Poisonous arrows and unsound minds: hysterical tetanus in the Victorian South Pacific

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When the Royal Navy sloop and flagship of the Australia Station HMS *Pearl* returned to Sydney harbour on 23 August 1875, it brought with it sad and disturbing news. On the journey home, three sailors, including the Station's popular and well-respected commodore, James Graham Goodenough, had died from wounds sustained a fortnight earlier at Nendö Island, part of the Santa Cruz group in the South Pacific Ocean. On 12 August, Goodenough and five members of his crew were shot with reputedly poisonous arrows following an unsuccessful attempt to interview Nendö people as part of their investigation into the Pacific Islands labour trade, which Goodenough considered a modern form of slavery. In an echo of the death of Captain James Cook almost one hundred years before, the men came under attack while fleeing the beach for the relative safety of the *Pearl's* whaleboats, pursued by islanders who had long since grown wary of British intrusion. Diligently recorded by the *Pearl's* surgeon, Adam Brunton Messer, the symptoms suffered by at least three of the wounded sailors were undoubtedly those of tetanus. Though the disease had long since been associated with open wounds and tropical climates, the tetanus bacterium *Clostridium tetani* had not yet been discovered; the poisonous arrows' power to tetanise their victims was therefore unexplained. This chapter explores how Messer subsequently utilised the ambiguous aetiology of tetanus in order to dispute claims that the arrows were poisonous and to argue instead that the sailors of the *Pearl* in reality suffered from a 'hysterical'

form of the disease. In doing so, Messer imbricated mid-Victorian concern about stress and nervous breakdown with imperial efforts to 'civilise' the South Pacific. Sympathetic to missionary proselytisation in the region, and desirous to bolster the standing of the Medical Department of the Navy, Messer suggested that tetanus was most likely to occur in victims possessing a 'superstitious dread' of poisonous arrows. The social, physical, and mental health of the inhabitants of the Santa Cruz group, and of those who visited, were therefore said to be contingent upon the spread of Christian belief and modern medical understanding.

Only one year previously, Goodenough had sought to associate himself with Cook rather less literally by unveiling a memorial to the famous navigator at Randwick, in Sydney.¹ It was owing to the contemporary predominance of such conventions of 'naval hagiography' that the specific nature of the Santa Cruz poisons met with an initially uncritical reception.² The throng which greeted the *Pearl's* unhappy return to Sydney in 1875 was more enthused by the opportunity to mourn its fallen commodore. Reporting a week later, the *Sydney Morning Herald* declined even to mention that poison had been involved.³ Of greater significance to the crowd was the fact that Goodenough's party had been 'massacred', in further proof of the 'savage' and 'cruel' nature of a people who, four years before, had murdered the first bishop of Melanesia, John Coleridge Patteson, on nearby Nukapu.⁴ The intensity of popular ill-feeling, helped along by reports of the failing missionary endeavour, occurred within a period otherwise distinguished, according to Jane Samson, by an emerging sense of 'imperial benevolence' in which 'Christian piety, public duty and particular constructions of race and culture' informed 'a powerful alliance between humanitarian activism and naval power'.⁵ The clamour which surrounded the perceived martyrdom of the Royal Navy's 'strikingly modern' and Christian luminary thus underlined the dialectical and introspective nature of the much-championed humanitarian ethos; as with rumours of cannibalism, reports of poison were fleeting, vague, and requiring of little evidentiary support.⁶

Much of Messer's argument was therefore controversial at the time. Lauded not only in Sydney society but throughout the British Empire as a paragon of the rational, moral, and Christian virtues then thought to exemplify the 'modern' condition, Goodenough was an inauspicious

target for the surgeon's claim that a 'civilised' state could be lost as well as gained. Safely beyond the range of Santa Cruz arrows, colonists living in Australia were far from curious about their true nature, and did not necessarily sympathise with claims that Nendö people could be 'improved'. Nevertheless, Messer undoubtedly sought to appeal to public and learned audiences alike. A pamphlet outlining his theories was distributed in 1877, seemingly with government assistance, to 'all museums' in Australia, where it sought to draw the venom from popular displays of poisonous arrows, and the lurid claims of their efficacy often made in accompanying texts.⁷ The pamphlet was a much abbreviated version of two striking reports published by Messer, 'An enquiry into the reputed poisonous nature of the arrows of the South Sea Islanders', and a 'Continuation' of his enquiries, which appeared in the Admiralty's *Statistical Report of the Health of the Navy* for 1875 and 1876.⁸ Owing to the considerable interest with which it was received, the surgeon also published a summary of his work in an 1878 edition of the journal of the Anthropological Institute of Great Britain and Ireland, of which Messer had become a fellow in 1877.⁹

Messer's reports, and in particular his argument for 'hysterical tetanus', offer valuable evidence of the application of psycho-physiological theory to constructions of modern and civilised behaviour, civilisational progress, and mental illness in the late nineteenth century. However, the fate of Messer's work also highlights the challenge which the emergence of germ theory posed to understandings of the relationship between good mental and physical health. Arthur Nicolaier's 1884 experiments with bacteria, and the first isolation of the tetanus bacterium by Robert Koch and others in 1889, challenged theories of tetanus, including Messer's, which blamed eccentric systems of thought for the muscular stiffness and spasms associated with a disordered nervous system.¹⁰ Soon disputed, the evasions and contradictions of Messer's work, which I explore below, had also the unintended effect of dramatically increasing concern about the manufacture of poisonous weaponry by the indigenous populations of the South Pacific Ocean. Largely alone in thinking that fear of poison was superstitious, and unable convincingly to rule out Nendö people's use of plant-based poisons such as strychnine, Messer appears, by giving substance to the issue, to have single-handedly transformed what was formerly a vague suspicion of indigenous toxins into something approaching a colonial

and imperial crisis. This is apparent, for example, in a series of fearful editorials thereafter published in British and Australian newspapers.¹¹

