The Port Arthur convict population was above 500 men up until this point. These prisoners were spread across the separate prison (70 cells), the penitentiary dormitory (348 berths), and the penitentiary's 136 separate cells. See Brand, *op. cit.*, pp. 116, 139. For population figures throughout Port Arthur's history, see Marshall, *op. cit.*, pp. 80-2.

⁴¹ Curtin, *op. cit.*, p. 61.

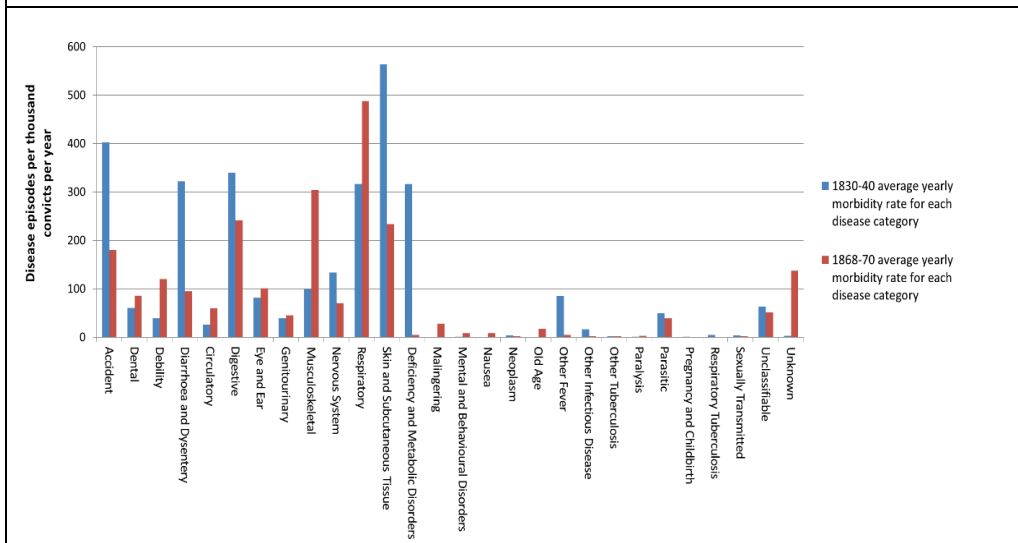
⁴² See Port Arthur population figures in Marshall, *op. cit.*, pp. 80-2.

Figure 1. Crude mortality rates for Port Arthur convicts, 1830-76 (three-year moving average, not adjusted for age).



Note that no population data is available for 1877. Death tolls were calculated from L. Ross, 'Death and Burial at Port Arthur, 1830-1877', BA Hons Thesis, University of Tasmania, 1995, pp. 73-86, 97-197; Founders and Survivors Project, Reconstituted Record of Deaths under Sentence, unpublished database, 2010; *Statistics of the Colony of Tasmania for the Year 1869*, Hobart, 1870, p. xxv; *Statistics of the Colony of Tasmania for the Year 1870*, Hobart, 1871, p. xxv; *Statistics of the Colony of Tasmania for the Year 1871*, Hobart, 1872, p. 161; *Statistics of the Colony of Tasmania for the Year 1872*, Hobart, 1873, p. 164; *Statistics of the Colony of Tasmania for the Year 1873*, Hobart, 1874, p. 164; *Statistics of the Colony of Tasmania for the Year 1874*, Hobart, 1875, p. 172. Population figures used to calculate mortality rates were sourced from R. Tuffin (ed.), *Statistics on Convict Population Numbers, Port Arthur, Port Arthur*, 2005; 'Prisoners, Paupers, and Lunatics at Port Arthur and Hobart Town Establishments', *JHA*, Vol. 24, No. 15, Hobart, 1872, p. 14; 'Scale of Reduction of Convicts, Paupers, and Lunatics', *JHA*, Vol. 29, No. 41, Hobart, 1875, p. 30; Brand, *Penal Peninsula*, p. 200.

Figure 2. Comparison of average yearly morbidity rates for each disease category, Port Arthur 1830-1840 and 1868-1870



Calculated from 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney; L. Ross, 'Death and Burial at Port Arthur, 1830-1877', BA Hons Thesis, University of Tasmania, 1995, pp. 92-5; 'Return of the Number of Diseases treated at the hospital, Port Arthur, 1839 and 1840', *British Parliamentary Papers: Crime and Punishment, Transportation*, Vol. 6, Shannon, 1970, pp. 121-22; 'Prisoners, Paupers, and Lunatics at Port Arthur and Hobart Town Establishments', *JHA*, Vol. 24, No. 15, Hobart, 1872, p. 14.

The Port Arthur 'Sick Reports' recorded daily inspections of convicts who reported themselves sick to the settlement's medical officers.⁴³ Between October 1868 and October 1870, 3,765 such medical examinations were conducted.⁴⁴ As well as listing a diagnosis for each convict, the Sick Reports detail the prisoner's age, employment, location of employment, period of detention, and class of labour. They also contain doctor's remarks, recommendations, and prescribed

⁴³ Not one convict known to be in the separate prison during 1868-70 appears in the Sick Reports while under separate treatment. It seems likely that doctors' visits to the separate prison were recorded elsewhere. For a more detailed examination of this issue, see Marshall, *op. cit.*, pp. 35-6. The arrangements for the medical inspection of Port Arthur convicts are detailed in Governor to Secretary of State, 15 January 1866, in 'The Brand Papers', Vol. 3 (held at Port Arthur Historic Site), p. 107.

⁴⁴ 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney.

treatments. Excluding repeated diagnoses of the same disease episode for the same convict, the Sick Reports give an overall morbidity rate (all diseases aggregated) of 3,006 disease episodes per thousand convicts per year. If diagnoses of 'observatio' are excluded (a term used when prisoners' ailments were undetermined or when monitoring their progress towards recovery), then the disease rate falls to 2,330 episodes per thousand per year.⁴⁵ As was the case with mortality (Figure 1), overall morbidity rates for 1868-1870 were remarkably similar to those in Port Arthur's early years (1830-1840), when 2,771 disease cases per thousand convicts per year were recorded.

