Social History of Medicine Vol. XX, No. XX pp. 1–24

Hunting the Royal Navy's Medical 'Snark': Diagnosis, Prevention and Treatment of Tropical Neurosis in British Sailors, 1943–1945

Frances Houghton*

Summary. Between 1943 and 1945, Britain's Royal Naval Medical Service dispatched urgent missions to investigate physiological and psychological effects suffered by British sailors who were deployed in tropical climates. This article draws on the resulting, previously neglected, medical articles and medical research reports to examine understandings of 'tropical neurosis' in the wartime Fleet. Exploring how tropical neurosis was encountered, framed and explained by senior naval medical professionals, this article investigates the condition's portrayal as a serious health and military risk during the Second World War. This research analyses hitherto unexplored intersections of constructions of race, gender and environment in British naval medical conclusions and recommendations, delivering significant new understandings of the insidious operation of medical racism in Britain's wartime armed forces. It also establishes, for the first time, how this ambiguous illness was construed as a threat to Britain's naval war effort, and even the very future of Empire, by the Navy's medical branch.

Keywords: tropical neurosis; Royal Navy; Second World War; race; gender

> Almost everywhere in the Tropics we were told that after a year there is a noticeable deterioration in drive, alertness, keenness, capacity and speed of thought, memory, and power in making decisions. These features are accompanied by lassitude, procrastination, irritability, sometimes alcoholic excess, and… slovenliness in personal appearance.[1]

In July 1945, Surgeon Vice-Admiral Sir Sheldon Dudley, the British Naval Medical Director-General, admitted that the Royal Navy (RN) had critically underestimated the 'baneful effect' of tropical service upon sailors' health in the early years of the Second World War.[2] From 1943 onwards, the Navy faced deepening manpower shortages, escalating hostilities against Japan in the Far East and increasing concerns about reductions in the general health and fitness of 'hostilities only' naval recruits. This forced the Royal Naval Medical Service (RNMS) to make new and concerted efforts to retain men for duty in

*The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK. E-mail: frances.houghton@open.ac.uk

Dr Houghton is a Lecturer in Modern British History at The Open University. As a social and cultural historian of modern war, she has previously published widely on British veterans' traumatic experiences, memories and therapeutic life-writing of the Second World War, and is currently researching British naval medical care between 1939-45.

[1]M. Critchley and H. E. Holling, 'Report on Living and Working Conditions Among R.N. Personnel in the Tropics', for the Royal Naval Personnel Research Committee, April 1944, ADM 261/6, The National Archives [TNA], 125.

[2]S. F. Dudley, 'The Royal Navy', in H. L. Tidy and J. M. Browne Kutschbach, eds, *Inter-Allied Conferences on War Medicine 1942–1945* (London: Staples Press, 1947), 490.

https://doi.org/10.1093/shm/hkae037

tropical regions. In August of that year, the Royal Naval Personnel Research Committee (RNPRC) became so anxious about the health of the Fleet that they dispatched two naval medical experts on a 7-month investigative research tour of the Eastern Mediterranean, Red Sea, Persian Gulf, India, Ceylon, and East, West and South Africa. Surgeon-Captain Macdonald Critchley, RNVR, and Surgeon Lieutenant-Commander H. E. Holling, RNVR, produced an extensive, yet hitherto largely overlooked, 'Report on Living and Working Conditions among R.N. Personnel in the Tropics' (April 1944) which painted a disturbing health portrait of the wartime Navy in hot climates. They attributed a widespread sense of general loss of 'edge', frayed emotional resilience, uncharacteristic behavioural and personality changes, and lowered morale in British sailors to an ambiguous disorder that they identified as tropical neurosis.[3] The clinical nomenclature of 'tropical neurosis', the symptoms of which are described above, was comparatively new to British Second World War naval medicine. The medical condition to which it was affixed, however, had been pathologised as a threat to white European health and colonial enterprise since at least the late-nineteenth century.

This article demonstrates how the British Navy rediscovered, rebranded and redeployed older colonial diagnoses of climate-induced nervous and mental deterioration, perceived to stem from the failure of white bodies and minds to adapt to tropical environments. Through close analysis of wartime British naval medical repertoires of 'tropical neurosis', it exposes that the reported demise by the 1940s of diagnoses of 'tropical neurasthenia', an earlier manifestation of the psychoneurotic disorder, has been considerably overestimated by historians. For British wartime naval medics, this early-twentieth-century disease syndrome of tropical neurasthenia offered a readily available means of explaining and redressing a variety of vague but problematic issues of decreasing mental health and working efficiency that dogged Britain's Fleet across tropical theatres of battle. Medical understandings of tropical neurasthenia were repurposed, polished up with modern diagnostic practices and language into tropical neurosis, and deployed with the intention of remedying operational problems threatening Britain's global naval war. Accordingly, this article interrogates the ways in which tropical neurosis was encountered, framed and problematised by the RNMS in the Second World War. It establishes, for the first time, how this ambiguous illness came to be construed as a threat to the British naval war effort, and even the very future of the British Empire, by the Navy's senior medical officers between 1943 and 1945.

Tropical neurosis was a wartime iteration of a chronic nervous illness that had long concerned European colonial medical and military authorities. During the interwar years, British and European medical communities wrangled over the exact causes and nature of tropical neurotic illness. These medical debates blamed a bewildering range of environmental, workplace, dietary, sexual, racial and domestic stimuli for overstraining the white European nervous system and triggering a mental decline in tropical climates. In 1933, the eminent British psychologist Professor Millais Culpin warned that too many doctors were inclined to pathologise climate-induced psychoneurosis without substantive clinical evidence, likening Western interwar medicine's ongoing efforts to diagnose tropical neurasthenia to a 'hunting of the snark'.[4] This claim referenced Lewis Carroll's

[3]Critchley and Holling, 'Report', 126.

[4]M. Culpin, 'An Examination of Tropical Neurasthenia', *Proceedings of the Royal Society of Medicine*, 1933, 52.

popular poem, 'The Hunting of the Snark' (1876), which narrates the story of a crew who voyaged across the sea in quest of the eponymous mythical foe. By drawing literary parallels with Carroll's poem, categorised in the genre of nonsense poetry, Culpin implied that a diagnosis of a specifically tropical nervous disorder might be classified as equal absurdity. Nevertheless, like the poet's fictional 'Snark', tropical neurasthenia was perceived by many medical experts between the 1920s and 1940s as elusive and mysterious, continually evading precise situations and definitions yet suspected as highly dangerous. Disagreeing with Culpin's view that tropically induced neurasthenic illness was medical nonsense, in 1943, British naval medicine resolutely embarked on a mission to track down and confront the mysteries of mental and nervous disorder in the tropics. Ironically, this undertaking bore striking resemblance to a renewed hunting of Culpin's medical 'Snark'.

Between 1943 and 1945, the RNPRC commissioned a variety of medical research investigations to examine living and working conditions among naval personnel deployed to tropical regions. The resultant reports, particularly Critchley and Holling's influential study, and associated writings in the British medical press, form the basis of this article's analysis of deepening medical anxieties surrounding tropical neurosis in the late-wartime Navy. Methodologically speaking, quantitative evidence for rates of tropical neurosis in the wartime Navy was not included in these reports. Instead, the medical research teams were more concerned with obtaining qualitative data through conducting oral interviews with scores of naval medical personnel and non-medical officers and ratings. This approach was intended to develop a better understanding of the complex network of social and environmental factors that were suspected of increasing mental health risks in the tropics. Initial distribution of this research was strictly limited and kept in-house, submitted only to various sub-committees of the RNPRC. However, key findings from Critchley and Holling's report were subsequently circulated in various formats to service and civilian medical colleagues in Britain in the summer of 1945. In August of that year, Critchley was invited to deliver the prestigious annual Croonian Lecture to the Royal Society and Royal College of Physicians, in which he presented his wartime research on the health risks of tropical service among naval personnel. Shortly afterwards, his lecture was written up as 'Problems of Naval Warfare Under Climatic Extremes', a series of articles published in the *British Medical Journal*. At a key moment of national stock-taking and planning for the post-war future, the Navy's medical research into the health impacts of tropical service was invested with substantive import for wider civilian and medical audiences.

In the following analysis of the ways in which leading British naval medical specialists sought to understand and address sailors' apparent mental deterioration in hot climates, this article's first section, 'Towards the Royal Navy's Hunt for Tropical Neurosis, 1860–1943', examines the preparations and build-up to the Navy's wartime quest to track down tropical psychoneurotic illness. Addressing the making of wartime tropical neurosis, this section places medical writings of Second World War naval neuropsychiatrists within a wider historical context of late-nineteenth- and early-twentieth-century colonial and medical debate about climate-induced mental disorders. In so doing, it charts how legacies of earlier approaches towards tropical neurotic illness critically inflected the RNMS's wartime methods. The second section, 'Diagnosing Symptoms and Causes of

Tropical Neurosis in the wartime Navy', examines the Navy's efforts to diagnose this elusive tropical disorder and identify causative factors, while the final section, 'Prevention and Treatment of Tropical Neurosis', analyses medical attempts to control and arrest the development of symptoms in British sailors. Collectively, these sections expose critical, yet hitherto unexplored, intersections of wartime constructions of race, gender and environment in British naval medical conclusions and recommendations.