Never comprehensively resolved, the legacy of the debate endured into the late nineteenth and twentieth centuries, especially within comparable, albeit literary, 'murder mysteries', which perpetuated the notion that contact with isolated and 'primitive' peoples threatened at best to prejudice a modern and civilised visitor's moral condition, and at worst to inflict sudden death. Many readers are likely to recall the character Tonga, a man from the Andaman Islands, who accompanied the antagonist Jonathan Small in Arthur Conan Doyle's Sherlock Holmes story *The Sign of Four*, first published in 1890.¹² Weakened first by the lure of an oriental treasure and thereafter imprisoned for stealing it, the narrative tells of Small's encounter with Tonga in an Andaman penal colony, and of his subsequent use of the 'little Andaman Islander' to wreak revenge. Significantly, Tonga's deadly poisoned 'darts', shot from a blow-pipe, were found by Holmes and John Watson to contain 'some strychnine-like substance which would produce tetanus'.¹³ This conflation of an unknown poison with tetanic spasms suggests strongly that Conan Doyle was inspired by the well-publicised research into Santa Cruz arrows which occurred in the aftermath of Goodenough's death. In so doing, Conan Doyle influenced further stories about strychnine poisoning (a poison derived from certain plants), and its association with a sudden, mysterious, and violent fate. Examples include Agatha Christie's 1920 novel, *The Mysterious Affair at Styles*.¹⁴

Naval medicine and imperial modernity, c. 1875

The peculiar combination of inductive logic, careful rationalism, and fascination with strange and exotic phenomena which suffused Conan Doyle's life and writings, and indeed the late Victorian period more generally, was present too in Messer's enquiries into the attack on the *Pearl*.¹⁵ Eager from the start to exploit the incident as an opportunity to investigate the poisonous character of Santa Cruz arrows, the surgeon recorded in his journal a detailed 'epitome' of the condition of the wounded sailors in the eight days from 13 to 20 August.¹⁶ At sea, Messer's treatments were limited; in the manner of responding to snakebites, the puncture wounds left by the arrows in their victims were at first sucked by whichever volunteers were immediately to hand. Thereafter,

the care given by Messer comprised of linseed poultices, cupping, morphine, carbolic acid (for cleaning wounds), and silver nitrate (for cauterising them). The men's wounds were varied; fired from a mere five yards, two arrows had pierced Goodenough's thin frock coat and straw hat, leaving a scratch to his head and a deeper injury to his left side. Further arrows hit two ordinary seamen named Edward Rayner and Frederick Small, causing injuries to their legs and scalps that were also eventually to prove fatal. The coxswains Thomas Jones and Allen Jervis, and the ship's cook, Thomas Satchwell, suffered similar arrow wounds but recovered after the second day. A sub-lieutenant, Henry Hawker, 'accidentally came in contact with an arrow in the hand of a native and received a slight scratch of the skin' before the attack occurred. Hawker and Jervis complained of twitching, and the latter suffered two 'epileptiform fits', but both recovered by the eighth day. A final sailor, the engineer Alfred Belts, also demanded treatment after handling some of the arrows which had been brought on to the ship, but was not included in the epitome.

Tetanus did not become apparent in Goodenough, Rayner, and Small's wounds until the sixth day, at which stage Messer attributed the disease to their insomnia and worsening spasms. By 21 August, these symptoms had proven fatal in all three patients. Messer's actions following the *Pearl's* arrival in Sydney two days later are not recorded, but the surgeon's records show that it took until March 1876 to complete his first official report of the incident.¹⁷ Making the most of Sydney's ready access to imperial networks, Messer's research was eclectic; his report drew upon a reading of sixteenth-century naval journals, correspondence with the Melanesian Mission, recent psycho-physiological theories of the nervous system, and an emerging expertise in toxicology sourced from the Melbourne and Sydney universities in order to dismiss the reality of Santa Cruz poisons and to argue that a form of mental illness was instead responsible for the sailors' and commodore's deaths. Rejecting strychnine-based explanations, which nonetheless later gained prominence, Messer argued that several of his patients had in reality suffered from 'hysterical tetanus'; a prevailing terror of the reputed poisons among medically uneducated British sailors predisposed them to a nervous irritability which mimicked or encouraged the onset of the disease.¹⁸ By the same mechanism, Messer claimed that an 'ignorant' belief in poison both illustrated and perpetuated the

enduring state of backwardness and mental abnormality then said to characterise Nendö people, and so compounded the difficulties of the Melanesian Mission.¹⁹ Messer's 'chief object', he later wrote, was therefore to 'dispel this belief in the poisons, and thereby minimise the risks of tetanus; for it is asserted by many missionaries and others that this and other allied diseases of the nervous system, have become much less frequent among those islanders who have renounced superstition and have embraced Christianity'.²⁰

The tone and message of Messer's reports are best understood in relation to the Royal Navy's contemporary efforts to distinguish itself as an engine of modernity and an affiliate of imperial expansion. Implicit in much of the surgeon's writing is an argument concerning the relevance of then emerging understandings of stress and nervous breakdown to constructions of civilisational progress and the modern, rational self. These themes reflected the Medical Department of the Navy's then ongoing struggle to police the mental health of its sailors, as much as they did naval surgeons' broader desire to associate themselves with the extension and consolidation of imperial control.²¹ The particular elegance of Messer's study was that one of its main subjects, the late commodore Goodenough, had formerly embodied a growing trend of humanitarian activism within the navy distinguished by determinedly 'benevolent' efforts to improve and to Christianise South Pacific peoples. Posthumously immortalised in 1876 as 'The Christian hero of Santa Cruz', Goodenough was, according to Samson, a 'staunch modernizer', who sought to associate muscular Christianity and Victorian notions of patriotic duty with the navy's efforts to colonise and to civilise the South Pacific.²² Following the attack at Santa Cruz, the subjection of the wounded Goodenough to Messer's ministrations neatly underlined the need for medical interventionism to operate in parallel. By 1875, Messer had become a firm advocate of the argument that civilisational progress mapped the subjugation to rational thought of ignorance, stress, and superstition. Proper regimes of thought expressed a sound psycho-physiological state, the main guarantors of which were Christian belief and a modern medical understanding of the mind.