Despite this overall similarity, Figure 2 shows a number of important differences in the morbidity rates for different categories of disease over the two periods. These differences reveal much about convict treatment in Port Arthur's later years. The marked decrease in diarrhoea and dysentery suggests a dramatic improvement in sanitation. Dysentery is particularly associated with poor sanitary conditions and is contracted from either food or water contaminated with human faeces.⁴⁶ The virtual disappearance of the 'other fever' category in 1868-1870 demonstrates improved prison hygiene and living conditions. Most of the cases in this category were diagnoses of 'febris', which J. H. Cumpston claims referred to typhus.⁴⁷ This is a louse-borne disease spread by small mammals such as rats and encouraged by overcrowding, unwashed bodies and infrequent changing of clothing and bedding.⁴⁸ The greatest disparity between the two periods was in the category of deficiency and metabolic disorders (principally scurvy), which emphasises the increase in vitamin content

⁴⁵ For an explanation of the methodology used to exclude disease episodes, see Marshall, *op. cit.*, pp. 29-30. These morbidity figures are calculated based on the total Port Arthur population. If separate prison convicts are excluded from the Sick Reports, the revised population numbers give morbidity rates of 3,185 disease episodes per thousand men per year, or 2,469 per thousand per year without *observatio* cases.

⁴⁶ R. M. Youngson, 'Dysentery', *The Royal Society of Medicine Health Encyclopedia: The Complete Medical Reference Library in One A-Z Volume*, <www.credoreference.com/entry/rsmhealth/dysentery> (2 October 2013).

⁴⁷ J. H. Cumpston, *Health and Disease in Australia: A History*, Canberra, 1989, p. 55. Given the vermin-infested state of the early prisoners' barracks at Port Arthur, and the appearance of 98 cases of '*pediculi*' (lice infestation) in the medical returns for 1840 when '*febris*' was at its height, Cumpston's assumption seems well-founded.

⁴⁸ J. Watt, 'The Colony's Health', in J. Hardy and A. Frost (eds), *Studies from Terra Australis to Australia*, Canberra, 1989, p. 138; T. McKeown, *The Modern Rise of Population*, London, 1976, pp. 112-3, 126; R. M. Youngson, 'Typhus', *The Royal Society of Medicine Health Encyclopedia: The Complete Medical Reference Library in One A-Z Volume*, <www.credoreference.com/entry/rsmhealth/dysentery> (7 October 2013).

of the convict ration over time. Although vitamin C levels differed little in the official convict dietaries of 1836, 1840 and 1868 (see Table 2), the prevalence of scurvy in the earlier period makes it clear that convicts were not receiving anywhere near the quantity of vegetables listed in official regulations.⁴⁹ The much greater prevalence of skin conditions in 1830-1840 may also have resulted from vitamin deficiency. J. B. Cleland has noted that the predominance of 'pyogenic' diseases at early Port Arthur (such as ulcers and 'phlegmon', which made up 61 per cent of skin conditions suffered in 1830-1840) was probably due to insufficient vitamin A consumption.⁵⁰ The vitamin A content of convict rations up to 1840 was woefully inadequate compared to modern dietary recommendations (see Table 2).⁵¹ Greater use of leg irons at early Port Arthur would also have increased the incidence of leg ulcers.⁵² Finally, the dramatic decrease in accidents between 1830-1840 and 1868-1870 demonstrates that convict labour had become considerably less dangerous, probably due largely to the adoption of labour-saving techniques and equipment.

Most of the diseases that were more prevalent in 1868-70, including musculoskeletal diseases (chiefly rheumatism), circulatory diseases (chiefly heart disease), debility, and respiratory infections like bronchitis, are predominantly chronic degenerative illnesses of the middle-aged and elderly.⁵³ The average age of patients in the categories listed above was 53, placing them among the oldest of the

49 As a point of reference, the amount of vitamin C currently recommended daily for Australian adult males is 45 milligrams. The Port Arthur rations of 1836, 1840 and 1868 exceeded this recommendation. See National Health Medical Research Council, *Nutrient Reference Values for Australia and New Zealand*, 2006, <www.nhmrc.gov.au/_files_nhmrc/publications/attachments/n35.pdf> (4 October 2013), p. 121.

50 J. B. Cleland, 'Morbidity and Mortality in the Convict Settlement at Port Arthur, Tasmania, from 1830 to 1835', *Medical Journal of Australia*, Vol. 2, No. 12, 1932, p. 349.

51 The current recommended daily intake of vitamin A for Australian adult males is 900 micrograms (retinol equivalent). See National Health Medical Research Council, *op. cit.*, p. 61.

52 M. Weidenhofer, *Port Arthur: A Place of Misery*, Port Arthur, 1990, pp. 69-70. The damaging effects of leg irons are well illustrated by convict Mark Jeffrey, whose 'legs were rotting away' by the 1860s after a decade of labour in chains at Port Arthur and Norfolk Island. See W. Heiner and J. E. Heiner, 'Introduction', in W. Heiner and J.E. Heiner (eds), *A Burglars Life, or, The Stirring Adventures of the Great English Burglar Mark Jeffrey: A Thrilling History of the Dark Days of Convictism in Australia*, Sydney, 1968, p. ix.

53 A. C. Harper and L. J. Lambert, *The Health of Populations: An Introduction*, New York, 1994, p. 22; S. Pridmore, 'Disease in Tasmania 1804-1975: An Outline', *Tasmanian Historical Research Association Papers and Proceedings*, Vol. 26, No. 2, 1979, p. 41.

sick prisoners at Port Arthur in 1868-1870 (see Table 3). As mentioned above, 25.6 was the average age on departure from England for male convicts transported to Van Diemen's Land between 1830 and 1840. These prisoners were considerably younger than their 1860s counterparts and therefore less vulnerable to degenerative illness.