Historiographical interest in tropical psychoneurotic disorder as a colonial mechanism of socio-political control has thus far extended across imperial military conquest and the establishment of white settler societies in British and American colonial territories in Africa, Southeast Asia and the Pacific.[5] Locating the condition as co-dependent upon colonial tropes of acclimatisation and wider British, European and American clinical understandings of nervousness, Anna Crozier has shown how tropical neurasthenia was shaped by both ideas of colonial locality and wider disciplines of psychiatry and neurology at home.[6] However, research into the integration of tropical neurasthenia into mid-twentieth-century British military medicine has notably lagged behind, perhaps due to a perception in the extant scholarship that the diagnosis had literally and figuratively had its day in the sun by 1939.[7] Surprisingly, the Second World War has received virtually no detailed attention from historians of tropical neurasthenia, allocated at best a couple of sentences that fast-forward over nearly 6 years of the impact of global conflict on tropical medicine. Yet as the wartime RNMS demonstrates, the cultural lifespan of this disease continued as a formative influence upon certain branches of British military medicine until at least the end of 1945.

A recent scholarly turn towards exploring Britain's 'People's War' as an inter-imperial struggle has highlighted how interlocking threads of colonial power, territories and peoples tethered metropole and colonies together to place imperial concerns at the centre of the wartime British geo-political and military agenda.[8] Yet although the role of health and medicine in furthering the British imperial project has been well established in wider histories of empire, state provision of military medical care at home and abroad in the Second World War has yet to be fully understood as part of this long-running health conquest in the name of white colonial ambition and survival. Historians of earlier European colonial societies usefully analyse medical understandings of tropical neurasthenia as expressions of acute anxieties surrounding white masculinities, racial degradation and disintegration

[5]Select examples include: W. Anderson, *Colonial Pathologies: American Tropical Medicine, Race and Hygiene in the Philippines* (Durham, NC: Duke University Press, 2006); D. Kennedy, *Islands of White: Settler Society and Culture in Kenya and Southern Rhodesia, 1890–1939* (Durham: Duke University Press, 1987); D. Kennedy, 'The Perils of the Midday Sun: Climatic Anxieties in the Colonial Tropics', in John MacKenzie, ed, *Imperialism and the Natural World* (Manchester: Manchester University Press, 1990), 118–40; A. Crozier, 'Sensationalising Africa: British Medical Impressions of Sub-Saharan Africa, 1890–1939', *The Journal of Imperial and Commonwealth History*, 2007, 35, 393–415.

[6]A. Crozier, 'What Was Tropical About Tropical Neurasthenia? The Utility of the Diagnosis in the Management of British East Africa', *Journal of the History of Medicine and Allied Sciences*, 2009, 64, 518–48.

[7]D. Kennedy, 'Minds in Crisis: Medico-Moral Theories of Disorder in the Late Colonial World', in H. Fischer-Tiné, ed, *Anxieties, Fear and Panic in Colonial Settings: Empires on the Verge of a Nervous Breakdown* (London: Palgrave Macmillan, 2016), 34.

[8]For instance, T. Barkawi, *Soldiers of Empire: Indian and British Soldiers in World War II* (Cambridge: Cambridge University Press, 2017); W. Webster, *Mixing It: Diversity in World War Two Britain* (Oxford: Oxford University Press, 2018); A. Jackson, Y. Khan and G. Singh, eds, *An Imperial World at War: The British Empire, 1939–45* (Abingdon: Routledge, 2017).

of empire. Indeed, Dane Kennedy and Warwick Anderson have, respectively, located tropical neurasthenia as a 'colonial dilemma' and the 'white man's psychic burden', splicing into broader historiographical debates that positioned climatic determinism at the centre of nineteenth- and early-twentieth-century fears for the future of European colonialism.[9] The Second World War exacerbated imperial nations' early-twentieth-century fears that their empires were on the 'verge of a nervous breakdown'. Tropical neurasthenia had always stood at the junction of a highly 'complex relationship between emotions, panics and colonial empires' but the search to understand and treat its successor, tropical neurosis, took on a new and immediate urgency in the RN during the war.[10] As the British Empire began to unravel, some parts of British Service medicine held tightly to older climatic discourses as a prospect of offering present and future colonial salvation.

Deeply entrenched racialised perceptions of white fragility in the tropics underpinned the wartime British naval medical authorities' concerns. Significant connections between colonial tropical medicine and the growth of 'race science' as a mechanism of rationalising imperial control in the nineteenth century have been well established by historians.[11] Less fully recognised are the ways in which remnants of these ideas persisted to influence medical approaches and systems in the imperial British military machine that maintained the Second World War. Wartime British naval medical writings consistently identified and legitimised white racial grievances as a source of poor mental health. In exploring constructions of racial difference in naval medical narrative representations, this article contributes to parallel developing bodies of work that explore the making of race in both British colonial military medicine and Allied medicine during the Second World War.[12] In so doing, this research opens up new understandings of a broader pathologising of racial whiteness in wartime British naval medicine and the insidious operation of medical racism in the British armed forces during the Second World War. Nevertheless, despite reading the Navy's wartime diagnosis of tropical neurosis through a lens of policing and protecting imperilled whiteness, there is, as Yolana Pringle reminds, more than colonial anxiety and socio-political control to the complex history of this illness. The pain and suffering of patients presented a 'clinical reality' that British naval medical officers working afloat and ashore sought to treat.[13] Accordingly, this article establishes how the wartime Navy's medical branch attempted to make meaning of a broad range of symptoms of nervous and mental illness that afflicted sailors who were far from the temperate shores of home.

[9]D. Kennedy, 'Diagnosing the Colonial Dilemma: Tropical Neurasthenia and the Alienated Briton', in D. Ghosh and D. Kennedy, eds, *Decentring Empire: Britain, India and the Transcolonial World* (London: Sangam, 2006), 157–81; Anderson, *Colonial Pathologies*, 130.

[10]H. Fischer-Tiné and C. Whyte, 'Introduction', in *Anxieties, Fear and Panic in Colonial Settings*, 3.

[11]M. Harrison, '"The Tender Frame of Man": Disease, Climate, and Racial Difference in India and the West Indies, 1760–1860', *Bulletin of the History of Medicine*, 1996, 70, 68–93; W. Ernst and B. Harris, eds., *Race, Science and Medicine, 1700–1960* (London: Routledge, 1999).

[12]T. Lockley, *Military Medicine and the Making of Race: Life and Death in the West India Regiments, 1795–1874* (Cambridge: Cambridge University Press, 2020); L. Humbert, 'Caring Under Fire Across Three Continents: The Hadfield-Spears Ambulance, 1941–1945', *Social History of Medicine*, 2023, 36, 284–315; K. O. Polk, *Contagions of Empire: Scientific Racism, Sexuality, and Black Military Workers Abroad, 1898–1948* (Chapel Hill: University of North Carolina Press, 2020).

[13]Y. Pringle, 'Neurasthenia at Mengo Hospital, Uganda: A Case Study in Psychiatry and a Diagnosis, 1906–50', *The Journal of Imperial and Commonwealth History*, 2016, 44, 242–56.

Towards the Royal Navy's Hunt for Tropical Neurosis, 1860–1943

Britain's Second World War naval medical experts did not produce their professional opinions and recommendations surrounding tropical neurotic disorder within a vacuum. Clinically and culturally, the wartime British Navy's quest to hunt down tropical neurosis was inherited from late-nineteenth- and early-twentieth-century medical debates that located neurasthenia (nerve weakness) as a state of chronic nervous exhaustion, a disease that was rooted in specific environmental, racial and gender characteristics.[14] In the late 1860s, the American neurologist George M. Beard argued that the disordering of middle-class male white nerves was a by-product of the excesses of modern civilisation. By the end of the nineteenth century, neurasthenia had become a popular and well-entrenched medical explanation for the ills of modern Western life across the USA, Europe and Britain. As neurasthenia's colonial cousin, tropical neurasthenia was understood as a nervous disease that was incubated by the white man's inability to acclimatise to long sojourns in tropical climates. In 1905, Dr Charles Woodruff, a brigade surgeon with the American expeditionary forces in the Philippines, theorised that bright tropical sunlight overstimulated nerve tissue and caused mental and moral deterioration in white colonisers.[15] Woodruff's actinic theory promulgated a new, modern scientific voice to older medico-moral traditions of anxiety about climatic impact upon long-term white acclimatisation and residency in the tropics.[16]

As Pratik Chakrabarti notes, the interlinked history of European acclimatisation and growth of nineteenth-century constructions of race in tropical climates is fundamentally an intimate history of colonial power and anxiety.[17] By the end of the nineteenth century, a new 'race science' built on hierarchical conceptions of biological difference offered European imperial nations valuable strategies through which to justify and achieve imperial ambition.[18] Pseudo-scientific racial taxonomies were integrated into contemporary medical writings, which proposed intertwined racial and climatic explanations of white European failure to adapt to prolonged tropical residency. Biological essentialism thus met environmental determinism to produce a cultural and medical milieu of intense anxieties about white racial degeneration in Britain's tropical colonial possessions and fears for the very future of empire itself by the turn of the century.[19] Woodruff's theory of a causal link between tropical environment, race and neurasthenic symptoms focussed medical attention on mental health in the conquest and consolidation of colonial possessions.