Though it is difficult to be certain, there is an intriguing possibility that the surgeon's arguments were therefore to some degree opportunistic. Messer's analysis of Goodenough's mind, which is explored in more detail below, sought through the language of volitional and

non-volitional mental reflexes to lessen the aspersions which the surgeon's diagnosis of hysterical tetanus cast upon the commodore's Christianly character and masculine virtues. It did not, however, do so completely. Since Goodenough had come, by 1875, to represent imperial British exploration to a degree almost comparable with that earlier achieved by Cook, Messer perhaps hoped to increase perceptions of the significance of his report by revealing the commodore to be vulnerable to malign and superstitious influences. What is certain is that the *Pearl* had recently become a site of peculiar significance to debates concerning the best means of 'modernising' South Pacific cultures; as experts in unrelated fields, it is tempting to imagine Goodenough and Messer arguing for the relative merits of paternalistic protection and medical intervention over dinner on the ship's quarterdeck. The commodore and surgeon had, for instance, each developed their own close links with imperial officials in the British metropole during the *Pearl's* earlier visits to Fiji in 1874. As Samson observes, the British government was persuaded to carry out its subsequent annexation of Fiji partly in consequence of Goodenough's investigation of the local labour trade.²³ At a time in which the Royal Navy was increasingly evangelical and pious, Goodenough's Christian, humanitarian, and anthropological insights formed a potent mix.²⁴ Contemporaries also recognised, however, the distinct contribution made by Messer himself. A report by the surgeon on the climate and inhabitants of Fiji, which he sent to the Colonial Office in 1874, was even said by some to have been the dominant factor in its subsequent annexation.²⁵ There, Messer spoke of Fiji's healthy climate as a means to encourage colonisation. 'Dysentery', he argued, 'is the only disease which Europeans have to fear in Fiji and to guard against, as can generally be done by observing a few simple precautions.'²⁶ In a manner which foreshadowed the interventionist style of his later work, the surgeon suggested that the local popularity of native kava root was a symptom of poor education, and a cause of delirium.²⁷

Messer was one of many nineteenth-century surgeons trained to show scientific initiative, and to develop independent investigations of this kind, while on naval voyages. Born in Edinburgh in 1838, Messer had studied medicine at the University of Edinburgh, and in 1859 joined the navy as a surgeon.²⁸ In so doing, he formed part of a large diaspora of Scottish medical graduates in the naval service. The Royal Naval Hospital Haslar in Gosport lay at the centre of this network, and

it was to here that Messer's draft report on Santa Cruz arrows was first sent. Since 1827, the hospital had maintained a museum and library under the direction of the Edinburgh graduate and naval Inspector of Hospitals, William Burnett. With the encouragement of two further Edinburgh graduates, the phrenologist James Scott and, after 1855, the navy's Director-General John Liddell, Haslar supported and trained the navy's surgeons in a manner reminiscent of the broad curricula which flourished within Scottish universities in the aftermath of the Scottish Enlightenment.²⁹ The museum and library reflected not only pathological and anatomical interests but also promoted anthropological treatises and collections, thus supporting and extending colonial interest in the joint study of exotic climates, cultures, and peoples. After the mid-1850s, surgeons at Haslar seeking cures for a growth in toxic injuries inflicted against the navy's sailors became increasingly interested in the use of plants to manufacture poisonous weapons; relevant botanical specimens were displayed in the hospital museum alongside examples of the objects themselves.³⁰ The study of poison, about which almost nothing was known, thus increased in tandem with the British Empire's incursion into tropical climates.

Messer was influenced too by the study of so-called 'naval lunatics'. Haslar, where a 'Naval Lunatic Asylum' opened in 1815, had been central to the medical investigation of the minds of the navy's sailors since 1807, when the Edinburgh graduate Thomas Trotter, a former Haslar physician, published his essay on the 'increasing prevalence' of nervous diseases in Britain.³¹ The seamen of the navy, who were supposedly more 'manly' and thus less susceptible to mental illness than the general public, had alarmed Trotter by exhibiting signs of a weakened 'nervous temperament' then thought to be widespread.³² Though Trotter argued that 'savage races' tended to possess a healthier mental state than 'civilized' Europeans, he followed a convention later used by Messer in remarking that the 'inhabitants of some of the South Sea Islands are examples to the contrary'.³³ Citing the 'mania' associated with the collapse of the South Sea Company in 1720, Trotter also preceded Messer in commenting upon the dangers the region posed for those of an unsound mind.³⁴

In November 1836, naval surgeons first began to study mental illness in an imperial and systematic manner following Burnett's publication

of a 'nosological synopsis' designed to be filled out in conjunction with their standard medical journals. In the synopsis, surgeons were asked to record 'neuroses' such as apoplexy, dyspepsia, and mania.³⁵ Although the synopsis was designed only to record mental ailments suffered by sailors of the Royal Navy, surgeons were encouraged to extend their commentary in the space provided for 'General Remarks' at the back of naval medical journals. Here, surgeons could make observations on a range of imperial affairs. Every two years, gold medals were awarded to the surgeons whose journals were 'most approved of by the principal Medical Officers of the Navy, and the Presidents of the Colleges of Physicians and Surgeons.'³⁶ The medals, funded since 1830 by a bequest from the Scottish physician Gilbert Blane, bore the inscription *mente manumque*, meaning 'with mind and hand', and thus encouraged scientific research.³⁷ In 1874, Messer used this space to make his report on the colonial potential of Fiji. In 1875, he won the Blane medal for his work on poisonous arrows.³⁸

Sailors, 'savages', and poison

Messer's 1875 report used historical, ethnographic, and medical allusions similar to those employed by Trotter as a means to encourage support for the Melanesian Mission and the Royal Navy's humanitarian endeavour. Whereas sailors had previously been compared with 'savages' as a means to point them toward more 'civilised' behaviour, Messer was arguably attempting the opposite. By linking sailors' belief in poisonous arrows with that of Nendö people, Messer sought to equate missionaries' efforts to bring Christianity to the South Pacific with a better-established consensus about the need to educate the Royal Navy's 'ignorant' and 'superstitious' workforce. Following the attack on Goodenough, the Melanesian Mission was much in need of such a defence. Missionaries had hardly dared to visit Nendö Island since 1864, when Patteson narrowly escaped an arrow attack himself, and it was reportedly with Nendö people's encouragement that he was later killed at Nukapu.³⁹ Reporting the commodore's death on 28 August 1875, the *Sydney Mail and New South Wales Advertiser* observed that 'the Santa Cruz group has acquired for itself a savage pre-eminence' as a place of 'inhuman massacre', and cast doubt upon missionaries'

ability to redress the 'peculiar hostility to white men among the savages'.⁴⁰ As an antidote to such feeling, Messer's reports on poisonous arrows emphasised the importance of a well-functioning nervous system for rational behaviour, and argued that this was wanting in sailors and Nendö people alike. Notions of racial difference were thereby undercut in favour of an argument for the latent capacity for civilisation that resided in the mind; behaviour befitting of the modern age could only be brought about by Christian belief and medical understanding, and could easily become threatened if they were neglected.