Table 3. Average patient age for each disease category, Port Arthur 1868-70	
Disease Category	Average Age of Patient
Accident	47.1
Dental Problems	47.6
Debility	56.4
Diarrhoea and Dysentery	51.9
Circulatory System	48.9
Digestive System	51.5
Diseases of the Eye and Ear	52.8
Genitourinary System	51.7
Musculoskeletal	54.0
Nervous System	49.9
Respiratory System	51.2
Skin and Subcutaneous Tissue	48.0
Malingering	52.2
Old Age	71.9
Other Fever	47.3
Parasitic	46.1
Unclassifiable	50.7
Unknown	50.9
Observatio	50.3
All Diseases	50.9
Calculated from 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney.	

The prisoners of 1868-1870 had also endured many more years within the convict system than the 1830s men. In 1863, James Boyd reported that 'the greater part' of Port Arthur prisoners 'have spent more than a quarter of a century at Penal Establishments'.⁵⁴ For these men, years of hard labour, much of it in wet and cold conditions at Port Arthur, had increased the likelihood of musculoskeletal complaints and chronic chest infections. Boyd's 1866 description of Port Arthur convicts as 'the worn out remains of former large prisoner populations', certainly suggests that long-term physical strain had taken its toll on his charges.⁵⁵ It should also be noted that respiratory diseases (the principal illness category among the 1868-1870 prisoners) are generally airborne infections and are therefore much harder to control than water-borne or vector-borne diseases such as dysentery and typhus. Improved sanitary conditions and a clean water supply would not have enabled their prevention. Even measures like increasing ventilation, limiting overcrowding and isolating diseased prisoners have little effect on the spread of most airborne diseases.⁵⁶

The diseases that increased in predominance in Port Arthur's later years were either strongly correlated with age and long-term subjection to physical stress, or airborne illnesses unlikely to be affected by sanitary improvement. Ailments associated with the immediate effects of hard labour (such as accidents and ulcers from irons), or with deficient sanitary conditions and vitamin imbalance, were more prominent in the period 1830-1840. This strongly suggests that Port Arthur had become more benign over the course of its history. The mortality spike of the late 1860s was not the result of worsening prison conditions, but more likely the by-product of 'worn out' and deteriorating convict bodies. The morbidity data so far examined supports the view put forward by numerous historians, that a declining and ageing population had made Port Arthur more like a home for invalids than a prison for the extraction of penal labour by the late 1860s.⁵⁷ Only by analysing the relationship between convict labour and disease at Port Arthur, can this view be exposed as a marked oversimplification.

⁵⁴ 'Prison Labour. Report from the Joint Committee', *op. cit.*, p. 9.

⁵⁵ 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *op. cit.*, p. 21.

⁵⁶ Curtin, *op. cit.*, p. 145; McKeown, *op. cit.*, pp. 116-7.

⁵⁷ See in particular, Brand, *op. cit.*, pp. 172-192; Weidenhofer, *op. cit.*, pp. 100, 103, 111-116; Tuffin, 'Evolution of Convict Management', pp. 76, 81; MacFie and Bonet, *op. cit.*, p. 23; Ross, 'Death and Burial at Port Arthur', p. 71.

The remainder of this article examines the breadth of convict experience at Port Arthur in 1868-1870, by analysing morbidity in different categories of convict work and for prisoners recently discharged from Port Arthur's 'separate prison'. Since there are no extant records of convict employment for the period covered by the Sick Reports, 'prison employment records' from January to September 1868 were sampled to calculate the proportion of convicts in each Port Arthur occupation.⁵⁸ Employment entries from the Sick Reports were then used to compute morbidity rates for different types of convict labour (see Figure 3).

Convicts in the settlement chain gangs had a far higher morbidity rate than any other labour group in 1868-1870 (including invalids and the unemployed, who were exempt from work because of illness or incapacity). At a staggering 866 disease episodes per thousand men per month, chain gang morbidity rates were dramatically higher than those for other ganged convicts at Port Arthur. Even non-agricultural ganged labourers, most of whom were engaged in the 'severe labour' of 'procuring timber from the mountainous and swampy localities' up to seven miles walk from Port Arthur, suffered less than half the morbidity of their chained comrades (see Figure 3).⁵⁹ Since the diets of these two groups were identical (according to settlement regulations), and their living conditions similar,⁶⁰ a greater workload is the most likely cause for the higher morbidity in the chain gangs. Working in restrictive leg irons would also have increased energy expenditure, exacerbating the caloric deficiency of convict rations discussed above.⁶¹

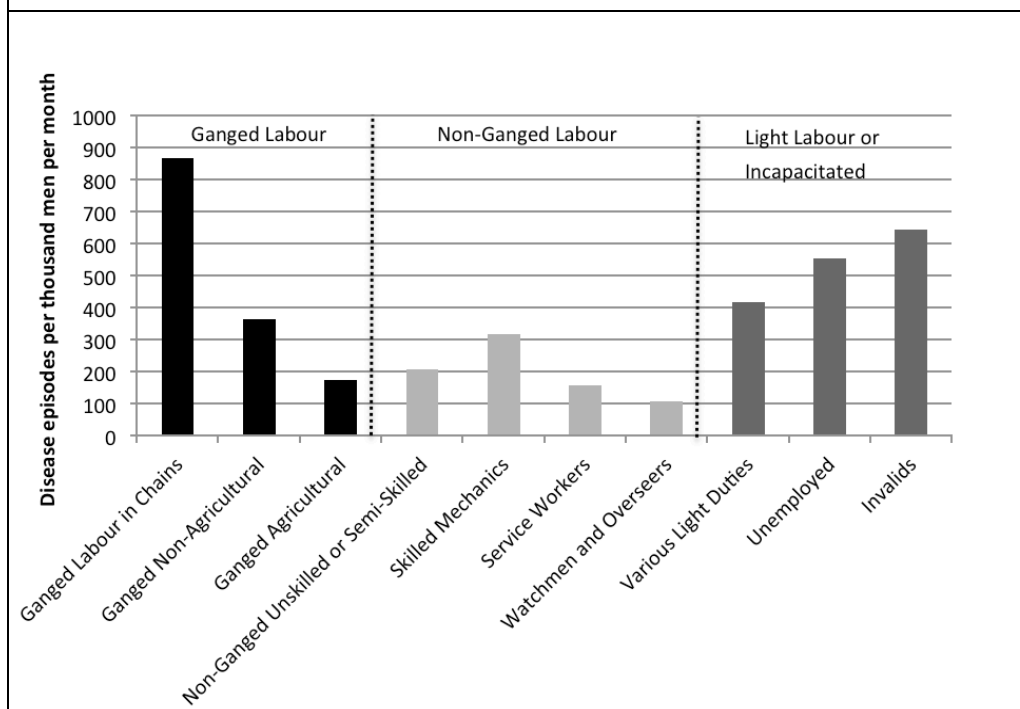
⁵⁸ 'Port Arthur prison employment records, 1864 to 1868', TP D22, Mitchell Library, Sydney. On the methodology used to compile an overall Port Arthur labour distribution and to categorise convict occupations, see Marshall, *op. cit.*, pp. 32-5.