Tropical neurasthenia emerged in the early-twentieth century as a distinct 'transcolonial concern' in American, British, French, Dutch, German and Italian medical journals.[20] A sizeable chunk remains missing from the history of tropical psychoneurotic disease between 1914 and 1918, but as an interpretative framework for the perceived problems of empire, tropical neurasthenia remained a highly potent topic of discussion among interwar practitioners in Britain and abroad throughout the 1920s and 1930s. By the

[14]M. Gijswijt-Hofstra and R. Porter, eds, *Cultures of Neurasthenia from Beard to the First World War* (Amsterdam: Rodopi, 2001), 1.
[15]C. Woodruff, *The Effects of Tropical Light on White Men* (New York: Rebman, 1905).
[16]Kennedy, 'Minds in Crisis', 31.
[17]P. Chakrabarti, *Medicine and Empire 1600–1960* (London: Bloomsbury, 2014), 70.
[18]M. Harrison, *Climates & Constitutions: Health, Race, Environment and British Imperialism in India 1600–1850* (Oxford: Oxford University Press, 1999), 12–14.
[19]Chakrabarti, *Medicine and Empire*, 67.
[20]Kennedy, 'Minds in Crisis', 30–31.

1920s, the idea of the tropics as a destabilising influence on the minds of civilised white men had become embedded in American, British and European psychology. Much of the interwar medical literature agreed that some sort of climatic origin was to blame for the mental deterioration of white Europeans in the tropics, although Anderson suggests that a shift in focus reoriented these medical discussions towards the irritations of colonial social life in the tropics, rather than the climate itself, as the cause of white nervous breakdown.[21] However, the tropical environment could not be disaggregated from the experiences and identities of all the people who lived and worked within it. Warp and weft in the fabric of interwar medical debate about causes, conditions and effects of tropical neurasthenia were formed by climatic forces and factors of social class, age, gender and occupation, respectively. Connections between place and race in clinical diagnoses of tropical neurasthenia in interwar British medicine were consistently reaffirmed, creating a framework of medical beliefs within which the Second World War naval doctors largely continued to operate.

The interwar tropical neurasthenia debates also mapped onto a period of wider changes in British social and psychological models of mental illness. Mass industrialised slaughter and the advent of 'shell shock' during the First World War prompted a significant shift in applications of psychoanalytic ideas and treatments in clinical settings. During the 1920s, many psychologists and neurologists expounded a critical link between an individual's state of mind and struggles to adapt to their environment. As medical interest in the power of the unconscious and psychological therapies grew in interwar Britain, disease categories evolved to reflect shifts in understanding and diagnosing mental illness. By the end of the 1930s, the British medical language of 'nerves' and 'neurasthenia' had largely given way to that of 'neuroses' and 'psychoneuroses'.[22] Amid these transformations to the wider landscape of mental health in interwar Britain, corresponding change was slow to appear in the Royal Navy's provision of psychiatric care for sailors. During the First World War, the Navy sustained 20,000 psychiatric casualties, yet after the conflict, only two regular psychiatric specialists were employed to treat mental illness in sailors and naval veterans at RNH Haslar and RNH Great Yarmouth.[23] In 1939, however, the threat and subsequent outbreak of war activated the rapid development of a new specialist naval neuropsychiatric service to care for the mental health of the Fleet at home and abroad.

Prospective rates of psychiatric casualties in the Services had presented a source of acute concern to the British state long before the fighting began. The First World War's shadow of 'shell shock' and combat-induced neurasthenic disorders loomed large and at the start of another world war in 1939, tens of thousands of ex-servicemen were continuing to draw pensions for psychiatric illness.[24] Fears that the state would be forced to pay out similarly large numbers of awards during the next conflict led the Ministry of Pensions to establish a new framework for prevention and discouragement of neuropsychiatric

[21]Anderson, *Colonial Pathologies*, 9, 144.
[22]M. Thomson, 'Neurasthenia in Britain: An Overview', in Gijswijt-Hofstra and Porter, eds, *Cultures of Neurasthenia*, 82.
[23]E. Jones and N. Greenberg, 'Royal Naval Psychiatry: Organization, Methods and Outcomes, 1900–1945', *The Mariner's Mirror*, 2006, 92, 3.
[24]B. Shephard, *A War of Nerves: Soldiers and Psychiatrists 1914–1994* (London: Jonathan Cape, 2000), 144.

disorder. In November 1939, the Ministry's psychiatric advisor, Dr Francis Prideaux, circulated a memorandum to British doctors, confirming that no military pensions would be paid to cases of neurosis during this war.[25] The Prideaux Memorandum also established a framework of simple, early diagnosis and treatment of psychoneuroses, principles to which the Navy's new neuropsychiatric department willingly adhered. In part, this was because the Navy's psychiatric casualty rate during the early war years did not look auspicious. In 1940, 5,000 cases (including officers and ratings) were referred for psychiatric care in hospitals. There were 6,141 cases in 1943.[26] Although these figures were actually relatively low, representing only about 1 per cent of all naval personnel, they nonetheless represented a real cause of concern for the Navy's medical service, hinting at future possibilities of an epidemic of psychiatric breakdowns as the war intensified. While these statistics did not specifically reference climate-based psychoneurotic illnesses, a clear pattern of growing concern about the wider state of mental health in the Navy emerged. From the top levels of the Admiralty's Medical Department down to individual doctors in warships and shore establishments, medical focus was increasingly directed towards prevention of psychiatric and psychological casualties in order to reduce wastage and alleviate manpower shortages. This climate of prophylaxis also expanded to encompass the prevention and treatment of minor psychoneuroses which might, if left untreated, develop into the loss of a valuable sailor from active service. As the global war at sea voraciously demanded ever greater manpower, perceptions of the enhanced mental health risks of serving in hostile climates became foregrounded in naval medical approaches to preventing this type of casualty.

The early war years thus stimulated medical awareness in the Navy of an urgent need to apply scientific approaches to issues that detrimentally impacted the health and efficiency of naval personnel. The RNPRC, which was appointed by the Medical Research Council and met for the first time in November 1942, was established to co-ordinate and direct physiological and psychological research into 'the human factors associated with successful prosecution of the war'.[27] As the imminent threats posed by the Battle of the Atlantic receded somewhat after 1943, the pressing medical needs of tropical warfare attained the highest operational priority in the Navy's Medical Department.[28] From early 1943 onwards, issues of habitability (the adequacy of an environment for humans to live and work in) and climatic efficiency afloat and ashore in tropical regions began to dominate attention. A year later, the RNPRC formed a Habitability Sub-Committee which was tasked with ascertaining the impact of hot environments and climates on the physical and mental health and working efficiency of naval personnel. A new focus was particularly directed towards understanding the ways in which British minds and nerves were affected by climatic influences in the tropics. While planning medical arrangements for the anticipated naval casualties of the deepening war in the Far East, the Navy's Medical Director-General, Surgeon Vice-Admiral Sir Sheldon F. Dudley, became anxious that the Admiralty appeared to have seriously underestimated

[25]B. Shephard, '"Pitiless Psychology": The Role of Prevention in British Military Psychiatry in the Second World War', *History of Psychiatry*, 1999, 10, 511–13.
[26]Jones and Greenberg, 'Royal Naval Psychiatry', 6.
[27]J. L. S. Coulter, ed, *The Royal Naval Medical Service*, vol 1 (London: HMSO, 1954), 179–80.
[28]'Plan for Investigation of Effects of Hot Environments Upon Working Efficiency and Health of Naval Personnel', July 1944, ADM 1/16735, TNA.

the impact of tropical conditions on sick list rates.[29] In April 1944, Surgeon-Captain Critchley confirmed that a unique form of psychoneurosis presented in the tropics, reporting that the 'earliest and prominent features of the tropical neuroses are intense irritability, poor memory, and mental and physical lassitude, while the characteristic anxiety and depression so common in our experience at home are much rarer and appear later'. It was difficult, he argued, to escape the conclusion that 'neurotic symptoms are commoner in the Tropics than at home' and the tropical syndrome differed from 'the usual neurotic pattern'.[30] A need to dedicate special attention and resources to the threat posed by minor mental decline in the tropics thus became increasingly self-evident to the Navy's Medical Department.

In the short term, the late-wartime Navy's quest to root out the threats posed by nervous and mental illness in personnel deployed to tropical climates was a response to the immediate military threat posed by Japanese naval forces in the Far East. Nevertheless, important long-term considerations about the future of British control in that region were also in evidence. By 1944 the Royal Navy started to look ahead to the end of hostilities, commencing forward medical planning for maintaining a strong British naval presence in its tropical colonial possessions. Proposals for a new Tropical Research Unit were under discussion, supporters of which argued that the benefits of improving medical understanding of the effects of hot climates on physical and mental efficiency would also prove vital to 'future civilian and industrial colonial development' in Britain's post-war empire.[31] Indeed, the late-wartime Navy's advocacy for greater investment in the future of naval tropical medical research was firmly situated within a climate of increasingly acute establishment anxieties about the Empire's future prospects.