The Victorian period was one of pronounced concern with the 'enigma' of nervous breakdown, as Janet Oppenheim has shown.⁴¹ The relationship between civilisation, stress, and depression being much contested, Messer's effort to conflate religious instruction with a functional nervous system, and a functional nervous system with sane and civilised behaviour, offered a powerful physiological apparatus and vindication for missionary work. Premised, too, upon an attempt to promote the abilities and influence of naval surgeons, Messer's argument was helped by the fact that allusions to mentally unstable or superstitious sailors were used frequently in the nineteenth century to promote Christian belief and theological education. The Christian magazine *Leisure Hour*, published by the Religious Tract Society, for instance, interpreted the problem of 'naval lunatics' from a moral and educational angle in its long-running series on the 'Superstitions of Seamen'. In 1852, the magazine observed that 'seamen are perhaps the most superstitious of mortals', and that 'ignorance is undoubtedly the mother of superstition'.⁴² The Society offered libraries to sailors as a possible solution. 'Much has been done of late years to improve the condition of seamen', it wrote, and 'to communicate to them that religious knowledge which is the best counter-agent of superstitions'.⁴³

The salubrious qualities of 'moral and religious instruction' were similarly promoted within the navy's asylums, which experienced an epidemic in cases of mental illness between 1874 and 1875. In this period alone, the Royal Naval Lunatic Asylum at Great Yarmouth was forced to hire extra attendants in order to cope with an influx of 268 patients exhibiting 'mania' and 'insanity', twenty-two of whom died from 'Diseases of the Nervous System'.⁴⁴ Messer would therefore have had reason to assume the sympathy of Admiralty officials when he began his 1875 report on the Santa Cruz arrows with a deliberate

reference to the unhealthy superstitions of sailors. 'It has been the popular belief from the earliest times', he wrote:

that many of the more savage races which Europeans have met in different parts of the world are in the habit of using poisonous arrows and darts, both in warfare and in the chase. This belief has, in many cases, been accompanied by an amount of dread of these weapons, which has led to the subject of poisonous arrows being obscured by numerous mysterious and improbable stories. Nowhere perhaps at the present day does so much of this sensational and unscientific rumour exist as among the Islands of the South Pacific, owing partly to the fact that most of it has been derived from uneducated sailors.⁴⁵

In 1873, another of the Australia Station's surgeons, Godfrey Goodman, similarly remarked in his medical journal that it was 'generally believed by the traders to Santa Cruz, that all the arrows there are poisoned'.⁴⁶ Following an arrow attack, Goodman noted how one ship's mate had recovered after pouring 'strong hydrochloric acid, which he kept for cleaning shells, into his wound'.⁴⁷ Goodman was nevertheless at a loss to describe the nature of the poisons involved, or to explain the efficacy of this drastic solution. In his own reports, Messer resorted to eighteenth-century observations made at Santa Cruz by the British naval explorer Phillip Carteret for medical insights. 'In the writings of the early voyagers numerous instances are given of their men being wounded among the South Sea Islands "by deadly flights of poisonous arrows"', he wrote, 'but they are not so well known to modern voyagers'.⁴⁸ This had allowed superstition to replace scientific analysis, and in consequence members of the Australia Station's fleet had developed a tendency toward nervousness and hysteria comparable with the 'peculiar mental constitution of ignorant and savage races'.⁴⁹ At Santa Cruz, this was demonstrated by Nendö people's supposed indulgence in 'superstition, witchcraft, and sorcery in their most debasing forms'.⁵⁰

Key to Messer's argument was his observation that the painful spasms suffered by sailors wounded by Santa Cruz arrows did not resemble the known effects of blood poisoning, or of contact with the region's plants. The methods by which Nendö people reportedly poisoned the arrows also seemed to point more to superstitious belief than to any developed knowledge concerning the production of poisons. According to Messer, the sailors of the *Pearl* were most particularly

afraid of a method said to involve immersing the arrows 'in a dead decomposing human body'.⁵¹ Rumours focused on the story of a sailor who had reported seeing:

one or two dead bodies lying in a state of decomposition, with several arrows sticking in them 'like porcupines, sir', while sitting by them was a native, with a fire of wood, and a pot of vegetable poison, who drew the arrows from the bodies dripping with viscid animal matter, held them over the fire till they were partially dry, then smeared them with the contents of the pot.⁵²

Messer argued that the method of poisoning there described suggested certain misunderstandings of botanical and pathological science; the story was also so fanciful that sailors who were willing to believe it demonstrated a poor education, comparable with that of those who attempted to manufacture poison in this way. In 1866, the French morbid anatomist Victor Feltz had demonstrated that injections of 'putrid matter' could cause symptoms of blood poisoning in animals, but Messer noted that septicaemia had not likewise emerged in the arrow wounds.⁵³ Though strychnine poisoning from certain plants was known to cause tetanus-like symptoms, Messer ruled this out on the basis that it usually did so immediately, and that in any case none of the necessary plants grew in the Santa Cruz region. George Britton Halford, a professor of medicine and expert on snake-poisoning at the University of Melbourne, had reassured Messer that his own experiments with poisonous arrows from the neighbouring Solomon Islands had suggested no indigenous knowledge of, or access to, any dangerous plants.⁵⁴

It is revealing that Messer was prepared to rule out the presence of poison on this basis. The tips of the arrows were, he noted, coated in a strange substance, and often dyed red; various interviews with missionaries confirmed that Nendö people possessed a strong belief in the arrows' power to poison wounds.⁵⁵ Messer's own knowledge of blood poisoning was seemingly poor, for he referred to Feltz only briefly, and called him 'Felty'.⁵⁶ Such was the surgeon's wish to claim that superstitious belief was the only potent poison associated with the arrows, his dismissal of the presence of toxins was therefore spurious. Although Messer's second report investigated Santa Cruz plants more systematically, it too contained flaws. Messer wrote to the Melanesian Mission

to enquire into indigenous uses of plants, and in return received several specimens, which he sent to the Royal Botanic Gardens at Kew. Upon their arrival, however, the plants were in no condition for adequate testing.⁵⁷ Messer instead based his results on experiments which involved poking dogs and rabbits with collected arrows, and feeding them indigenous plants, which in some cases produced symptoms of tetanus comparable with those suffered onboard the *Pearl*.⁵⁸ The animals made for inconclusive subjects, however. 'Three quarters of an hour after swallowing the dose [a] dog vomited', Messer wrote, 'but at once ate all the vomited matter'.⁵⁹ On this dubious evidence, Messer concluded that 'we may be justified in looking upon these reputed poisons with the gravest doubts as to their potency'.⁶⁰