⁵⁹ 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *op. cit.*, p. 21.

⁶⁰ It is likely that a greater proportion of chain gang convicts were held in the penitentiary's separate cells at night, compared to other ganged labourers. Many of the men in chains were 'dangerous characters', who Commandant Boyd was anxious to separate from the 'first convicted men'. This may have actually reduced their exposure to infectious disease, compared to those sleeping nearby other men in the dormitory. For Boyd's policies on separating convicts, see 'Prison Labour. Report from the Joint Committee', *op. cit.*, p. 10.

⁶¹ Most prisoners in chains at this time wore only light irons, but these would still have inhibited prisoner movements. From a sample of 28 surviving sets of Van Diemen's Land leg irons, Chris Leppard found that the average chain length of 21 inches 'would not have allowed a man to walk at a comfortable pace without shuffling', and would have made tasks involving variable heights much more difficult. See C. Leppard, 'Why Leg Irons Were Not Emancipated: The Role of Convict Leg Irons in Van Diemen's Land and New South Wales, 1788-1853', BA Hons Thesis, University

Figure 3. Morbidity rates for each labour category, Port Arthur 1868-70.



Morbidity rates calculated using 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney; 'Prisoners, Paupers, and Lunatics at Port Arthur and Hobart Town Establishments', *JHA*, Vol. 24, No. 15, Hobart, 1872; 'Convicts in Chains, 1861-1872', TP 209, Mitchell Library, Sydney; 'Port Arthur prison employment records, 1864 to 1868', TP D22, Mitchell Library, Sydney; 'Convict Department, Separate Prison Reports, 1867-1871', B5, Mitchell Library, Sydney.

Little is known about the specific work performed by the chain gangs, except that it was undertaken at the settlement rather than in the bush, as a security measure. There can be little doubt, however, that the tasks these men performed were specifically designed for punishment. Hard labour in chains was the principal punishment for most serious station offences at this time, including assault and

of Tasmania, 2007, p. 81. For information on the irons worn by Port Arthur prisoners in the settlement's later years, see 'Convicts in Chains, 1861-1872', TP 209, Mitchell Library, Sydney.

absconding.⁶² It also marked the second stage of reformatory discipline for long-sentenced prisoners who had endured lengthy incarceration in the separate prison upon arrival at Port Arthur.⁶³ Accident numbers emphasise that chain gang labour was considerably more strenuous than non-agricultural ganged labour. Accidents made up thirteen per cent of all disease episodes in the chain gangs, compared to just seven per cent for non-agricultural ganged labourers, and six per cent for Port Arthur as a whole for 1868-1870.⁶⁴ The chain gang morbidity rate for accidents was quadruple that of any other labour category.⁶⁵ This suggests chain gang prisoners were pushed beyond their physical capabilities. Leg irons could also compromise safety during heavy manual labour, as Chris Leppard argues.⁶⁶ As C. G. Roland and H. S. Shannon have noted in their work on prisoners of war, a very high number of accidents is also characteristic of worker malnutrition, which underlines the incapacity of the Port Arthur diet to support heavy labour.⁶⁷

After ganged labour in chains, the next three most disease-riddled labour categories were invalids, unemployed, and 'various light duties'.⁶⁸ For each of these groups, ageing was probably a key factor in the contraction of illness (see Table 4). The average patient age for unemployed convicts was 54, for those performing light duties, 56, and for invalids, 66. All of these are well above the settlement mean patient age of 51. It is highly probable that these labour categories contained many of the oldest members of the Port Arthur population, but this cannot be confirmed, as prisoner ages were not included in the 1868 employment records.

⁶² Governor to Secretary of State, 15 January 1866, in 'The Brand Papers', Vol. 3 (held at Port Arthur Historic Site), p. 105; Brand, *op. cit.*, p. 159.

⁶³ Tasmania Convict Department, *op. cit.*, p. 44.

⁶⁴ 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney.

⁶⁵ Calculated from *ibid.*; 'Convicts in Chains, 1861-1872', TP 209, Mitchell Library, Sydney; Port Arthur prison employment records, 1864 to 1868; 'Convict Department, Separate Prison Reports, 1867-1871', B5, Mitchell Library, Sydney.

⁶⁶ Leppard, *op. cit.*, p. 81.

⁶⁷ C. G. Roland and H. S. Shannon, 'Patterns of Disease among World War II Prisoners of the Japanese: Hunger, Weight Loss and Deficiency Diseases in Two Camps', *Journal of the History of Medicine*, Vol. 46, No. 1, 1991, p. 72.

⁶⁸ This last category includes occupations such as: stonebreaking (a task undertaken by many recovering from illness); animal herding, feeding, and minding; guano collecting; shell and bone collecting; and 'light labor'.

Table 4. Average patient age for each labour category, Port Arthur 1868-70.	
Labour Category	Average Patient Age
Ganged Labour in Chains	48.1
Ganged Non-Agricultural	49.8
Ganged Agricultural	51.9
Non-Ganged Unskilled or Semi-Skilled	47.7
Skilled Mechanics	49.0
Various Light Duties	56.1
Unemployed	54.1
Service Workers	50.9
Watchmen and Overseers	49.4
Invalids	65.7
All Occupations	50.9
Calculated using the 'Port Arthur Penitentiary Sick Reports, 1868-1870', TP 297-301, Mitchell Library, Sydney.	