Broadly speaking, the Second World War permanently destabilised the status-quo of empires built on pseudo-scientific hierarchies of racial difference that positioned European whiteness at the apex of civilisation, intellect and governance. In southeast Asia, the effects of the conflict upon colonised peoples dealt the foundations of British imperial control a death blow. British violence against growing independence movements such as Mahatma Gandhi's Quit India campaign (1942–44) and callous responses to the Bengal Famine (1943–44) threw fuel on the fires of political and civil unrest, exacerbating British fears for the future of the Raj.[32] External threats from advancing Japanese military forces menaced Britain's war effort. Having lost much of British Malaya to Japanese forces during the bloody run-up to the loss of Singapore in February 1942, shoring up British imperial rule on the Indian subcontinent remained a source of major political and military concern in Britain. These wider anxieties generated by Britain's deteriorating colonial grip in southeast Asia fed directly into the Navy's Medical Department's determination to root out tropical illnesses among sailors fighting to secure the region against present and future threats.

[29]Report on Hospital Facilities and Requirements in the Far East, 1943–1944, ADM 116/5121, TNA.
[30]M. Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', *British Medical Journal*, 1945, 2, 209.
[31]'Plan for Investigation of Effects of Hot Environments'.
[32]C. A. Bayly, 'Ideologies of the End of the Raj: Burma, India and the World, 1940–50', in Ghosh and Kennedy, *Decentring Empire*, 351–56.

Diagnosing Symptoms and Causes of Tropical Neurosis in the Wartime Navy

On 15 August 1943, Surgeon-Captain Macdonald Critchley, RNVR, and Surgeon Lieutenant-Commander H.E. Holling, RNVR, departed from Liverpool upon a 7-month medical tour to research the effects of tropical conditions upon naval personnel. The combined medical expertise of these two doctors was formidable. As the former Head of the Department of Neurology at King's College Hospital and wartime Consulting Neurologist at the Royal Naval Barracks (HMS *Drake*) in Devonport, Critchley was ideally placed to analyse the incidence of nervous disorders in sailors. Holling, a physiologist previously appointed to Coastal Forces, also possessed valuable experience and knowledge of environmental issues associated with the living and working conditions of men in small warships. Indeed, Holling subsequently found himself in high demand for the Navy's wartime tropical research teams, undertaking further investigative missions to the Eastern Fleet between August 1944 and March 1945. In seeking to develop new understandings of the impact of tropical climates upon sailors' minds and bodies, these medical quests were rooted in three fundamental questions: What was happening? To whom? And why?

Between August 1943 and February 1944, Critchley and Holling visited a wide cross-section of British naval ships and shore establishments including warships, submarines, transit camps, depots, barracks, detention quarters, trawler bases, repair yards and Royal Naval Air Stations. In principle, their remit of investigation was fairly broad, encompassing visits to bases where members of the Women's Royal Naval Service (WRNS) lived and worked and also to ships and establishments allocated to Britain's colonial navies. However, Critchley and Holling's final report in April 1944 contained a singular focus on the mental health of white male sailors. After visiting WRNS quarters in Alexandria, Cairo, Port Said, Beyrut, New Delhi, Colombo, Durban, Capetown and Gibraltar, the two medical officers allocated merely 10 pages of their 138-page report to a discussion of female health, focussing almost exclusively on issues of accommodation, uniform, diet and menstruation. Only one reference to the mental health of female naval personnel was made, briefly observing that 'extreme' difficulties were encountered in securing passage back to the UK for Wrens suffering from psychosis.[33] Over 100,000 women served in the WRNS during the Second World War, with a peak figure of 70,000 serving at any one time. Yet through maintaining robust silence about female mental and nervous illness, the 1944 report indicates the tacit operation of a distinctly gendered hierarchy of priority of psychiatric and psychological care in British wartime naval medicine.[34]

Intersections of race and masculinity also critically shaped the naval medical branch's hunt for tropical neurosis from 1943 onwards. As Alison Bashford's work on biomedical scrutiny in tropical medicine notes, the whiteness of colonising bodies historically tends to be taken for granted in studies of race and medical care.[35] Although Britain's armed forces had removed an official colour bar to military service for the duration of hostilities in 1939, racial discrimination remained embedded in naval recruitment. Colonial-born

[33]Critchley and Holling, 'Report', 86.
[34]Coulter, *The Royal Naval Medical Service*, vol 1, 83. The official history also remained silent about psychiatric and psychological care for Wrens.
[35]A. Bashford, '"Is White Australia Possible?" Race, Colonialism and Tropical Medicine', *Ethnic and Racial Studies*, 2000, 23, 267.

recruits of colour were firmly filtered off into local colonial reserve branches of the Navy. Some British-born Black and Asian men were accepted for naval service into the RN but throughout the war, Britain's navy remained a predominantly racially white community.[36] As the reports and writings produced by wartime naval medical experts demonstrate, the British naval institution was served and maintained by medical assumptions of whiteness which critically shaped representations of racial difference, operational value and mental health throughout the Fleet. Critchley and Holling's medical tour also included paying visits to West African sailors employed by the Navy at bases in Freetown and Lagos, and several ships and establishments appointed to the Royal Indian Navy (RIN) and Ceylon Royal Naval Volunteer Reserve (CRNVR). In a brief five-page section, Critchley and Holling remarked upon the diet, character and general health of Indian, West African and Cingalese sailors but again their report notably contained no mention of the mental health of communities of naval personnel who were neither male nor white.[37]

Alternatively, the British naval medical writings of 1944–45 drew a clinical picture of generalised anxiety about flourishing white male neurosis in tropical waters. Critchley and Holling gathered evidence of mounting concern about widescale, apparently tropical-induced, mental deterioration dating back to the early years of the war. They found that medical personnel held a common opinion that after a year's service in the tropics, many sailors experienced the previously quoted 'noticeable deterioration in drive, alertness, keenness, capacity and speed of thought, memory, and power in making decisions'. These features were accompanied by lassitude, alcoholic excess, procrastination, slovenly appearance, mild hypochondriacal preoccupation and a tendency towards paranoid feelings of resentment.[38]

Symptoms of tropical psychoneurotic illness in white male sailors were also discovered to be readily observable to the naval layperson. Subjectively, individuals appeared conscious of their own falling-off in efficiency; objectively, sailors were quick to note uncharacteristic changes in their fellows. Environmentalist perceptions of mental disorders were strongly embedded throughout wider wartime naval discourses above and below decks. Interlinked somatic, personality and behavioural manifestations of this purportedly tropical-induced mental decline were a popular topic of conversation among both medical and non-medical personnel. Tropical deterioration was popularly discussed in 'a jesting fashion' which drew on older colonial military nomenclature of connecting symptoms of climate-induced illness to specific tropical locations.[39] 'Trinco stare', 'Persian Gulfitis' and the 'Delhi tap' were common features in the sailors' own pseudo-clinical discourses, as was a popular saying among naval ratings in the Middle East that 'first you lose your memory, then your hair, and then your morals'.[40] In West Africa, the process of deterioration was popularly conceived as discernible in three stages, each lasting up to 6 months: '(1) "I'll soon put that right"; (2) "frustration everywhere"; (3) "leffum" (Pidgin English for "never mind, leave it.")'.[41] Sailors' testimonials to a marked linguistic slide from 'King's English' into local indigenous West African colloquialisms exhibited the

[36]F. Houghton, '"Alien Seamen" or "Imperial Family"? Race, Belonging and British Sailors of Colour in the Royal Navy, 1939–47', *English Historical Review*, 2022, 137, 1429–61.
[37]Critchley and Holling, 'Report', 87–93.
[38]Critchley and Holling, 'Report', 125.
[39]*Ibid*., 125. See also Kennedy, 'The Perils of the Midday Sun', 123.
[40]Critchley and Holling, 'Report', 125.
[41]*Ibid*., 125.

entrenchment in naval culture of older British colonial beliefs that prolonged exposure to a supposedly inherent inefficiency and laziness of native populations of hot climates caused a socio-biological descent into white racial disintegration. These examples of oral evidence gathered by the Navy's medical investigation teams highlight how perceptions of the fragility of white mental health in the tropics were pathologised in everyday discourses of ordinary naval personnel.

In the first instance, key signs of a sailor's deteriorating mental condition were typically identified by specific emotional and behavioural markers. Within naval communities on tropical deployment, the most frequently proffered sub-clinical evidence of early onset climate-induced mental decline among British sailors was an individual's exhibition of abnormal or unwarranted exasperation in response to environmental stimuli. As the medical officer of one sloop in the Persian Gulf reported, the combination of heat, humidity and flies engendered in most of the ship's company 'an irritable despair, which cannot adequately be described'.[42] In his detailed and highly critical report on 'The Psychiatric Aspects of Tropical Service in the Navy' (December 1945), Surgeon Lieutenant-Commander Kenneth Cameron, RNVR, psychiatrist to the Combined Services Hospital at Trincomalee, cited testimony given by a CPO Stoker from a destroyer and a PO Stoker from a submarine. Both petty officers reported observing a significant change among seamen who had served in the tropics for more than a year. They explained that a man became 'irritable with his friends, hates the sight of his mess-mates, pays no attention to what is said to him, and keeps to himself'.[43] Such behavioural change on the lower decks threatened to undermine the cohesion, discipline and fighting efficiency of a ship's company, but it also posed a much greater problem when arising on the upper deck. Shortened tempers and increased annoyance over slight matters constituted a matter of 'considerable importance' in officers, as 'excessive irritability in the head of a section is distributed in geometric progression through the whole unit'.[44] The profound social and disciplinary consequences of such 'repeated and powerful mental irritation' among naval officers on tropical duties were thus spelt out in uncompromising terms for the RNPRC's Habitability Sub-Committee.