Disciplining fear: understandings of tetanus and the nervous system

Having cast into doubt the existence of Santa Cruz poisons on these grounds, Messer set out his theory that the wounded men onboard the *Pearl* in reality suffered from certain varieties of tetanus. The surgeon's attempt to associate the suffering caused by poisonous arrows with poor education, stress, and superstition depended upon a nineteenth-century understanding of the relation of the disease to the nervous system about which very little has since been written. Indeed, the history of tetanus in this period is almost completely unexplored.⁶¹ In the years which preceded the first isolation of tetanus bacterium, the aetiology of the disease was highly uncertain. The symptoms of tetanus, in particular muscular stiffness and spasms, were assumed to be the manifestation of one or more disorders in the nervous system, which might themselves have any number of causes. As Messer himself noted, warm climates were strongly associated with the disease; John Hunter, the well-known eighteenth-century surgeon and collector, had suggested that climate alone might be sufficient to produce tetanus.⁶² What would now be recognised as the bacterial form of the disease was often also associated with, or mistaken for, conditions such as strychnine poisoning and a raft of neurological disorders such as non-epileptic or dissociative seizures. For this reason, Messer considered the sporadic but short-lived fits suffered by Jervis, Hawker, and Belts to be just as significant as the considerably more serious symptoms exhibited by Goodenough, Rayner, and Small.

Messer's conflation of tetanus with poor education and an ignorance of Christian teaching drew upon an earlier tradition of partisan diagnoses of hysteria made by religious authorities in Britain. Such diagnoses targeted, in particular, outbreaks of religious revivalism, spiritualism, and other ostensibly eccentric superstitious or supernatural practices.⁶³ In 1846, Hector Landouzy first coined the term 'hystero-epilepsy' to bring together medical investigations of the physical ailments which manifested in patients suffering extreme mental excitement, but it was only in 1881 that the neurologist William Gowers developed a method for distinguishing between epileptic seizures and 'pseudoseizures'.⁶⁴ This ambiguity allowed Messer to wield diagnoses of tetanus as part of a wider struggle for the control of the indigenous inhabitants of Santa Cruz, in a manner comparable with that identified by Christopher Lawrence in relation to the political history of scurvy.⁶⁵ Despite the shared context of naval medicine, however, the moral conventions of discipline and hygiene associated with scurvy's treatment did not feature significantly in Messer's discussion of tetanus; ideas of cleanliness were mentioned in his reports only in the most superficial terms.⁶⁶ Tetanus's capacity to affect sailors of all ranks and temperaments, from Goode-nough to the ship's cook, seemingly made a mockery of the cohesive and longstanding vision of moral behaviour which Lawrence describes. 'Habits of life, such as temperance, and the reverse', Messer noted, 'have no apparent connection with its production'.⁶⁷

The potency of Messer's argument accordingly lay in his access to a new psycho-physiological language of the nervous system, which permitted him to claim that certain forms of tetanus were easily avoided. As suggested above, the important thing about Messer's theory was that it could be applied universally; his was a treatment of the mind and spirit. The surgeon's various references to 'voluntary, reflex, sensory, and motor functions', and more generally to 'the well-known power of the mind over the body in inducing insanity and other allied diseases of the nervous system', betrayed an association with the influential theories of the Unitarian physician William Carpenter.⁶⁸ In 1874, Carpenter had first published *The Principles of Mental Physiology*, in which he stressed the interrelation of psychological and physiological behaviour, and thus the importance of the 'training and discipline of the mind'.⁶⁹ Here, Carpenter explained that tetanus was a symptom of the breakdown of the nervous system, which itself occurred in consequence of 'an undue

excitability of the *Emotions* [and] their known influence on the “vaso-motor Nerves”.”⁷⁰

In a line of thought earlier developed in his *Principles of Human Physiology* and an essay on the ‘Voluntary and Instinctive Actions of Living Beings’, Carpenter argued that the progress of civilisation could be read in terms of the development of man’s powers of ‘internal volition’ over those of ‘external stimuli’.⁷¹ In a sign of divine providence, the human nervous system had been imbued with sufficient complexity to allow the expression of willpower.⁷² Involuntary and therefore irrational behaviour, which often manifested in spasms, was the consequence of a subversion of the reasoning process, and an affiliated disease of the nervous system. The rationale for strange behaviour, wrote Carpenter, ‘is simply as follows. The continued concentration of Attention upon a certain idea gives it a dominant power, not only over the mind, but over the body; and the muscles become the involuntary instruments whereby it is carried in to operation.’⁷³ Contrary to those, such as the philosopher George Henry Lewes, who assumed ‘that a Physiological Psychology strikes at the root of Morals and Religion’, Carpenter argued that models of the mind based in materialist science were no obstacle to religious faith or the idea of a conscious self.⁷⁴

For Messer, the problematic dominant ‘idea’ among sailors and Nendō people was that of fatal and incurably poisoned arrow wounds, which considerably heightened the stressful nature of the navy’s increasingly violent Pacific encounters. Fear of poison weakened the nervous system, and was a symptom of the superstitious belief which resulted from an ignorance of Christian education. Should a man with a fear of poisons proceed to encounter a suspected poison, his already fragile nervous system would be placed in a perilous state. In a departure from Carpenter, this was the condition Messer called ‘hysterical tetanus’, which he distinguished from the disease’s ‘idiopathic’ and ‘traumatic’ forms.⁷⁵ The surgeon borrowed the latter two subdivisions from the early work of the military physicians Robert Willan and John Hennen, who had, in 1801 and 1820 respectively, identified the role of anxiety and terror in ‘inducing the traumatic, as well as the idiopathic form of the disease, as seen in its frequent occurrence after battles, earthquakes, etc.’⁷⁶ In such cases, fear and allied conditions encouraged a form of tetanus which ultimately derived from wounds or exposure to dangerous environments. Hysterical tetanus could occur without such

provocation, but remained just as dangerous. It was a sign, perhaps, of the contemporary growth of professional interest in what Carpenter called 'Physiological Psychology' that Messer cited no particular authority in his discussion of this latter form of the disease. References to 'hysterical tetanus' in texts published in English appear to date back at least as far as an 1844 translation of the German homeopathist Andreas Joseph Friedrich Ruoff's 1837 *Repertorium für die homöopathische Praxis*, but were becoming increasingly frequent at the time of the attack on the *Pearl*.⁷⁷ Short summaries of the condition appear, for example, in Timothy Holmes's 1870 text, *A System of Surgery: Theoretical and Practical*, and in Frederick James Gant's 1871 treatise, *The Science and Practice of Surgery*.⁷⁸