Perhaps the most surprising feature of Figure 3 is the comparatively low morbidity rate of the agricultural gangs. After occupying a lowly position in the Port Arthur punishment hierarchy during the settlement's early years, it appears the introduction of animal power and better quality ploughs and implements had lessened the labour burden upon convict farm labourers.⁶⁹ By 1868-70, their morbidity rate lay below that of unskilled or semi-skilled labourers, and well-below the figure for skilled mechanics. The primary purpose of agricultural labour had clearly changed from the punitive focus exemplified by the 'punishment fork', and there is evidence this transformation fostered productivity. In 1868, the estimated value of Port Arthur's agricultural and farm produce was only marginally less than all its other products combined, including manufactured items and repaired goods.⁷⁰

The move towards productivity and away from punishment is also shown by the remarkably small difference between the morbidity

⁶⁹ For a description of the garden gangs and their position in the punishment hierarchy at early Port Arthur, see Cave, *op. cit.*, pp. 57-8.

⁷⁰ 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *op. cit.*, pp. 25-28.

rates of non-agricultural ganged labourers and skilled mechanics. There is a clear difference in physical difficulty between jobs like tree-felling, splitting, and manhandling logs to tramways, and trades such as carpentry, shoemaking, tailoring, and blacksmithing. It is also likely that tradesmen had more control over their work-rate than timber-workers under the gaze of an overseer. Maxwell-Stewart notes that non-ganged labour was difficult to supervise closely, because the required ratio of overseer to worker was prohibitively high. For skilled, non-ganged work, an overseer's efforts to drive production were likely only to produce shoddy work and spur convicts to industrial sabotage.⁷¹ For mechanics and ganged men to have had similar levels of health, the latter must have been worked sparingly by overseers aiming to maintain a fit and therefore productive workforce, rather than run their charges into the ground. Due to a severe shortage of physically-able men at Port Arthur by 1868-1870, these ganged labourers were no longer expendable tools, but valuable human capital.⁷²

The gulf between ganged and non-ganged convict health at Port Arthur, demonstrated by Maxwell-Stewart for the period 1832-1843, had narrowed dramatically by 1868-70. The combined morbidity rate for all ganged prisoners performing hard labour during this period was 315 disease cases per thousand convicts per month, compared to 205 per thousand per month for non-ganged convicts. This disparity is insignificant compared to Maxwell-Stewart's findings, where the ganged convict death rate of 48 per thousand per year dwarfed the rate of 13 per thousand per year among non-ganged prisoners.⁷³ Moreover, if the 1868-70 morbidity rates for ganged convicts out of chains are compared with those for non-ganged labourers and mechanics, the disparity in health virtually disappears, with morbidity rates of 250 and 267 disease episodes per thousand per month respectively.

Although the ganged/non-ganged distinction was not the critical factor determining convict health at Port Arthur by 1868, there remained a sliding scale of suffering according to one's position in the settlement's punishment pecking order. At one end lay the chain gangs, worked until their bodies broke down or accident struck. Then

⁷¹ Maxwell-Stewart, 'John Longworth', p. 104; R. Findlay, 'Slavery, Incentives, and Manumission: A Theoretical Model', *Journal of Political Economy*, Vol. 83, 1975, p. 924.

⁷² For complaints about shortages of able men, see for example, 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *op. cit.*, p. 21.

⁷³ Maxwell-Stewart, 'John Longworth', pp. 104-05.

came other ganged convicts, mechanics, and unskilled or semi-skilled labourers, benefitting from the settlement's dependence on their skills or physical fitness for economic viability. The least suffering groups were service workers (including cooks, wardsmen, washermen, boatmen, writers and servants), and overseers and watchmen. The monthly morbidity rate for service workers was 157 cases per thousand, and for overseers and watchmen, 109 cases per thousand. Such occupations were not physically demanding (with the possible exception of clothes washing) and would have presented lucrative opportunities for involvement in goods-trafficking, either through access to government provisions or relationships with Port Arthur officials.⁷⁴ Watchman was a particularly privileged position, open to only 'the best-conducted and most trustworthy prisoners'.⁷⁵

Yet there is one group who have been left out of this discussion. Convicts in the separate prison played an important part in Port Arthur's punishment hierarchy. Separate confinement functioned alongside the chain gangs as a punishment for serious station offences, and also as a means to reform prisoners found too incorrigible to treat safely elsewhere and new arrivals with sentences exceeding seven years. Convicts could serve up to twelve months under separate treatment.⁷⁶ While the 1868-1870 Sick Reports do not appear to include men incarcerated in the separate prison, they do reveal the state of prisoners' health immediately after their release from separate confinement.⁷⁷ Before analysing this data, it is necessary to examine conditions within the separate prison.

⁷⁴ Mark Jeffrey, for example, became friendly with a constable in the late 1850s, after serving as his personal cook. Jeffrey received 'an equal division of the profits' made from selling the skins and meat of kangaroos and wallabies that they hunted together. See Jeffrey, *op. cit.*, pp. 120-2.

⁷⁵ James Boyd, quoted in Brand, *op. cit.*, p. 180.

⁷⁶ Brand, *op. cit.*, p. 179; Tasmania Convict Department, *op. cit.*, p. 54.

⁷⁷ Discharge dates of separate prison inmates are listed in extant employment records for the separate prison. See 'Convict Department, Separate Prison Reports, 1867-1871', B5, Mitchell Library, Sydney. Using the Sick Reports, the health of these men was then tracked for six months after discharge. Very few studies address post-release morbidity among prisoners subjected to separate treatment. Some examples of works including a discussion of this issue are: J. Martel, *Solitude and Cold Storage: Women's Journeys of Endurance in Segregation*, Edmonton, 1999, pp. 83-93; T. Kupers, *Prison Madness: The Mental Health Crisis Behind Bars and What We Must Do About It*, San Francisco, 1999, pp. 62-4; S. Grassian, 'Psychopathological Effects of Solitary Confinement', *American Journal of Psychiatry*, Vol. 140, 1983, pp. 1450-4. Note, however, that these are studies of late twentieth-century prisons, and deal primarily with psychological and behavioural disorders rather than physiological illness.