Having assembled a rough clinical picture of emotional and behavioural markers of minor mental decline in sailors serving in tropical regions, the Navy's medical researchers turned their attention to the complex question of why disturbing (albeit unspecified) quantities of British naval personnel were apparently being struck down by this illness. In short, they concluded that the white British sailor did not feel 'at home' in the tropical outreaches of Empire. First and foremost, the hot climate itself was held culpable for this sense of alienation. The wartime British male body was conceived as 'environmentally sensitive', a fragile biological object that could be permeated and changed by climate and environment.[45] The fragility of the white sailor's body in relation to both dry and humid heat in tropical regions, and its attendant consequences for his mind, thus formed a major area of medical concern. Elements of the ferocious interwar debates

[42]M. Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part II. Lecture II', *British Medical Journal*, 1945, 2, 176.

[43]K. Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', Report for the Habitability Sub-Committee, December 1945, ADM 261/11, TNA, 5.

[44]*Ibid*., 5.

[45]E. Newlands, *Civilians into Soldiers: War, the Body and British Army Recruits, 1939–45* (Manchester: Manchester University Press, 2014), 116–18.

about the extent to which climate constituted the biggest cause of tropical neurasthenia continued to influence wartime medical writings on tropical neurosis in the Fleet. For Critchley, an individual's psychological response to the heat was intrinsically linked to predisposition, since perpetual exposure to dry or humid heat could 'exaggerate whatever psychiatric features already exist'.[46] Climate *per se*, he noted, may thus precipitate neurotic breakdown in 'certain predilected individuals'.[47]

Once again, the troubled concept of British acclimatisation to tropical climate was dragged out and dusted off to explore the biological possibilities and limitations of the white European's ability to confront tropical heat. However, the old colonial debates were given a new, modern twist by the Navy's wartime medical branch. In the early–mid 1940s modernity, in the form of naval scientific and technological progress accompanied by wider social change, was identified by wartime British naval doctors as both an active and passive causal factor in white mental disintegration at sea in the tropics. Unlike in peacetime, wartime sailors serving afloat were required to undertake lengthy and often indefinite spells of operational service at sea, living and working in increasingly unhealthy conditions in the Navy's ageing fleet of warships. Critchley and Holling militantly reported that the health of sailors in hot climates was detrimentally impacted by the exigencies of modern naval warfare, particularly with regard to poor ventilation.[48] Modern damage control systems at sea were identified as a key factor in inadequate ventilation below decks. When a ship went to action stations or entered potentially dangerous waters, air- and water-tight compartments were sealed and regulations forbade their opening under any circumstances. The medical officers reported that these stringent wartime damage control systems meant that ventilation suffered drastically throughout the ship. In some compartments, such as the magazines and shell-handling rooms, air circulation ceased altogether. The nightly blackout further blocked cooling drafts of air and raised temperatures within the ship. Additionally, advances in martial technologies required more specialist communications, navigation and radar equipment and weapons systems. Increasing complements of men to operate the new technologies were crammed into ships which had not been designed to accommodate that degree of manpower or gear. For instance, the size of crew carried in the battleship HMS *Ramilies* had increased from 950 to 1,550 by early 1944.[49] At action stations, working spaces such as gun turrets, radar and wireless cabinets and transmitter stations became 'grossly congested'.[50] These temperature and ventilation problems caused by increasingly dangerous overcrowding of bodies and equipment were further exacerbated by the wild heat released by the new machinery on board which could make conditions on tropical service almost unbearable.

Yet the Navy's wartime medical researchers were far from enthusiastic advocates of modern technological solutions that might combat the physical and psychological effects of heat. Air-conditioning became a site of especial contention. Critchley proposed that its installation in a warship would mean the 'sacrifice' of some part of existing offensive or defensive equipment and 'fighting efficiency would suffer', in effect

[46]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 209.
[47]*Ibid*., 210.
[48]Critchley and Holling, 'Report', 10–21.
[49]*Ibid*., 10.
[50]M. Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part I. Lecture I', *British Medical Journal*, 1945, 2, 146.

claiming that air-conditioning technologies could endanger the lives of sailors afloat.[51] Further concerns were expressed that air-conditioning might create ill effects including sailors experiencing 'cold-shock' phenomena through moving rapidly between hot and artificially cooled parts of the ship; increases in upper respiratory diseases from recirculated air; and potential alterations to the virulence of droplet infections and sailors' immunities.[52] An even bigger threat, to Critchley's way of thinking, was the potential risk that air-conditioned spaces might interfere with processes of acclimatisation. Similar concerns were also expressed in relation to air-conditioned living and working spaces ashore. Air-conditioning was thus medically framed here, not as the saviour of white health, but rather as a potential risk to whatever measure of acclimatisation remained possible for the white British sailor fighting in the tropical corners of Empire.

Despite targeting climatic temperatures and modern technological progress as leading causes of white mental deterioration in the tropics, the Navy's medical research teams strongly advocated that other, interconnected, factors also played an important role in the development of tropical neurosis afloat and ashore. 'Home worries' pertaining to domestic or financial issues were recognised as a major aetiological factor in the development of minor mental illness among white British sailors.[53] Wartime naval medics also acknowledged that separation from home and former ways of living, exacerbated by the restrictions and regimentation of unfamiliar Service life, posed an especially acute risk to the mental health of naval personnel in the tropics. Within the broader 'emotional economy' of Britain's wartime Navy, expressions of emotions including anxiety, grief or anger were regarded as problematic behaviours which had to be managed carefully in order to avoid disruption to collective morale and wartime efficiency.[54] Extremes of climate were identified as important factors in destabilising the naval 'economy of emotions', with the climate being held largely—albeit not entirely—culpable for throwing the Service's 'emotional economy' into a distinctive recession across the tropics. The Navy's medical research teams shared a view that serving in tropical climates was highly detrimental to the emotional stability and self-control of white British sailors, causing harmful feelings of homesickness, alongside irritability and isolation, to overwhelm more positive feelings of friendship, self-care and pride in one's work.

The clinical picture of climate-induced nervous and mental decline in the tropics drawn by the Navy's wartime medical experts was complex and multi-layered. Adamant that the climatic environment did result in a special form of disorder in the tropics, Critchley and Holling also connected their diagnosis to a distinct 'nostalgic reaction' experienced by naval victims of the condition. They argued that the form of neurosis experienced by sailors in tropical regions was characterised by 'hysterical features' that were 'motivated by a strong if thinly veiled desire to return home'.[55] To some extent, these two doctors tapped into much older colonial medical paradigms that framed nostalgia as an infectious, pathological problem that could cause insomnia, anorexia, self-mutilation,

[51]*Ibid.*, 147.
[52]*Ibid.*, 147.
[53]D. Curran, 'Discussion on Functional Nervous States in Relation to Service in the Armed Forces', *Proceedings of the Royal Society of Medicine*, 1943, 36, 255.
[54]L. Noakes, *Dying for the Nation: Death, Grief and Bereavement in Second World War Britain* (Manchester: Manchester University Press, 2020), 4.
[55]Critchley and Holling, 'Report', 126.

insanity and even suicide. At root, as Thomas Dodman explains, clinical nostalgia may be viewed as a form of social 'disembedding'.[56] Although improbable that the Navy's doctors would have described the condition in Dodman's terms—'a medicalized, emotional reaction to the experience of being "lifted out" of a localized, dense network of social relations and exposed to new spatial and temporal regimes'—they certainly recognised that transplanting British sailors into an alien and hostile tropical environment presented fundamental emotional reactions that could quickly turn into medical problems.[57]

The late-wartime Navy's diagnosis of nostalgia and homesickness in tropical regions was rooted in wider social and cultural shifts in Britain. Mary Conley has shown how, by the start of the twentieth century, naval men became cast as 'symbols of respectable British manhood celebrating their duty to nation and empire and their devotion to the family'.[58] After the First World War, further new articulations of a modern, domesticated civic masculinity emerged which prized attachment to home and family. When Britain went to war again in 1939, these ideas became embedded into what Sonya Rose identifies as a hegemonic 'temperate' masculinity in which British military servicemen were portrayed as 'ordinary', good-tempered, decent and home-loving in direct contrast to the hyper militarism of the Nazi soldiers.[59] In a war of mass conscription into the fighting services, British men were encouraged to accept military service by being repeatedly told that they were fighting to save their homes and loved ones. Like its sister services, the wartime Navy thus recruited from a pool of citizen conscripts in whom the love of home and family had been deliberately propagated. Having worked so hard to root the white British sailor at the centre of overlapping models of civilian and naval domestic manhood, the Navy had arguably stored up problems for itself during the Second World War. Prizing the modern, home-loving conscripted citizen sailor out of his domestic shell and packing him off on lengthy, uncertain spells of service in the far-distant tropics severely increased the risk that intense feelings of homesickness, fears for the safety of loved ones and residences back in the UK, and anxiety about romantic and family relationships would impact sailors' mental health. Sailors missing home was hardly a new problem in the history of the Royal Navy, but as the medical writings of Critchley et al. demonstrate, the imperatives of fighting to shore up British imperial power and possessions on multiple fronts around the globe necessitated new attention to the psychological threats that foreign service in tropical regions posed to the health of the Fleet.