Making only a very subtle allusion to the fact that hysteria was then commonly considered a feminine trait, Messer's 1875 report sought to demonstrate the truth of his theory that hysterical tetanus was responsible for the suffering of the *Pearl*'s crew by sorting Goodenough and the six other men wounded by Santa Cruz arrows according to their relative nervous temperaments. This gave the semblance of a controlled scientific experiment:

five men were wounded by arrows fired at them by the natives of that place, in a treacherous and unprovoked attack, while another officer on the same occasion accidentally received a scratch by coming in contact with the point of an arrow in the hand of one of the natives. Here, then, was suddenly afforded an opportunity of observing the effects of these arrow wounds, and testing the truth of their poisonous reputation in seven cases, two officers and five men. It is worthy of record, that Commodore Goodenough was an officer of the very highest intelligence, possessed of a most powerful and deeply cultured mind, free, one would suppose, from any weakness or dread of uncertain danger, and in whom the *mens sana in corpore sano* was most fully illustrated. In the other officer, a different and very highly nervous disposition, was combined with a weakly and rather delicate body. As for the five men, every difference in age, disposition, and habit of life was represented. The wounds themselves were in every case slight.⁷⁹

The 'slightness' of the wounds made the hysterical form of tetanus the most likely culprit for the men's suffering, once the poisons themselves were proven fantastical. The disease, Messer argued, had been abetted by certain environmental factors; 'favourable' conditions for

the production of tetanus, whether traumatic, idiopathic, or hysterical, had appeared at Santa Cruz in the form of 'punctured wounds... an unusual amount of excitement after an attack, together with much anxiety of mind, fear of poison, and consequent despondency. To these must be added an exceedingly hot, damp, relaxing climate.'⁸⁰ References to 'inward' and 'outward' behaviour, likely inspired by Carpenter's success in reconciling divine willpower with mechanistic models of the mind, allowed Messer to overcome the contradiction between his diagnosis of a hysterical mental state and Goodenough's reputation as a rational, masculine, and Christianly explorer. The commodore's mind had exerted a sinister and seemingly autonomous agency in its fixation on the existence and deadly nature of indigenous poisons:

In the commodore's case, as before mentioned, we would not have expected to find that the influence of the mind over the body was of a hurtful nature, but rather the reverse. Unfortunately, however, from the very first, although apparently disbelieving in the danger of the poison, his mind never left the subject, but at once began to look forward to and prepare for a fatal result. This, however, he did in all outward calmness, and with a courage and resignation which others have well described.⁸¹

Messer may have acknowledged that too overt a challenge to Goodenough's character was likely to have a negative impact on the dissemination and publication of his report. The last sentence of the extract above likely refers to the work of Henry Goldfinch, one of the *Pearl's* lieutenants, who had written a moving account of Goodenough's illness and death.⁸² There, Goldfinch emphasised the manner in which the commodore accepted and made a virtue of his fate:

19th August. This afternoon I witnessed the saddest scene possible we had been greatly alarmed all day about the state of the Com at 5pm he sent for all the officers into his sleeping cabin he spoke to us all generally at first telling us the great comfort he had in dying was the love of God and exhorting us to love *him* more then he said goodbye & spoke a few kind words to each of us kissing us all round every one in tears.

If Goodenough had not resigned himself to his death from poisonous wounds, Messer implied, he may have survived the attack; lack of medical education and a consequent superstition had encouraged the commodore's fate. Whereas Rayner and Small similarly suffered from a hysterical mental state with few outward symptoms, the 'delicate'

officer, Hawker, and the engineer, Belts, had by contrast exhibited it in full. Though Hawker received only a slight scratch to his shoulder, Messer reported that 'unusual and irregular symptoms of tetanus set in very early, his mind becoming extremely excited.'⁸³ Convinced the presumed poisoning meant 'he must surely die', Hawker refused to leave his cabin and 'adopted strange and eccentric methods to prevent his jaw becoming locked ... He nearly succeeded in producing real tetanus, and probably would have done so had his wound been anything beyond the merest scratch.'⁸⁴ Belts, who was 'extremely nervous and timorous', suffered similarly after he 'allowed himself to imagine' that a wound on his thumb 'was caused by one of the arrows he had accidentally touched.'⁸⁵ Messer's published report states that Belts's fear of poison was so extreme that he was ultimately invalidated from the navy, being 'actually considered insane.'⁸⁶ In his original notes, however, the surgeon noted more candidly his suspicion that Belts in fact 'exaggerated his symptoms for his own purposes.'⁸⁷ The surgeon's desire to establish cases of hysterical tetanus may therefore have been acknowledged, and exploited, by devious elements of the *Pearl's* crew.

Conclusion

It has not been my intention here to offer a final diagnosis of the sufferings of the *Pearl's* wounded sailors, but it is as well to observe that Goodenough, Rayner, and Small almost certainly died from an infection caused by tetanus bacteria. Strychnine poisoning appears an unlikely explanation, as Messer observed, because it took more than a week for the men to die. Nevertheless, it should be noted that since Nendö people were undoubtedly aware of the association between arrow wounds and tetanus, the arrows could indeed be considered poisonous. As no attempt has lately been made to settle this question, Santa Cruz arrows now held at the British Museum are pragmatically considered toxic, and have their points carefully wrapped.⁸⁸ With respect to the 'outward symptoms' of what Messer called hysterical tetanus, in the case of Hawker, Jervis, and perhaps Belts, the condition might now be referred to as a form of non-epileptic seizure; these can be stimulated by anxiety and depression, and may well have been less prevalent in sailors who, in consequence of Christian faith or otherwise, did not believe in the indigenous manufacture of poison.⁸⁹