Official regulations for the prison called for meticulous attention to cleanliness. Corridors were to be wet-stoned daily (or dry-stoned in wet weather) and every officer was 'to be zealous in instructing and encouraging the Convicts' as to the means required 'to secure the utmost cleanliness of the Cells'. Bedding was to be aired once weekly in summer and twice weekly in winter, and convicts were to 'keep their persons' in 'the highest state of cleanliness'.⁷⁸

The separate prison diet, though considerably less generous than the diet for convicts at hard and light labour, provided ample energy for the inmates' low-exertion routines, which included one hour of daily exercise and light work such as tailoring, shoemaking, picking oakum, and cleaning the prison.⁷⁹ Inmates could complain about the quality and quantity of the food they received, and legitimate protests were to be rectified. The Port Arthur medical officer could also increase the amount of food, clothing, or bedding a prisoner received, or recommend a relaxation in discipline.⁸⁰

There were some shortcomings in prison conditions, including the use of slops buckets in the cells to dispose of human waste, although these were to be immediately removed and washed after use.⁸¹ The building also lacked any form of heating, which may have caused health problems like rheumatism, particularly given the inmates' sedentary lifestyle.⁸² Convict Mark Jeffrey also claimed that more effort was put into providing 'fancy carpets to give the prison a palatial appearance on the arrival of visitors' than addressing real deficiencies in hygiene, such as filthy bedding.⁸³ Such claims suggest that

⁷⁸ 'Rules and Regulations for the New Separate Prison at Port Arthur', in I. Brand (ed.), *The 'Separate' or 'Model Prison', Port Arthur*, Launceston, 1990, pp. 37, 40-41, 49.

⁷⁹ Working an average of 43.5 hours per week, the prisoners would have expended somewhere between 2,200 and 2,800 kilocalories per day, assuming that their activities occupied the lower half of the light labour range used by Sutch. Separate prison rations provided around 2,600 kilocalories per day for inmates who had been imprisoned for six months or less, and 2,900 kilocalories after this point. The above estimates were calculated using Sutch, *op. cit.*, pp. 266-7; United States Department of Agriculture, *op. cit.*; 'Rules and Regulations for the New Separate Prison at Port Arthur', in Brand (ed.), *The 'Separate' or 'Model Prison'*, pp. 56-60.

⁸⁰ 'Rules and Regulations for the New Separate Prison at Port Arthur', in Brand (ed.), *The 'Separate' or 'Model Prison'*, pp. 35, 42.

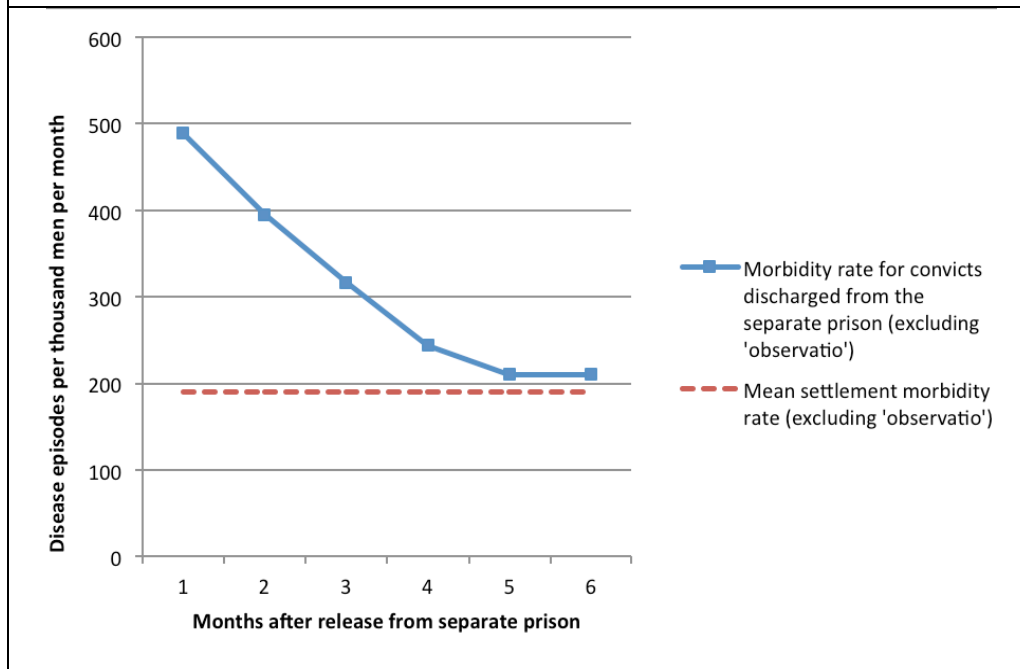
⁸¹ *Ibid.*, p. 49.

⁸² P. Hilton, 'Separately Treated: An Assessment of the Effectiveness of Port Arthur's Separate Prison in the Crushing of Convict Resistance, 1849-1877', BA Hons Thesis, University of Tasmania, 1999, p. 43.

⁸³ Jeffrey, *op. cit.*, p. 168. The pseudonymous Tim Bobbin claimed that such efforts to cover-up the settlement's flaws were part of the general routine of receiving high

adherence to regulations in place for prisoners' health was sometimes lax, but there is little reason to suspect a high separate prison morbidity rate.

Figure 4. Morbidity rates for each month after release from the separate prison, 1868-70.



Note that *observatio* cases have been excluded because several convicts were given this diagnosis the day after being discharged, in what was probably a mandatory medical check-up. Including such cases would have made the graph less representative of real disease trends. Morbidity rates calculated using Port Arthur Penitentiary sick reports, 1868-1870; Individual convict's employment records in the Separate Prison, October 1867 to July 1871.