Diet was particularly linked with emotive associations of home in the Navy. Poor diet was explicitly identified as an aetiological factor in the development of tropical neurosis. At sea, bread spoilage due to 'ropey bread' was found to be a common problem across the tropics since many ships' bakers had little knowledge of how to prevent or remedy the bacterial spores which caused enzymes in the bread's starch to change and produce a rotting sweet aroma in warm and humid weather. Owing to the activation of mould or other thermophilic organisms when cans were stacked in the open air, certain tinned

[56]T. Dodman, *What Nostalgia Was: War, Empire and the Time of a Deadly Emotion* (University of Chicago Press, 2016), 11.
[57]*Ibid.*, 11.
[58]M. Conley, *From Jack Tar to Union Jack: Representing Naval Manhood in the British Empire, 1870–1918* (Manchester: Manchester University Press, 2009), 3.
[59]S. Rose, *Which People's War? National Identity and Citizenship in Wartime Britain 1939–1945* (Oxford: Oxford University Press, 2003), 159.

foods such as condensed milk, tinned potatoes and bully beef, or cheese wrapped up in tinfoil, were also apt to deteriorate. Furthermore, a lack of familiar diet was also found to pose a risk factor to British sailors. Critchley and Holling found that the 'average' British rating showed a 'peculiar conservative taste in food' which exacerbated considerable difficulties in distribution and supply.[60] However hot the climate was, British sailors exhibited a strong preference for eating roasted meats and boiled puddings. Yet meat was not always easy to come by or to store. In the Persian Gulf, for example, it was only possible to obtain chilled meats for a few days per month in ships after the arrival of a store ship from Bombay. Potatoes were also demanded by the British sailors despite problems with freshness and supply, with rice proving a deeply unpopular alternative. Types of local vegetables including okra, aubergine and bread fruit were summarily dismissed by sailors as 'n****r's food'.[61] The April 1944 report recorded that this widescale dietary 'conservatism' caused acute health problems throughout the Navy's tropical living and working conditions, since the British sailor's preference for the taste of home in his everyday diet was too rich to adequately nourish his digestive system in tropical climates.[62] In addition to causing emotional problems associated with feelings of digestive discomfort, constant disruptions to the supply and freshness of the sailor's preferred foods also created feelings of discontent which were considered to contribute to wider processes of mental decline.

A plethora of additional bodily discomforts and minor somatic illnesses were also identified as exerting a cumulative, demoralising effect on the sailor's mental wellbeing. Naval personnel serving in the tropics frequently suffered from ailments associated with disordered sleep, fatigue, perpetual sweating, skin irritations, diarrhoea and flies. With regard to the latter, out in open waters, sailors suffered far less than their shore-based counterparts from airborne disease-carrying pests such as flies and malarial mosquitos. Naturally, though, as soon as they made port, they were exposed to the local insect life again. Significantly, within the aetiology of tropical neurosis in the Navy, late-wartime medical writings identified large quantities of insect life in tropical regions as a particular corrosive to white mental resilience and emotional wellbeing ashore. Cameron recorded that infestations of insects of 'gross and unseemly build' threatened the emotional equilibrium of British naval personnel, warning that the 'disgust' engendered by these insects constituted a 'potent source of stress'.[63] Critchley and Holling also reported that such pests constituted 'an appreciable source of reduced efficiency' in tropical regions.[64] This investment of peculiarly emotive qualities in tropical flies and bugs in these medical writings reveals a rare slippage between the professional objectivity and emotional subjectivity of the authors. Frequently written in something of an anthropological style, these medical reports described the character, behaviour and feelings of the British sailor abroad in highly generalised terms. Yet this shared empathy over the despised tropical insect life offers a fleeting glimpse of a more intimate connection between the Navy's elite medical research teams and the naval personnel whom they interviewed.

Wartime naval medical writings also identified the white British sailor's living and working conditions in close proximity to the indigenous populations and colonial troops

[60]Critchley and Holling, 'Report', 70.
[61]*Ibid*., 70. Author's asterisks.
[62]*Ibid*., 70.
[63]Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', 2.
[64]Critchley and Holling, 'Report', 111.

who were mobilised to aid the war effort as a significant contributory factor to tropical mental deterioration. Employing conventional late-nineteenth- and early-twentieth-century stereotypes of 'martial race theory' and 'seafaring race theory', the Navy's medical research teams racially categorised groups of indigenous people in order to evaluate how much of a threat they might pose to the physical and mental health of British naval personnel in the tropics.[65] After taking passage across the Gulf of Hormuz in HMIS *Madras* and visiting HMIS *Amritsar* to observe living and working conditions in the RIN, Critchley and Holling were full of praise for the 'keenness and good type of the Indian ratings, who… respond in a most satisfactory way to the discipline of a uniformed service'.[66] Long-standing racialised hierarchies were drawn upon as a means of evaluating utility versus risk factors in the personal characters of indigenous communities in service alongside British-born naval personnel. Of the Kroo ratings recruited into local naval service in West Africa, for example, Critchley and Holling recorded that 'though cheerful, friendly and more likeable than most Indian or Cingalese lower classes', the West African seamen possessed 'certain inherent defects, i.e. lack of moral responsibility; and laziness'.[67] Racialised perceptions of defects of personal habits and character among non-white populations ashore explicitly underpinned discussions of tropical neurosis in the writings of British neuropsychiatrists between 1943 and 1945. For instance, Surgeon Lieutenant-Commander Cameron asserted that differences in nasopharyngeal hygiene among populaces east of Suez contributed to mental stress since the 'raucous hawking and spitting' of locals triggered revulsion in British personnel.[68] Broader categorisation of 'uncivilised' behaviours among indigenous tropical residents also dominated the 1944 report of Critchley and Holling, who recorded that 'constant association with coloured folk and an ever increasing irritation at their inexplicable habits of sloth, deceit and evasiveness' featured clearly in the aetiology of white British mental deterioration.[69] A strong sense of the colonial concept of the 'white man's burden' thus pervaded naval medical discussion of the aetiology of tropical neurosis between 1943 and 1945.[70] Despite the British government's propaganda of an 'imperial family' fighting the Second World War, white racial grievances were continually identified and legitimised in wartime British naval medical writings as a leading cause of poor mental health among naval personnel serving in tropical regions.[71]

Prevention and Treatment of Tropical Neurosis

Options for treating British naval cases of tropical neurosis were distinctly limited and usually involved attempts to separate the patient from his immediate environment and its attendant ills. Recommended treatments thereby focussed on ensuring that

[65]H. Streets, *Martial Races: The Military, Race and Masculinity in British Imperial Culture, 1857–1914* (Manchester: Manchester University Press, 2004); D.O, Spence, *Colonial Naval Culture and British Imperialism, 1922–67* (Manchester: Manchester University Press, 2015), 6–7.

[66]Critchley and Holling, 'Report', 90.

[67]*Ibid.*, 92.

[68]Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', 2.

[69]Critchley and Holling, 'Report', 127.

[70]A phrase which was popularised in Rudyard Kipling's poem, *The White Man's Burden* (1899). This concept was rooted in a belief in the moral duty of white people to bear the 'burden' of administering to non-white colonial societies.

[71]For detailed discussion of the multifaceted trope of an 'imperial family' in British propaganda, see W. Webster, *Englishness and Empire 1939–1965* (Oxford: Oxford University Press, 2007).

sufferers, or those identified as being at immediate risk of developing the condition, received good food, plenty of rest, exercise and periodic leave in 'equable and agreeable environments'.[72] The wartime RNMS continued to adhere to older environmental remedies for tropical nervous disorder which placed unbounded faith in the hill station or coastal resort as sites of respite and recreation for white Europeans.[73] Lack of these amenities in some locations was recognised as a highly problematic factor. Freetown in Sierra Leone was particularly castigated for its 'totally inadequate' rest facilities. Leicester Peak, which was one of the closest rest camps, could only accommodate 10 officers and 21 ratings at a time. Other stations, including Ceylon, were far more successful in their provision of care and respite for struggling sailors. More than 29,000 ratings were granted leave to be taken in the hillier, cooler climates of Ceylon prior to December 1943, while a rest camp high in the hills at Diyatalawa was rated 'good' by Critchley and Holling.[74] Local tea planters also welcomed naval personnel on leave into their bungalows for a spell of rest and cosseting, which helped to restore a sense of physical and mental equilibrium to men showing signs of strain. Staunch advocates of the 'up-country' cure, Critchley and Holling recommended that all junior officers and ratings who were sent to the tropics should be given as much leave as possible in rest camps, farms, plantations or hill stations where cooler and fresher air prevailed.

While the hill station remedy belonged to a nineteenth-century battery of treatments for physical and mental deterioration in the tropics, naval medical recommendations also reflected a wider culture shift in wartime British military medicine. Enemy action was no longer identified as the leading cause of anxiety states in servicemen. By 1943, Army doctors in North Africa had come to believe that sheer exhaustion and erosion of psychological resilience in an alien climate played a key role in the production of neuroses in soldiers. In the same year, the Navy introduced the clinical category 'Fatigue' as an honourable way of recognising the increase of stress-related disorders in men who possessed otherwise good service records. The Navy's chief psychiatric consultant, Surgeon-Captain Desmond Curran, RNVR, also advised that medical officers should be aware that operational strain was a far less important factor in the build-up of anxieties and neurosis in naval personnel than environmental and domestic factors.[75] Altogether, a new landscape of British military medicine emerged in the middle war years in which short periods of leave for rest and recuperation were embedded into Service mental healthcare systems, with the objective of returning minor neuropsychiatric cases to duty as fast as possible.