The caution afforded to the arrows now in the British Museum speaks to Messer's contradictory legacy. The surgeon was the first explorer of the British Empire to undertake a detailed study of exotic poisons, and incidents of poisoning, but he failed to make a significant impact upon medical research. Furthermore, though Messer sought to establish that no viable poisons were manufactured in the Santa Cruz Islands, his references to decomposing bodies, witchcraft, and painful death lingered long in the imagination of his contemporaries. The problem was that Messer's case for hysterical tetanus, about which he himself called for more research, was not strong enough to convince physicians, sailors, and the public that poisonous arrows could safely be ignored. 'Is it certain', came one typical response in the contemporary press, 'that the Polynesians never soak their arrows in a solution of strychnia or some analogous vegetable poison?'⁹⁰ The Gilbert Blane medal, it may fairly be concluded, in truth rewarded Messer's deft weaponisation of the Victorian concern with nervous breakdown, and his novel use of emerging psycho-physiological explanations for tetanic spasms. By proposing that the most dangerous and enduring barriers to the development of the South Pacific region were the stress and hysteria of superstition, the surgeon consolidated the Medical Department of the Navy's influence within a triumvirate of imperial encounter, humanitarian activism, and Christian proselytisation. Though never explicit, the doubts Messer cast upon Goodenough's mental state challenged the stability of contemporary formulations of 'modern' civilisation and its forms of behaviour; poisonous arrows, like Conan Doyle's Tonga and his darts, had the power to disrupt and to terrorise civil societies. In 1877, an editorial in the *Australian Town and Country Journal* revealed that the political significance and religious symbolism of Messer's reports had not been missed. 'At present the prayer to be delivered from "the arrow that flyeth by day" has a peculiar significance', it observed. Should Messer's discoveries offer an antidote to terror, 'they will rank high among the services conferred by explorers upon mankind'.⁹¹

Notes

- 1 'Statue to Captain Cook, at Randwick', *The Sydney Morning Herald* (28 October 1874), 5.

- 2 C. I. Hamilton, 'Naval hagiography and the Victorian hero', *Historical Journal*, 23:2 (1980), 381–98.
- 3 'Death of Commodore Goodenough and two seamen of H. M. S. Pearl at Santa Cruz', *Sydney Morning Herald* (3 September 1875), 5.
- 4 *Ibid.* T. Kolshus and E. Hovdhaugen, 'Reassessing the death of Bishop John Coleridge Patteson', *Journal of Pacific History*, 45:3 (2010), 331–55.
- 5 J. Samson, *Imperial Benevolence: Making British Authority in the Pacific Islands* (Hawaii: University of Hawai'i Press, 1998). J. Samson, 'Hero, fool or martyr? The many deaths of Commodore Goodenough', *Journal for Maritime Research*, 10:1 (2008), 1–22 (p. 1).
- 6 *Ibid.*, 7.
- 7 'Poisoned Arrows and Their Antidotes', *Australian Town and Country Journal* (21 April 1877), 18.
- 8 A. B. Messer, 'An Enquiry into the Reputed Poisonous Nature of the Arrows of the South Sea Islanders', in A. Egerton (ed.), *Statistical Report of the Health of the Navy for the Year 1875* (House of Commons, 1876), 149–63. A. B. Messer, 'Continuation of an Enquiry into the Reputed Poisonous Nature of the Arrows of the South Sea Islanders', in A. Egerton (ed.), *Statistical Report of the Health of the Navy for the Year 1876* (House of Commons, 1877), 184–98.
- 9 A. B. Messer, 'On "An inquiry into the reputed poisonous nature of the arrows of the South Sea Islanders."', *Journal of the Anthropological Institute of Great Britain and Ireland*, 7 (1878), 209–11.
- 10 S. M. Blevins and M. S. Bronze, 'Robert Koch and the "golden age" of bacteriology', *International Journal of Infectious Diseases*, 14 (2010), 744–51.
- 11 See, for example, 'Poisoned Arrows', *Tribune* (28 April 1877), 3.
- 12 A. Conan Doyle, *The Sign of Four* (London: Spencer Blackett, 1890).
- 13 *Ibid.*, 99.
- 14 A. Christie, *The Mysterious Affair at Styles* (New York: John Lane, 1920).
- 15 M. Saler, '"Clap if you believe in Sherlock Holmes": mass culture and the re-enchantment of modernity, c. 1890–c. 1940', *The Historical Journal*, 46:3 (2003), 599–622.
- 16 Messer, 'An enquiry', 160–1.
- 17 The National Archives, London (hereafter TNA), ADM 101/246, A. B. Messer, 'Medical and Surgical Journal of HMS Pearl for 1 January to 31 December 1875', 38.
- 18 Messer, 'An enquiry', 158–9.
- 19 *Ibid.*
- 20 Messer, 'On "An Inquiry"', 210.
- 21 R. Pietsch, 'Hearts of oak and jolly tars? Heroism and insanity in the Georgian navy', *Journal for Maritime Research*, 15:1 (2013), 69–82.

- 22 Samson, 'Hero, fool or martyr?', 3; R. I. S. (ed.), *The Christian Hero of Santa Cruz* (London: S. W. Partridge & Co., 1876).
- 23 Samson, *Imperial Benevolence*, 167.
- 24 R. Blake, *Religion in the British Navy 1815–1879* (Woodbridge: The Boydell Press, 2014).
- 25 'Obituary', *British Medical Journal*, 2:3073 (1919), 692.
- 26 TNA, ADM 101/243, A. B. Messer, 'Medical and Surgical Journal of HMS Pearl for 1 January to 31 December 1874'.
- 27 L. Forbes, 'Notes on Fiji', *The Lancet*, 107:2732 (1876), 75–8.
- 28 'Obituary', 692.
- 29 D. Simpson, 'For Science, Friendship or Personal Gain? Alexander Collie and the Origins of Naval Ethnography at Haslar Hospital Museum', in G. Sculthorpe and M. Nugent (eds), *Yurlmun: Mokare Mia Boodja* (Albany: Western Australian Museum, 2016); D. Simpson, 'Medical collecting on the frontiers of natural history: the rise and fall of Haslar Hospital Museum (1827–1855)', *Journal of the History of Collections*, 30:2 (2018), 253–67; L. Kontler, 'Mankind and its histories: William Robertson, Georg Forster and a late eighteenth-century German debate', *Intellectual History Review*, 23:3 (2013), 411–29.
- 30 Simpson, 'For Science, Friendship or Personal Gain?', 31.
- 31 T. Trotter, *A View of the Nervous Temperament* (Newcastle: Edward Walker, 1807).
- 32 *Ibid.*, 153.
- 33 *Ibid.*, 20.
- 34 *Ibid.*, 156.
- 35 TNA, ADM 101/38/5/1, 'Copy of an instruction dated 1 November 1836 from W. Burnett, Physician General'.
- 36 *London Medical Gazette*, vol. 17 (London: Longman, Rees, Orme, Brown, Green, & Longman, 1836), 542.
- 37 *Ibid.*
- 38 'Obituary', 692.
- 39 Kolshus and Hovdhaugen, 'Reassessing the death', 345.
- 40 'The Massacre at Santa Cruz', *Sydney Mail and New South Wales Advertiser* (28 August 1875), 265.
- 41 J. Oppenheim, *'Shattered Nerves': Doctors, Patients, and Depression in Victorian England* (New York: Oxford University Press, 1991).
- 42 'Superstitions of Seamen', *Leisure Hour*, 44 (28 October 1852), 692–4.
- 43 *Ibid.*, 694.
- 44 W. Macleod, 'Annual Report of the Royal Naval Lunatic Asylum at Great Yarmouth', in A. Egerton (ed.), *Statistical Report of the Health of the Navy for the year 1875*, 122–30.