Data on morbidity after release from the separate prison suggests it may not have been such a healthy environment. During the first month after release, the morbidity rate among former separate prison men was 489 disease cases per thousand per month. This figure then dropped rapidly over the next three months, before stabilising at 211

profile guests. See T. Bobbin, *The Revelations of Port Arthur, or, News from our Penal Settlement*, Hobart, 1868, p. iii.

cases per thousand per month for the fifth and sixth months after discharge (see Figure 4). This rate lies just above the settlement average monthly morbidity rate of 191 disease episodes per thousand per month. At first glance then, it appears a separate prison term made convicts sick, and during the months after release they gradually recovered to the mean level of health at the penal station.

There is some evidence newly released men were afflicted with lingering diseases contracted during confinement. Considering the health effects of separate confinement, Peter Scharff Smith identified several symptoms common to a large percentage of inmates from different prisons and eras, including severe headaches, heart palpitations, pains and pressure in the chest and abdomen, muscle pains in the neck and back, diarrhoea, problems with digestion, and loss of appetite. He noted that all of these conditions were probably more related to lack of meaningful social contact than to cell hygiene.⁸⁴ Some of these diseases appear in the diagnoses of former separate prison men. Three of the 47 inmates discharged during the period 1868-1870 reported headaches within six months of their release. Five digestive diseases were recorded, all within a month of release. There were also four cases of diarrhoea and dysentery (although none until the second month) and two episodes of '*spasmi*' (cramps or spasms), which may be related to the muscle pains found by Scharff Smith.

The separate prison's greatest impact on health is likely to have been psychological. The *Hobart Town Advertiser* powerfully evoked the plight of the inmates in 1860: 'the isolation, the silence, the total separation from all human fellowship and communion, the monotony of the bare white-washed walls, makes confinement in the model [separate] prison a horrible torture'.⁸⁵ Surprisingly, only one former separate prison inmate was diagnosed with a mental disorder during 1868-1870, and this was attributed to 'severe injuries about the head' which he received 'some years ago'.⁸⁶ But it is likely the psychological stresses of separate confinement manifested themselves in other ways. Michael Massoglia notes that severe and chronic stress, like that created by prolonged incarceration, can permanently damage the

⁸⁴ P. Scharff Smith, 'The Effects of Solitary Confinement on Prison Inmates: A Brief History and Review of the Literature', *Crime and Justice*, Vol. 34, No. 1, 2006, pp. 488-90.

⁸⁵ *Hobart Town Advertiser*, 23 August 1860, p. 2.

⁸⁶ 'Port Arthur Penitentiary Sick Reports, 1868-1870', 24 July 1870, TP 297-301, Mitchell Library, Sydney.

body's ability to manage both psychological and physiological health. Stressful experiences can compromise immunity, decreasing resistance to infectious agents.⁸⁷

These factors may have contributed to high post-confinement morbidity, but they are long-term effects which a prisoner was unlikely to shrug off within six months.⁸⁸ The principal explanation for the high initial morbidity after release is probably the change of labour and conditions that former separate prison inmates experienced. Many of these men were sent straight to the chain gangs, where unfamiliar physical strain and increased exposure to pathogens through greater social interaction caused morbidity to skyrocket. Sentences of hard labour in chains after separate confinement ranged from three to six months, which means that morbidity dropped well before most had served out their time in the chain gangs.⁸⁹ This trend has been identified in literature on prisoners of the Japanese in World War II. Transferral to a new camp, with different but not necessarily worse conditions, inevitably produced a spike in mortality, which then reduced through what C. G. Roland called 'an accommodative biological reaction' to the new conditions.⁹⁰ This process could also have occurred for separate prison men discharged to lighter occupations.

Given the extraordinary morbidity rate of the chain gangs, one might conclude that it was hard labour, not separate prison confinement, which led to high post-release morbidity. It is likely, however, that separate treatment laid the foundations for many of the health problems that struck the chain gangs. In his study of Vridløselille prison in Denmark from 1859-1873, a separate treatment prison with a similar system to Port Arthur and a prestigious reputation for cleanliness, Scharff Smith found that almost all prisoners suffered weight loss over the course of their sentence, due to loss of appetite and digestive problems. This averaged 5-10 kilograms and

⁸⁷ M. Massoglia, 'Incarceration as Exposure: The Prison, Infectious Disease, and Other Stress-Related Illnesses', *Journal of Health and Social Behaviour*, Vol. 49, No. 1, 2008, pp. 57-8. See also S. Cohen and G.M. Williamson, 'Stress and Infectious Disease in Humans', *Psychological Bulletin*, Vol. 109, No. 1, 1991, p. 7.

⁸⁸ Massoglia, *op. cit.*, pp. 58, 65.

⁸⁹ Tasmania Convict Department, *op. cit.*, p. 44.

⁹⁰ C. G. Roland, 'Stripping Away the Veneer: POW Survival in the Far East as an Index of Cultural Atavism', *Journal of Military History*, Vol. 53, No. 1, 1989, pp. 91-2.

happened despite the prison doctor's ability to alter diets at any time.⁹¹ If such a trend occurred at Port Arthur, it may have weakened prisoners to the point where the transition to chain gang labour became physiologically disastrous. Scharff Smith also notes that impaired concentration, confusion and social disablement often follow periods of separate confinement. Although such symptoms generally recede quickly, they may have contributed to the high frequency of accidents among recently released separate prison inmates.⁹² Accident was the most common disease category among this group over the six months studied. Regardless of which had the greater effect on convict health, separate treatment and chain gang labour were clearly a highly injurious combination.

Thus it is clear that there remained parts of the 1868-1870 Port Arthur system in which punishment was the overriding purpose. Sentences to the chain gangs and separate treatment, which rendered a large proportion of convicts ill or injured, were not likely to foster productivity. The economic benefits of such punishments lay in their perceived ability to deter future escape attempts and increase general convict submission to the will of Port Arthur administrators.⁹³ Although James Boyd had a strong belief in the reformatory potential of the separate system, perhaps even a 'religious affinity' for its aims, the threat of the separate prison was also necessary as a means to control the large number of 'dangerous characters' at Port Arthur. Boyd was particularly concerned that Port Arthur's life-sentenced men might begin to 'evinced a spirit of insubordination and recklessness' due to the hopelessness of their condition.⁹⁴ The chain gangs became increasingly important in subduing such 'idle restless men' from 1863, when hard labour in irons became the principal punishment for absconding. It had been found that many incorrigibles actually preferred the 'lighter

⁹¹ P. Scharff Smith, 'Isolation and Mental Illness in Vridsløselille 1859-1873: A New Perspective on the Breakthrough of the Modern Penitentiary', *Scandinavian Journal of History*, Vol. 29, No. 1, 2004, pp. 1-4, 12; Scharff Smith, 'Effects of Solitary Confinement', pp. 489-90.