With limited therapeutic care options, the RNMS's fundamental approach to tropical neurosis during the Second World War was predicated on a belief that early-stage prevention and intervention were infinitely preferable to treatment. Improved recruitment and selection procedures were highly recommended as prophylactic measures among sailors deployed on tropical service, where the general threshold to mental decline was viewed as much lower than elsewhere. Even 'the stable man', wrote Cameron, 'develops

[72]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 210.
[73]Kennedy, 'The Perils of the Midday Sun', 119.
[74]Critchley and Holling, 'Report', 132–33.
[75]D. Curran, 'Operational Strain: Psychological Casualties in the Royal Navy', in Tidy and Browne Kutschbach, *Inter-Allied Conferences on War Medicine*, 233.

anxiety reactions after an uneventful term in the tropics'.[76] Extremes of climate and interconnected environmental factors were considered most likely, however, to precipitate neurotic or even psychotic breakdown in 'certain predilected individuals'.[77] From a medical perspective, the distinction between suitable and unsuitable candidates for naval service widened substantially with regard to selection principles for tropical service.[78] The Navy's medical experts insisted that more stringent selection procedures held the key to preventing the onset of tropical neurosis and other mental disorders in the tropics. A critical shift had occurred throughout much of British military psychiatry during the Second World War, promoting a new cognisance of the fact that every person had their own breaking point. Nevertheless, the Navy's neuropsychiatrists remained firmly attached to the belief that some personality types, products of predisposing hereditary or upbringing factors, meant that certain men were more likely to develop neurosis and were 'not worth taking at all no matter what the man-power position may be'.[79] From the perspective of preventing epidemics of tropical neurosis, it was viewed as infinitely preferable to weed out such individuals long before they reached hot climates.

In mid-1941, the Navy brought increased psychological expertise in-house to implement a new system of preliminary screening designed to detect recruits whose history of mental health instabilities rendered them unsuitable for general service.[80] Towards the end of the war, the Navy's neuropsychiatrists advised in the strongest of terms that the Service should exercise still more rigorous processes of selection for drafting to the tropics in terms of personality—defined as the 'product of the constitution and experience' of an individual—and levels of intelligence.[81] Those of 'poor' intelligence or educational resources were perceived as unable to adapt psychologically to the boredom of tropical appointments. Previous history of both severe and minor mental health problems was also regarded by naval neuropsychiatrists as grounds for medical elimination from tropical service. An expanded set of recommended guidelines highlighted multiple health and personal history factors which doctors argued should disqualify men from deployment to the tropics. Men suffering from psychopathic disorders were to be instantly ruled out, on the grounds that these individuals did not 'withstand the hardships of tropical service as well as those of a placid and equable disposition'.[82] The Navy's neuropsychiatrists also advised debarring men who had previously been hospitalised for severe neurotic breakdown, plus a majority of those who had received treatment from localised medical officers for nervous disorders. Similarly, any alcoholic tendencies should be regarded as 'an absolute contraindication' to tropical service.[83] Defaulters were also viewed as psychologically unfit for tropical service, while ratings with a bad criminal record either in service or civilian life were 'very unwelcome' in the tropics since they 'deteriorate, and serve as sources of disaffection'.[84] Medical opinion in 1944 and 1945 thus recommended stricter medical examination and elimination when drafting men to the tropics who would otherwise be regarded as on the borderline for acceptance for naval service in the UK and home waters.

[76]Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', 4.
[77]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 210.
[78]*Ibid.*, 210.
[79]Curran, 'Discussion on Functional Nervous States', 256.
[80]Coulter, *The Royal Naval Medical Service*, vol 1, 150.
[81]Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', 4.
[82]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 211.
[83]*Ibid*.
[84]Critchley and Holling, 'Report', 129.

Physiological factors were also interlinked with a predisposition to psychological breakdown in tropical climates. Age was identified as a contraindication, since elderly bodies did not tolerate extremes of temperature as well as younger persons, although a certain degree of naval medical relativism was employed to distinguish the meaning of 'elderly'. In this context, an upper age limit of 35 or even 30 was suggested for future drafting to the tropics.[85] Body mass and shape were also factored into recommendations for medical selection for tropical service. According to Critchley, men of 'pyknic habitus' were less well able to tolerate humid tropical conditions than those who were either tall and lean or possessed slighter frames. Skin pigmentation was also cautiously identified as a source of potential concern, with some degree of relationship noted between an individual's skin pigmentation and apparent tolerance towards tropical life. Persons who were of 'excessive' or platinum blondness were to be treated as 'doubtful candidates' for the tropics, while red-headed ratings were 'suspect by virtue of their cutaneous intolerance towards the sun's rays'.[86] Nevertheless, Britain's wartime navy continued in its preference for recruiting white sailors.

These writings also communicate a strongly racialised sense of medical crusade to prevent physical and psychological health threats posed to white British men by shared tropical inhabitancy alongside so-called 'native' civilians and military troops. Like the British army, the Navy's medical branch sought to safeguard the health of British men by keeping them spatially separate from indigenous 'other' bodies which were regarded as reservoirs of infectious disease and purveyors of poor hygiene.[87] Arguing that a 'fact that many natives are typhoid or dysentery carriers is disturbing', Critchley and Holling advocated increased British medical policing of spheres of indigenous presence and activity across the Navy's tropical endeavours.[88] Highlighting close spatial proximity to the living and working quarters of colonial peoples as a major risk factor to white naval health, they warned, for example, that in East Africa there was no 'strong or consistent policy with regard to the segregation of native personnel' outside the confines of naval camps and establishments. The medical officers did not offer any guidance of their own on acceptable levels of geographical intimacy with colonial persons. In East Africa, they reported that part of RNAS Puttalam was situated within a quarter of a mile of 'native habitations'; Tanganyika Police and East Africa Military Labour Service personnel slept within the confines of R.N.A.S. Tanga; and Nigerian 'coloured troops' were placed in an Army camp next to a naval barracks in Lagos where 'there is some difficulty in keeping their families away'.[89] Despite the different geographical circumstances and proximities in each of these cases, the 1944 report conveyed a strong message that British naval personnel ought to be stationed as far away as possible from colonial bodies to ensure greater health safety. Although this report acknowledged that there were difficulties in enforcing complete segregation of British naval personnel from the disease threat of native bodies, it identified 'a widespread political movement for recognition of the "equality of the African"' as particularly significant in shaping this unsatisfactory situation.[90] Warning that political 'rejection of anything savouring of discrimination or

[85]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 210.
[86]*Ibid*.
[87]Newlands, *Civilians into Soldiers*, 116–17.
[88]Critchley and Holling, 'Report', 113.
[89]*Ibid*., 98.
[90]*Ibid*., 96.

colour-bar' risked the health and wellbeing of British men in East Africa, this slippage from medical concerns into race politics shows an underlying awareness that Britain's imperial foundations were shifting and reads as an oblique expression of generalised anxiety for the future health of Empire.

British medical anxieties about white health in the tropics were also further expressed within a racialised framework of discussion about poor hygiene and sanitation among colonial personnel, construed by the Navy's medical experts as presenting a somatic health risk with follow-on emotional health risks for British sailors. The 1944 report noted, for instance, that across the tropics, native galley hands were rarely afforded the opportunity for washing, or micturition and defecation in a convenient place and extolled a number of health dangers associated with 'putting native hands either too near or too far from the galley'.[91] Low standards of hygiene combined with poor anti-insect precautions were singled out as particularly detrimental to the Navy's health equilibrium ashore, and a generally inadequate attitude towards anti-fly precautions was discovered in many tropical naval establishments. In addition to unrepaired holes in fly-proof netting, doors left open, and scarce use of muslin nets over exposed perishable food, the medical officers reported that tables and floors were often covered in layers of grease, vegetable peelings and garbage which offered a breeding and feeding ground for flies. The April 1944 report claimed that the fly problem which triggered such revulsion from Britons in the tropics was exacerbated by the presence of 'large numbers of native cooks and scullions' which ensured that 'a European standard' of cleanliness and tidiness was 'rarely maintained'.[92] Alleviating shortages of 'European cooks' in the tropics was identified as a key measure through which hygiene might be improved:

> It is highly desirable that the ratio of R.N. to native cooks should be increased. Only in this way is it possible to control the dirty habits of most Asiatics (Africans are clean but require better access to soap and water; to eradicate flies (and hence dysentery).[93]

Shielding the white sailor's body against major and minor illnesses resulting from poor hygiene, sanitation and tropical diseases was identified as a critical intervention to help ward off the development of neurosis. But wartime British medical officers in the tropics also sought out forms of non-medical mental and emotional prophylaxis for their charges. In particular, they emphasised the vital importance of averting the breakdown of mental health in climatic extremes by providing recreational amenities to boost the spirits and occupy the leisure time of sailors in the tropics. By the middle of the war, recognition of the importance of establishing places where the British serviceman abroad might spend his leisure time such as dance halls, cinemas, sports facilities and bars was well entrenched in British service culture across the armed forces. Nevertheless, as Critchley and Holling observed, there was considerable room for improvement in the provision of naval amenities ashore, noting that Freetown and Trincomalee held a particularly bad reputation among sailors due to their lack of facilities for physical and mental recreation.[94] Boredom was a problem for all military institutions, but the condition represented an especially acute enemy of good mental health in the tropics where

[91] *Ibid*., 112.
[92] *Ibid*., 112.
[93] *Ibid*., 73–74.
[94] *Ibid*., 133.

resultant negative feelings of isolation, aimlessness and depression were exacerbated by acute environmental discomforts.