- 45 Messer, 'An enquiry', 149.
- 46 TNA, ADM 101/242/1A, G. Goodman, 'Medical and Surgical Journal of HMS Basilisk for 1 January to 31 December 1872'.
- 47 *Ibid.*
- 48 Messer, 'An enquiry', 153.
- 49 *Ibid.* 150.
- 50 *Ibid.*
- 51 Messer, 'On "An Inquiry"', 209.
- 52 Messer, 'Continuation of an enquiry', 180.
- 53 L. Coze and V. Feltz, 'Physiologie pathologique', *Gazette Médicale de Strasbourg*, 26:61 (1866), 115–208; Messer, 'An enquiry', 154.
- 54 *Ibid.*, 164.
- 55 *Ibid.*, 153.
- 56 *Ibid.*, 154.
- 57 *Report on the Progress and Condition of the Royal Gardens at Kew* (London: George E. Eyre and William Spottiswoode, 1879), 27.
- 58 Messer, 'Continuation of an enquiry', 196–8.
- 59 *Ibid.*, 196.
- 60 *Ibid.*, 195.
- 61 For an exception, see I. Read, 'A triumphant decline? Tetanus among slaves and freeborn in Brazil', *História, ciências, saúde—Manguinhos*, 19:1 (2012), 107–32.
- 62 J. F. Palmer (ed.), *The Works of John Hunter, F.R.S.* (London: Longman, Rees, Orme, Brown, Green, & Longman, 1835), 585; Messer, 'An enquiry', 157.
- 63 R. Noakes, 'Natural Causes? Spiritualism, Science, and the Supernatural in Mid-Victorian Britain', in N. Brown, C. Burdett, and P. Thurschwell (eds), *The Victorian Supernatural* (Cambridge: Cambridge University Press, 2004), 23–43.
- 64 H H. Landouzy, *Trait de l'hysterie* (Paris: J. B. & G. Balliere, 1846); W. R. Gowers, *Epilepsy and Other Chronic Convulsive Diseases* (London: J. & A. Churchill, 1881).
- 65 C. Lawrence, 'Disciplining disease: scurvy, the navy, and imperial expansion, 1750–1825', in D. P. Miller and P. H. Reill (eds), *Visions of Empire* (Cambridge: Cambridge University Press, 1996), 80–106.
- 66 Messer, 'An enquiry', 152. See, for example, M. Harrison, 'Scurvy on sea and land: political economy and natural history, c. 1780–c. 1850', *Journal for Maritime Research*, 15 (2013), 7–25.
- 67 Messer, 'An enquiry', 157.
- 68 *Ibid.*, 154.
- 69 W. B. Carpenter, *Principles of Mental Physiology* (London: Henry S. King & Co., 1874).

- 70 *Ibid.*, 70. Emphasis in original.
- 71 W. B. Carpenter, *Principles of Human Physiology* (London: John Churchill, 1842); W. B. Carpenter, 'On the voluntary and instinctive actions of living beings', *Edinburgh Medical and Surgical Journal*, 48 (1837), 22–44.
- 72 For a related discussion, see A. Crabtree, "Automatism" and the emergence of dynamic psychiatry', *Journal of the History of the Behavioural Sciences*, 39:1 (2003), 51–70.
- 73 Carpenter, *Principles of Mental Physiology*, 293.
- 74 *Ibid.*, p. xii.
- 75 Messer, 'An enquiry', 152.
- 76 *Ibid.*, 157; R. Willan, *Reports on the Diseases in London* (London: H. L. Galabin, 1801); J. Hennen, *Principles of Military Surgery* (Edinburgh: Archibald Constable and Co., 1820).
- 77 A. J. F. Ruoff, *Repertorium für die homöopathische Praxis* (Stuttgart: Hallberger'sche Verlagshandlung, 1837); A. Howard Okie, *Ruoff's Repertory of Homoeopathic Medicine, Nosologically Arranged* (Philadelphia: J. Dobson, Kay & Brothers, & H. Hooker, 1844).
- 78 T. Holmes, *A System of Surgery: Theoretical and Practical* (London: Longmans, Green, and Co., 1870); F. J. Gant, *The Science and Practice of Surgery* (London: J. & A. Churchill, 1871).
- 79 Messer, 'An enquiry', 151.
- 80 *Ibid.*, 157.
- 81 *Ibid.*, 151–2.
- 82 The British Library, RP 5181, H. Goldfinch, 'Account by Lieut H E Goldfinch of the fatal wounding of Goodenough by the Natives of Santa Cruz', 12 August 1875.
- 83 Messer, 'An enquiry', 152.
- 84 *Ibid.*
- 85 ADM 101/246, 65.
- 86 Messer, 'An enquiry', 152.
- 87 ADM 101/246, 66.
- 88 See, for example, British Museum object Oc1981, Q2442.
- 89 For a survey of recent debate, see A. M. Kanner and S. C. Schachter, *Psychiatric Controversies in Epilepsy* (Amsterdam: Elsevier/Academic Press, 2008).
- 90 'Poisoned Arrows', *Tribune* (28 April 1877), 3.
- 91 'Poisoned Arrows and Their Antidotes', *Australian Town and Country Journal* (21 April 1877), 18.