⁹² Scharff Smith, 'Effects of Solitary Confinement', pp. 488, 496-7, 504.

⁹³ Hilton's study of a sample of 400 convicts who served sentences in the separate prison found that separate treatment was ineffective in preventing convicts from reoffending at Port Arthur. He claimed his results were 'irrefutable evidence of the prison's abject failure to break convict resistance'. Hilton, *op. cit.*, p. 88.

⁹⁴ *Ibid.*, p. 44; 'Annual Reports on the Convict Establishments at Western Australia and Tasmania', *op. cit.*, p. 21.

description of work' carried on in the separate prison to 'laboring in chains out of doors'.⁹⁵

With such punishments in place to deter disobedience and filter out troublesome men, the remaining physically-able Port Arthur convicts could be deployed in attempting to meet Imperial demands for an economically productive institution. With the British government anxious to reduce its expenditure in Tasmania in the late 1860s, Port Arthur was required to be a paragon of economic efficiency.⁹⁶ Boyd's eagerness to report that the 1868 convict diet had secured 'a very important saving' by reducing the amount of bread and meat offered, demonstrates that minimising cost was a key priority. In 1866, his reply to a questionnaire from the British government also stressed that 'every endeavour has been made to reduce the cost of the establishment by employing prisoners ... on reproductive works'.⁹⁷

The large gap in morbidity between the chain gangs and other physically-able convict labourers for 1868-1870 suggests that able men were managed in a way that would minimise labour losses through sickness or accident and ensure a modicum of productivity from the dwindling and ageing population. Labour records from 1872 confirm that productivity was a top priority around this time. They list both the trades of Port Arthur convicts and their occupations at the settlement. Analysis of these records reveals that 69 per cent of skilled convicts were employed in jobs that closely matched their trades.⁹⁸ To put this in perspective, Nicholas and Shergold's study of assigned and government-employed convicts in New South Wales in 1828 found that 70 per cent of urban skilled workers and 60 per cent of skilled builders worked in the same jobs they had held in Britain.⁹⁹ In terms of its ability to harness convict skills, the early 1870s Port Arthur labour system was thus comparable with convict labour management outside

⁹⁵ James Boyd, quoted in Brand, *Penal Peninsula*, p. 159.

⁹⁶ Tuffin, 'Evolution of Convict Management', pp. 71, 76; S. Petrow, 'Claims of the Colony: Tasmania's Dispute with Britain over Port Arthur Penal Establishment, 1856-1877', *Tasmanian Historical Research Association Papers and Proceedings*, Vol. 44, No. 4, 1997, p. 236.

⁹⁷ Brand, *Penal Peninsula*, pp. 170, 177.

⁹⁸ This excludes men with agricultural backgrounds, and semi-skilled convicts, most of whom had experience as house servants. Calculated from 'Prisoners, Paupers, and Lunatics at Port Arthur and Hobart Town Establishments', *op. cit.*, pp. 3-10.

⁹⁹ S. Nicholas and P. Shergold, 'Convicts as Workers', in Nicholas (ed.), *Convict Workers*, pp. 65-6.

penal stations in the 1820s, a system Nicholas praised for its efficiency.¹⁰⁰

This article has shown that the occupational skills and labour potential of Port Arthur's dwindling convict population had become highly prized by the late 1860s. The presence of a proportionately large number of aged and incapacitated prisoners enhanced the value of physically-able men as 'convict workers'. Steps taken to improve the convict diet, prison accommodation and sanitation demonstrate that the health of the convict workforce was a paramount concern. Despite undersized sleeping quarters and a reduction in the energy provided by convict rations, morbidity data for 1868-1870 confirms that changes in prison conditions had a positive impact on convict health. Advances in prison hygiene had apparently banished typhus from Port Arthur and considerably reduced the incidence of diarrhoeal infections, while a more varied convict diet eliminated once-rife scurvy. Although mortality rates were rising by the late 1860s, the majority of diseases afflicting Port Arthur convicts were either age-related, the result of long-term physical stress, or ailments not preventable by an improvement in living conditions.

An imperial push for efficiency in Port Arthur's later years helped to bridge the gap in health between ganged and non-ganged prisoners, since both groups were now considered vital labour resources. But economic pressures did not remove the necessity for labour categories exclusively designed for punishment. Although 'penal labour' was in decline at Port Arthur by the 1860s (as shown particularly by its timber and agricultural industries), in the settlement's chain gangs and separate prison there remained 'peripheral' convicts, like those Evans and Thorpe discovered at Moreton Bay, whose severe punishment served as a powerful warning against convict disobedience. Exceptionally high morbidity rates in the chain gangs attest to considerable suffering, and the debilitating health impacts of separate confinement have also been demonstrated. These punishments were designed to filter out incorrigibles from the Port Arthur workforce and put them to better use as examples of misery. In this way they contributed to the economic productivity of the settlement.

Both punishment-oriented and productivity-driven approaches to convict management were therefore critical in ensuring Port Arthur's continued viability during 1868-1870. The settlement could function

¹⁰⁰ S. Nicholas, 'The Convict Labour Market', in Nicholas (ed.), *Convict Workers*, p. 125.

effectively as an industrial centre only by maintaining a stratified labour scheme featuring both 'penal labour' and 'convict workers'. Despite growing numbers of ageing and infirm prisoners, Port Arthur in 1868-1870 retained a complex punishment hierarchy, designed to weed out irredeemable characters, ensure the productivity of skilled and physically capable men, and provide privileged positions (such as watchman) for the best-behaved. It was far from an 'old men's home'.¹⁰¹

¹⁰¹ MacFie and Bonet, *op. cit.*, p. 23.