Lack of suitable female company was heavily emphasised as a factor in levels of mental decline among sailors in the tropics, presenting 'a source of gloom'.[95] Since British naval executive and medical authorities remained on constant high alert about levels of venereal disease among sailors who visited local prostitutes in foreign ports, institutional forms of shore-based recreation in the tropics were heavily geared towards occupying men in physically and morally healthy ways to keep them out of the local brothels. Appointment of British Wrens to a port was found to exert 'a most healthy effect upon Naval morale in promoting friendships with English girls of the best type'.[96] Since the wartime WRNS largely recruited from the middle classes, clear assumptions of racial whiteness, social class and high morals combined to produce this archetype of 'the best type' of female company for British sailors far from home. Wartime naval medicine thus framed white British women as vital prophylaxis against male mental deterioration, venereal disease and the distinctive threats that interracial sex with local prostitutes represented to the racial order in the tropics.[97]

Medically weaponising a gender double standard, women were also frequently cited in wartime British naval medical writings as causative factors in the production of anxiety neurosis. Better systems to ensure regular provision of mail from home proffered a practical way of reducing the emotional distress of sailors who were worried about their families or anxious about the fidelity of wives and sweethearts. However, receipt of troubling news of home could stoke feelings of anxiety and distress. The Navy's wartime medical branch had been swift to recognise emotional disturbance produced by domestic worries as a key cause of anxiety states and neurosis during the early war years but the problem was magnified for sailors serving far away in tropical regions. Planning for the post-war era highlighted the significance of wartime lessons learned about connections between domestic concerns and mental health in the tropics. Cameron advocated that the post-war Navy should implement more flexible and generous official procedures for awarding short terms of leave in cases of compassionate grounds or family problems in the tropics. He proposed formalising an emotional hierarchy of situations in which a medical or commanding officer might exercise their judgement in awarding short-term leave, which identified the 'threatened infidelity of a wife' and 'delinquency' of a child as far more important than so-called 'sentimental grounds' of attending the deathbed of a near relative.[98] Explaining the wider importance of devising new ways of dealing with the family situations of ratings in the tropics, Cameron noted that 'one broken home shakes the confidence of every man in the mess-deck'.[99] Critchley also firmly encouraged the building of a 'complete welfare service in the fullest sense of the term' to support the comfort, spirits, interests and morale of naval personnel on deployment in the 'exceptional circumstances' of tropical service.[100] By the end of 1945, the naval medical branch's message was unequivocal. As a new and uncertain post-war era dawned for

[95]*Ibid.*, 137.
[96]*Ibid.*, 137.
[97]Although never explicitly stated in these reports, prevention of homosexuality may also have been a factor in medical encouragement of white female company for sailors on tropical service.
[98]Cameron, 'The Psychiatric Aspects of Tropical Service in the Navy', 7.
[99]*Ibid.*, 7.
[100]Critchley, 'Problems of Naval Warfare Under Climatic Extremes: Part III. Lecture II', 210.

Britain as an imperial nation, major reforms with a concentrated focus on sailors' mental health and emotional wellbeing were vital if British naval health, efficiency and power across the tropical world were to survive.

Conclusion

After the Second World War, diagnoses of tropical nervous disease dropped out of popularity. Various explanations for this fading away of climatic anxieties throughout the second half of the twentieth century have been proffered. These include advances in scientific and medical knowledge; widescale discrediting of the Darwinian theories of race and biology that propped up the climatic debates; and the Second World War's pulverising impact upon empires, which displaced much of the contemporaneous social and political need for climatic models to explain and alleviate tropical risks to white mental health.[101] Equally, as an article published in *The Lancet* in 1946 reminded, from a psychological perspective, it still remained uncertain that tropical nervous illness even constituted a 'definite clinical entity'.[102] Nevertheless, as this commentator noted, the latest edition of a standard medical textbook [P. Manson-Bahr, *Manson's Tropical Diseases*] continued to contain marked references to possible causes of tropically induced psychoneurosis.[103] Likewise, in his study of the British counter-insurgency in Malaya, Thomas Probert finds evidence of surviving diagnoses of tropical neurotic disorder in the British Army as late as 1949–50.[104] Traces of medical anxieties and existential queries about the disease profile and risks of tropical nervous and mental illness thus lingered on in British medical discussion and education throughout the uncertainties of the early post-war years.

Prior to the eventual decline of tropical neurasthenia/neurosis as a clinical category, however, there was an acute period spanning 1943–45 when the Navy frantically sought better-informed medical diagnosis and approaches towards an epidemic of perceived and actual minor mental and nervous decline among British sailors throughout the tropics. From 1943, increasing anxieties about Fleet standards of health in relation to the successful prosecution of the Second World War against the Japanese and the long-term retention of British colonial power in its tropical possessions led to the deployment of a number of medical research missions to South-East Asia and the Far East, as well as to other tropical regions across Africa and the Middle East. Briefed to produce more qualitative and comprehensive understandings of the effects of heat and environment on naval living and working conditions throughout the tropics, the Navy's leading experts in neuropsychiatry and physiology generated multiple reports and writings extolling the assumed causes and dangers of tropical neurosis. The recommendations of Critchley, Holling and Cameron towards diagnosis, prevention and treatment of the condition amalgamated different layers of historically contingent medical discourses and beliefs. This article has shown how British naval wartime medical repertoires blended pessimistic late-nineteenth and early-twentieth-century environmental determinism with contemporary concern about the health risks of mid-twentieth-century naval modernity.

[101]Kennedy, 'The Perils of the Midday Sun', 132–36.
[102]'Tropical Neurasthenia and the Effects of Heat', *The Lancet*, 1946, 247, 468.
[103]*Ibid*.
[104]T. Probert, 'Psychiatric Casualties and the British Counter-Insurgency in Malaya', *Small Wars & Insurgencies*, 2021, 9.

Modern naval technologies and methods of fighting the Second World War at sea in tropical theatres of battle were framed as substantive health burdens for the British sailor, while modern advances in apparatus to mitigate the effects of the heat, such as air-conditioning, came under medical suspicion of inflicting further damage upon the health of the Fleet. Wartime naval medical repertoires were also constructed out of a set of deep-rooted racialised and gendered ideas and discourses. British naval medicine during the Second World War continued to locate women, indigenous civilian peoples and non-white colonial troops as significant factors in the mental decline of white British seamen on tropical service. Maintaining a priority focus on white male British mental health in the tropics, the wartime naval medical gaze advocated greater surveillance, stereotyping, policing and segregating non-white colonial bodies and behaviours in order to protect the Navy's wellbeing and operational efficiency.

Between 1943 and 1945, the RNMS's quest to pinpoint the causes of tropical nervous and mental deterioration revealed a new, more holistic, medical focus on the interconnectedness of mind and body. Naval medical experts despatched to investigate the health effects of living and working conditions in the tropics paid close attention to the ways in which minor environmental physiological discomforts and illnesses fed into the production of nervous and mental disorder. In particular, the writings generated by these research missions demonstrate heightened medical awareness of the role that emotions played in the deterioration of British sailors' health on tropical service. Extremes of climate were acknowledged as playing a critical role in destabilising the equilibrium of an 'economy of emotions' within the Navy, creating and exacerbating harmful feelings of boredom, irritation and anxiety among sailors that undermined both health and morale. Wartime naval medicine also registered a new recognition of the impact of domestic worries upon the emotional and mental health of British sailors deployed to far-away tropical stations.

In much the same way as Carroll's fabled 'Snark' was ultimately unmasked as a 'Boojum', a real and highly dangerous being, some senior officers within the Royal Navy's Medical Service were thus confident that they had located in tropical neurosis a clear and present danger to the health and efficiency of imperial Britain's tropical naval personnel and enterprises. However, the question of what do with the Navy's very own medical 'Snark' once it had been caught remained challenging. Recommended medical interventions remained geared towards prophylaxis rather than cure. Revised methods of selection and recruitment, increased use of psychological expertise and improved welfare systems were all endorsed as mechanisms to ensure that future intakes of British sailors would be better able to withstand the physiological and psychological vicissitudes of tropical service. As historian Ashley Jackson observes, the Second World War 'holed the British Empire below the waterline'.[105] To extend Jackson's metaphor, the RNMS's increasingly anxious efforts to hunt down tropical psychoneurotic illness in British sailors between 1943 and 1945 constituted a last-ditch effort to plug the slowly sinking ship of empire, striving to buy time to salvage the remnants of imperial power in the tropics in the immediate wartime present and the transition to an uncertain post-war future.

[105]A. Jackson, 'The British Empire, 1939–1945', in R. Bosworth and J. Maiolo, eds, *The Cambridge History of the Second World War*, vol 2 (Cambridge: Cambridge University Press, 2015), 577.